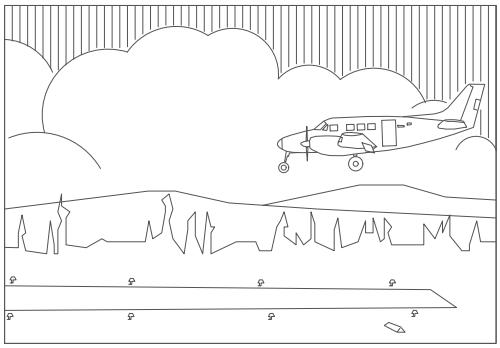
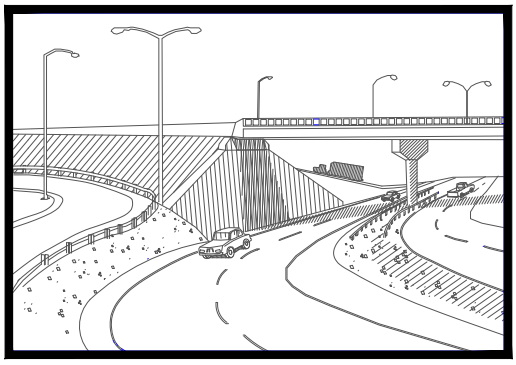
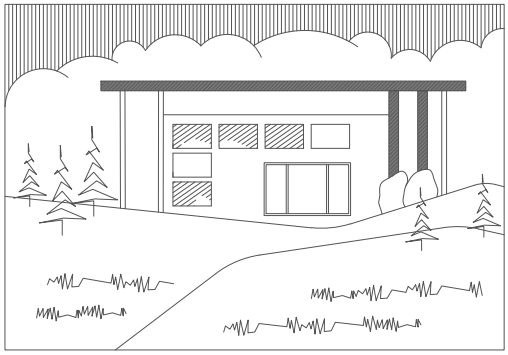
Geotechnical Report

PARKS HIGHWAY MILEPOST 315-325 RECONSTRUCTION

PROJECT NO. Z606570000 FEDERAL NO. 0A45028







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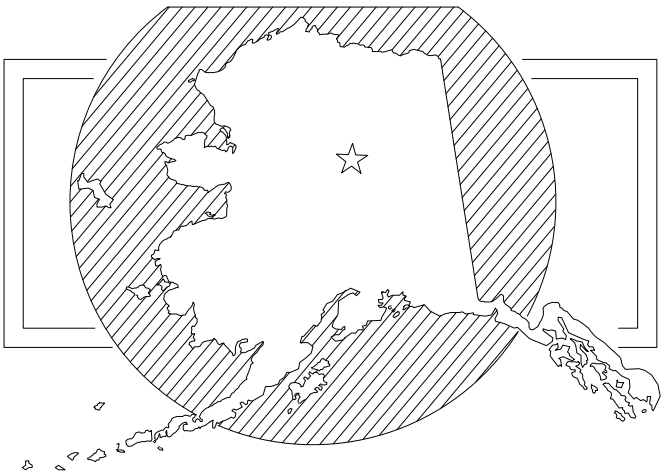
Department of Transportation and Public Facilities



NORTHERN REGION

JANUARY 2021

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PARKS HIGHWAY MILEPOST 315-325
RECONSTRUCTION
PROJECT NO: Z606570000
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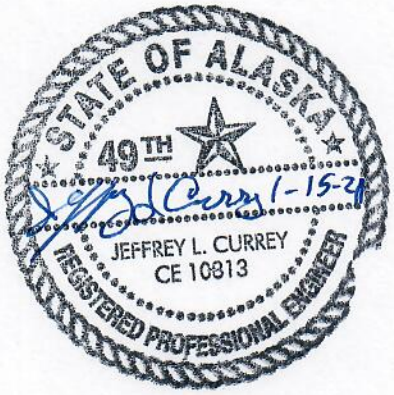

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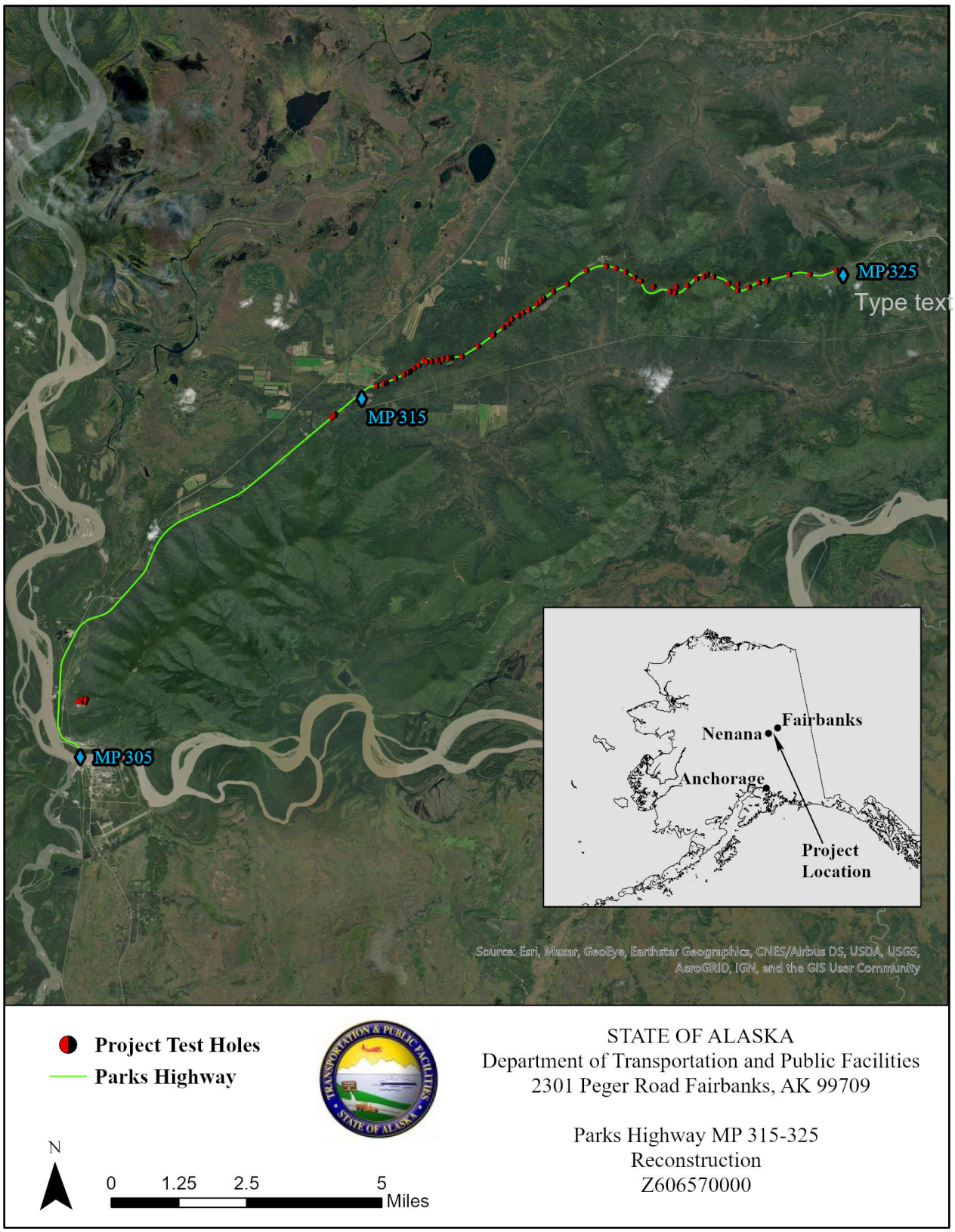

Figure 1. Project Location.

INTRODUCTION

This report documents physical site and subsurface conditions, provides interpretation of anticipated site conditions, and recommends design and construction criteria for the project. This report is intended to serve as a geotechnical guide during project design and a geotechnical reference during construction.

The Alaska Department of Transportation and Public Facilities (DOT&PF) is planning to reconstruct the Parks Highway from MP (Milepost) 315 to 325. Previously, the scope of this project was to reconstruct the highway from MP 305 to 325 and included construction of new passing lanes, major realignments involving deep cuts and fills, along with grade changes and drainage improvements. The scope of the reconstruction has been reduced to MP 319 to 325 and the replacement of the Little Goldstream Bridge near MP 315.
This report details a geotechnical investigation, performed in two phases, and includes information gathered before the scope of the project was reduced. Northern Region Materials Section performed drilling to gather subsurface information for realignments, grade raises, grade lowering, and passing lanes. A distressed area near MP 316 was investigated, along with a sinkhole located near MP 314. Rock coring was performed at the North Nenana Quarry to potentially locate material to use for this project. Geophysical surveys were also performed for deep cut realignments and the sinkhole. Geotechnical drilling for the replacement of Little Goldstream Bridge was also completed. The details and results of this part of the investigation can be found in a separate report.

SUMMARY

A total of seventy-five test holes were drilled for this investigation. Fieldwork was conducted between September 1 and October 12, 2019 and April 28 and May 7, 2020. The project scope has been reduced from originally including realignments, grade raises, grade lowering, the addition of passing/climbing lanes, and resolving issues with a distressed area and a sinkhole at MP. This original scope spanned from MP 305 to MP 325. Currently, the project scope includes a realignment and grade raise from MP 319 to MP 325. This summary is divided into three sections; a summary of the investigations performed within the current scope of the project, a summary of the data collected in areas that have been removed from the project, and a summary of the North Nenana Quarry Material Site investigation.

Station 1393+00 to 1687+00 (Current Project)

Twenty-seven test holes were drilled in this section; 3 realignment/cut, 2 at the base of areas where large cuts are to be made, 6 realignment/fill, 4 grade raise, and 11 shallow embankment. The cuts that are planned for the realignment are deep and located in the bedrock. These test holes were cored and samples were tested to determine whether this large amount of material is suitable for use in the project. The following summarizes these test holes:

Realignment/Cut (TH19-022 to TH19-024):

Three test holes were cored for this realignment where large bedrock cuts will take place. This bedrock consisted of muscovite and graphitic schist that was highly to completely weathered and weak to extremely weak. To assess the potential of excavation difficulty, a seismic refraction survey was performed where TH19-022 and TH19-023 were drilled. This survey suggests some uniformity of the bedrock conditions where cuts were to be made; however, the realignment has changed and there is the potential of encountering non-rippable material. Soil classifications performed on this highly weathered bedrock resulted in mostly silty sand with gravel with a couple samples resulting in a well-graded gravel with silt and sand. P200 contents of these samples ranged from 11.2% to 25.9%. Four samples were tested for quality and all four failed to meet specifications for crushable material. L.A Abrasion, Degradation, and Sodium Sulfate results ranged from 52% to 58%, 1 to 3, and 11% to 18%, respectively.

While drilling TH19-022 and TH19-024 (drilled September 2, 2019 and September 7, 2019, respectively), drill reaction suggested that a large fracture zone was encountered. An attempt was made to continue past this zone in TH19-022; however the core tooling became lodged and unable to remove. The water level from the water introduced during coring and the attempt to remove the tooling, as of October 23, 2019, had barely dropped. When this same drill reaction was encountered in TH19-024, drilling was stopped and a monitoring well was installed in the test hole. When initially read, there was 6.5 inches of water in the well. As of October 23, 2019, this level had only dropped by approximately 2.5 inches. On October 23, 2019, pressure transducers were installed in these test holes. Data from them was downloaded on May 29, 2020. The data showed that the water level in TH19-022 dropped approximately 15 feet, from 12 feet below the top of the casing to 27 feet. In TH19-024, water levels had dropped to below the bottom of the monitoring well.

A slope stability analysis was also performed on two of the bedrock cuts for this realignment. This analysis is detailed in the Slope Stability Analysis portion of this report.

Base of Cut (TH19-025 to TH19-026):

Due to the difficulties drilling TH19-022 and TH19-024 and the issues of the water levels not dropping after drilling was complete, two test holes were drilled at the base of these hills, off the shoulder of the highway, to see if shallow groundwater would be encountered. These test holes were drilled to 40 feet in depth and encountered 2 to 3 feet of fill overlying highly weathered bedrock. No groundwater was encountered.

Realignment/Fill (TH 19-027 to TH19-032):

These test holes encountered 2 to 6-inches of organic mat underlain by 3 to 9.5-feet of silt, sandy silt (with and without gravel), or silty sand with gravel. Highly weathered, micaceous and/or graphitic schist bedrock was encountered beneath the sand and silt overburden.

Grade Raise (TH20-010 to TH20-013):

These test holes encountered 2.5 to 3-inches of asphalt underlain by 2.75 to 3.25-feet of fill. The fill consisted of 1.25 to 1.75-feet of well- and poorly-graded gravel with silt and sand or well-graded sand with silt and gravel underlain by 1 to 2.5-feet of silty sand with gravel. Beneath the embankment 5 to 13.25-feet of silt or silt with sand was encountered overlying 5 to 7-feet of highly weathered micaceous and/or graphitic schist bedrock. Seasonally frozen ground was encountered in all test holes.

Shallow Embankment (TH20-001 to TH20-009 and TH20-014 to TH20-015):

These test holes encountered 2 to 5-inches of asphalt, 3-inches to 4.5-feet of well- and poorly-graded gravel with silt and sand, poorly-graded sand with gravel (and sometimes silt), or silty sand with gravel. This was typically overlying 6-inches to 3-feet of silty sand with gravel fill. Highly weathered schist bedrock was encountered at the bottom of several test holes.

Station 1687+00 to 1950+00 (Removed From Project)

Forty-one test holes were drilled in this section; 5 realignment/fill, 4 realignment/cut, 5 grade raise, 6 shallow embankment, 7 passing/climbing lane, 2 grade lowering, 6 in a distressed area, and 7 located where there is a sinkhole off the highway. The following summarizes these test holes:

Realignment/Fill (TH19-033, TH19-036 to TH19-038, and TH19-041):

These test holes encountered 2 to 3-inches of organic mat underlain by 6-inches to 40.25-feet of silt or silt with sand. All test holes except one encountered bedrock beneath the silt. The bedrock was highly weathered, graphitic or micaceous schist.

Realignment/Cut (TH19-034 to TH19-035 and TH19-039 to TH19-040):

These test holes encountered typically 2-inches of organic mat underlain by silt or silt with sand and highly weathered, micaceous and/or graphitic schist bedrock.

Grade Raise (TH20-027, TH20-030, TH20-033 to TH20-034, and TH20-036):

With the exception of one test hole that encountered bedrock directly beneath the embankment, these test holes encountered 1.5 to 2-inches of asphalt underlain by fill consisting of 1.5 to 2-feet of poorly-graded gravel with sand (and with and without silt) or poorly-graded sand with silt and gravel and 1.25 to 5-feet of silty sand with gravel. Beneath the embankment, 17.5 to 39 feet of silt was encountered. Several of these test holes encountered seasonally frozen ground.

Grade Lowering (TH 20-023 and TH20-032):

These test holes were drilled in an area of an existing large bedrock cut. Conditions of the exposed bedrock differed on each side of the highway, where adjacent to the northbound lane the

bedrock was very highly to completely weathered and near the southbound lane, large intact exposures of bedrock can be seen. One test hole was drilled in each lane to establish whether harder, more competent bedrock would be encountered where exposed in the road cut. Underlying 2 inches of asphalt the fill consisted of poorly-graded sand with gravel and silty sand with gravel. Highly weathered schist bedrock was found directly beneath the embankment. Seasonally frozen ground was found in TH20-023 in the bedrock which was completely weathered to a sandy clay soil. While both test holes encountered at least highly weathered bedrock, it is important to note that it is still possible to encounter harder, more competent bedrock.

Passing/Climbing Lane (TH20-018 to TH20-021, TH20-025 to TH20-026, and TH20-035):

These test holes were drilled in the roadway. Underlying 1.5 to 3-inches of asphalt, fill consisted of well- and poorly-graded sand with gravel (with and without silt) and silty sand with gravel. Highly weathered micaceous/and or graphitic schist bedrock, encountered in all test holes, was found directly beneath the embankment in TH20-018, TH20-020 and TH20-021. Other test holes encountered up to 14.5 feet of loose silt or sandy silt overlying the bedrock. Seasonally frozen ground was encountered in several test holes.

Shallow Embankment (TH20-016 to TH20-017, TH20-022, TH20-024, and TH20-028 to TH20-029):

Underlying 2 to 3-inches of asphalt, these test holes encountered 9-inches to 4.75-feet of well- or poorly graded sand with gravel (with and without silt) or poorly-graded gravel with silt and sand. This was overlying 2.75 to 4-feet of silty sand with gravel.

Distressed Area (TH20-031 and TH20-037 to TH20-041):

These test holes encountered 7-inches to 4-feet of asphalt with fill that consisted of well- and poorly-graded sand with gravel (with and without silt) and silty sand with gravel. Beneath the embankment, the silt was mainly loose and high in moisture. Permafrost was encountered in TH20-041 at 29.5 feet below ground surface (bgs). TH20-031 and TH20-041 took all auger cuttings and extra soil to backfill when drilling was complete. Seasonally frozen ground was encountered in all test holes.

Sinkhole (TH19-042 to TH19-047):

Two test holes were drilled in the highway where the road is exhibiting distress (TH19-042 and TH19-043). These test holes encountered 9 inches of asphalt, approximately 4.5 feet of fill (poorly-graded sand with silt and gravel, silty gravel with sand, and silty sand with gravel), and approximately 17 feet of moist to wet silt. The silt was medium dense beneath the embankment and became looser with depth. TH19-043 encountered frozen silt at 17.5 feet bgs.

Two test holes were drilled in the highway outside of the distressed area as controls (TH19-044 and TH19-045). These test holes encountered 3 inches of asphalt, 4.5 to 5 feet of fill (poorly-

graded sand with gravel and silty sand with gravel), and approximately 37 feet of moist to wet silt which ranged from very loose to medium dense. Frozen soil was not encountered in these test holes.

One test hole (TH19-046) was drilled directly in the sinkhole to a depth of 42 feet. Beneath the approximately 2.75 feet of fill that had been placed in the sinkhole, this test hole encountered moist to wet and wet silt with varying amounts of organics. The silt was loose to very loose. TH19-047 was drilled off the northbound side of the highway, across from a drainage that leads to a second sinkhole. This test hole was drilled to a depth of 37 feet and encountered very loose to medium dense silt with varying amounts of organics. The silt was moist to wet to 30 feet bgs and was then frozen for the remainder of the test hole.

North Nenana Quarry Material Site Investigation

Coring was completed at North Nenana Quarry which is located on Doyon Limited Lands, east of the Parks Highway at MP 306 on FAA Hill Road. Previous investigations have reported this quarry mainly consists of chloritic, calc-silicate schist and a low grade biotite-quartz gneiss. Test holes cored at this site encountered high variability in the material. The majority of the bedrock encountered was schist that contains various combinations of quartz, biotite, muscovite, talc, chlorite, and calcite. Five grab samples were obtained from existing material at this site. L.A. Abrasion, Degradation, and Sodium Sulfate Loss testing has been completed on these samples. Four of the five samples failed to meet specifications for crushable material. These tests were also performed on eight core samples obtained from drilling. Seven of the eight samples failed to meet specifications for crushable material. Bulk samples from each test hole were sent for testing for the presence of naturally occurring asbestos. One sample showed less than 0.25% of tremolite, a recognized type of asbestos.

PHYSICAL SETTING

Climate

The project site is located within the continental subarctic climatic zone of Alaska (Hartman and Johnson, 1984), characterized by short, warm summers, long, very cold winters, and low precipitation and humidity. Climate data for Nenana, Alaska was obtained from the Western Region Climate Center (https://wrcc.dri.edu) (Table 1). Air freezing and thawing indices were calculated based on data also obtained from WRCC. The air thawing index, or degree-days above freezing, can be used to calculate the depth of thaw during the year. The air thawing index listed below takes the annual thawing-degree-days (TDD) for the last thirty years and averages them. The design thawing index takes the average of the three warmest (highest) TDD over the last twenty-five years. Likewise, the air freezing index, or degree-days below freezing, can be used to calculate the depth of ground freezing during winter. The air freezing index listed below averages the annual freezing-degree-days (FDD) for the past thirty years. The design freezing index averages the three coldest (highest) FDD for a shorter period, 1986 to 2010, due to missing data prior to 1986. This data is summarized in Table 2.

Table 1. Climate Summary Data for Nenana, Alaska from 1981 to 2010.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	2.9	8.3	24.2	42.2	60.6	71.7	72.8	65.6	52.4	30.1	9.8	5.9	37.3
Average Min. Temperature (F)	-14.7	-12.4	-1.2	17.5	34.7	44.9	49.2	44.0	33.4	14.4	-6.2	-11.6	16.1
Average Total Precipitation (in.)	0.45	0.37	0.25	0.13	0.51	1.01	1.93	1.83	1.10	0.74	0.72	0.55	9.59

Table 2. Thawing and Freezing Indices for Nenana, Alaska.

Index	Value
Air Thawing Index	3261 Fahrenheit Degree-days[1]
Air Freezing Index	5429 Fahrenheit Degree-days[1]
Design Thawing Index	3752 Fahrenheit Degree-days[2]
Design Freezing Index	6334 Fahrenheit Degree-days[2]

1) Calculated from 1981 through 2010 daily average temperatures
2) Calculated from monthly average temperatures from 1986 through 2010 due to missing data prior to 1986

Physiography and Topography

The project is located in the Northern Plateau province called the Yukon-Tanana Upland (Wahrhaftig, 1965). The Upland is characterized by rounded ridges, with gentle side-slopes. Compact, rugged mountains are located in the western and eastern part of the Upland. Valleys are generally flat, alluvium floored, and one-quarter to one-half mile wide. Most streams follow the structural trends of the bedrock, which includes sharp bends and direction reversals around ridges and hard rock. The few lakes in the Upland are mainly thaw lakes in valley floors and low passes. Discontinuous permafrost underlies the entire Upland. There is active periglacial mass-wasting at high altitudes. Ice wedges and pingos are common in valley floors and lower hill slopes (Wahrhaftig, 1965).

Geology

The geology of the Yukon-Tanana Upland in the vicinity of the project site is mainly schist and gneiss of possibly Precambrian age. Small, scattered granitic intrusions are present in the northwest portion of the Upland, and large, irregular batholiths make up much of the southeastern part. Thick deposits of windblown silt overlie the lower slopes of hills and deeper stream gravels in valleys. Alluvial deposits of gold and other metals are common throughout the Upland (Wahrhaftig, 1965). In 2015, the United States Geological Survey (USGS) published a compiled geology map for the state of Alaska. This map shows unconsolidated surficial deposits and pelitic schist and quartzite bedrock in the immediate project vicinity (Figure 2).

Seismicity

The project area is located within the Minto Flats seismic zone, an area of high seismic activity. In the Fairbanks vicinity, a series of north-northeast-trending, left-lateral strike-slip seismic zones have been identified (Rampart, Minto Flats, Fairbanks, Salcha), which are the source of numerous earthquakes each year. Each zone is capable of producing earthquakes greater than magnitude 6.0. The Minto Flats seismic zone is associated with two distinct lineaments of seismicity across the Nenana basin. Figure 3 illustrates USGS reported earthquakes in the last 100 years. According to the USGS Earthquake Hazards Program, a peak ground acceleration of 0.272 g can be expected for the project site.

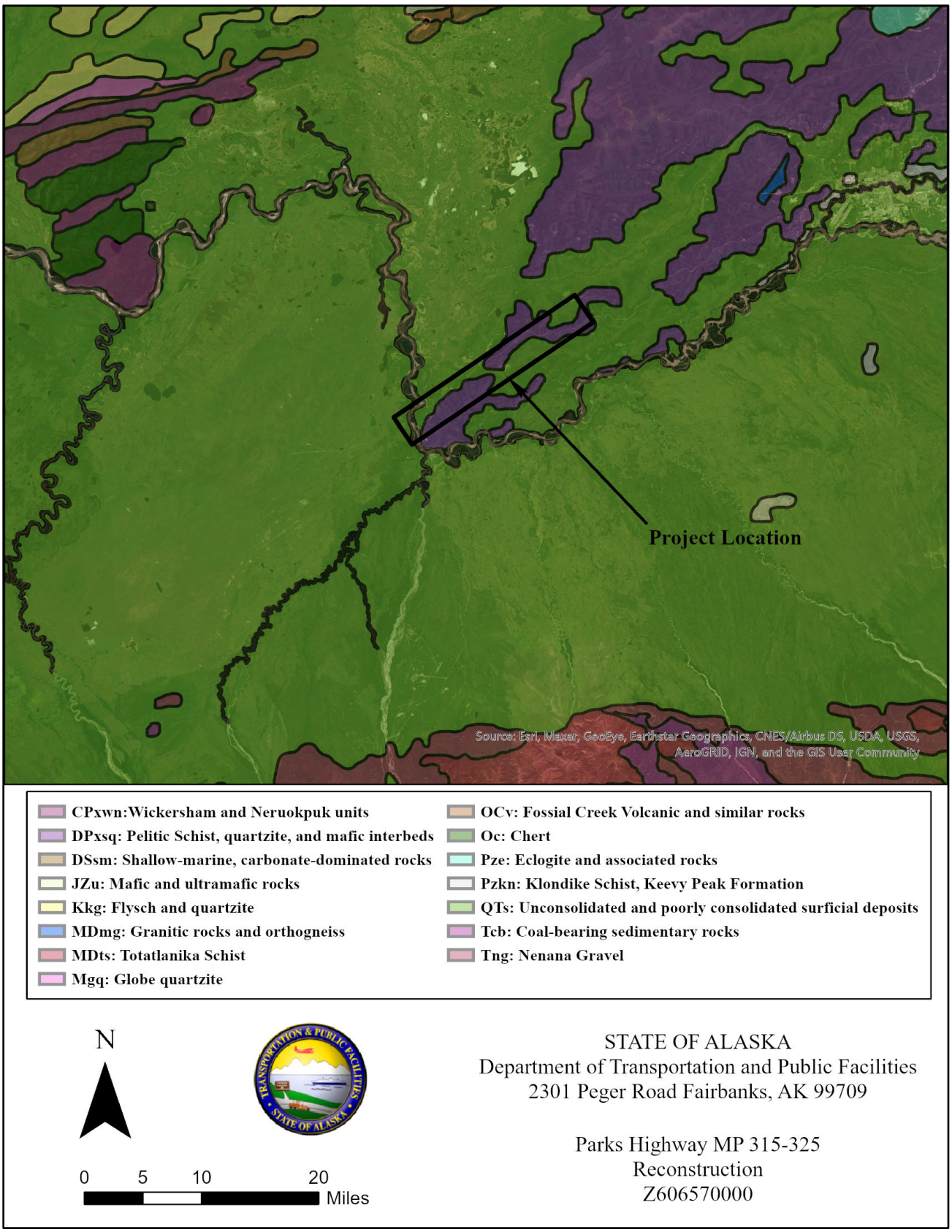

Figure 2. Geologic Map of Project Area.

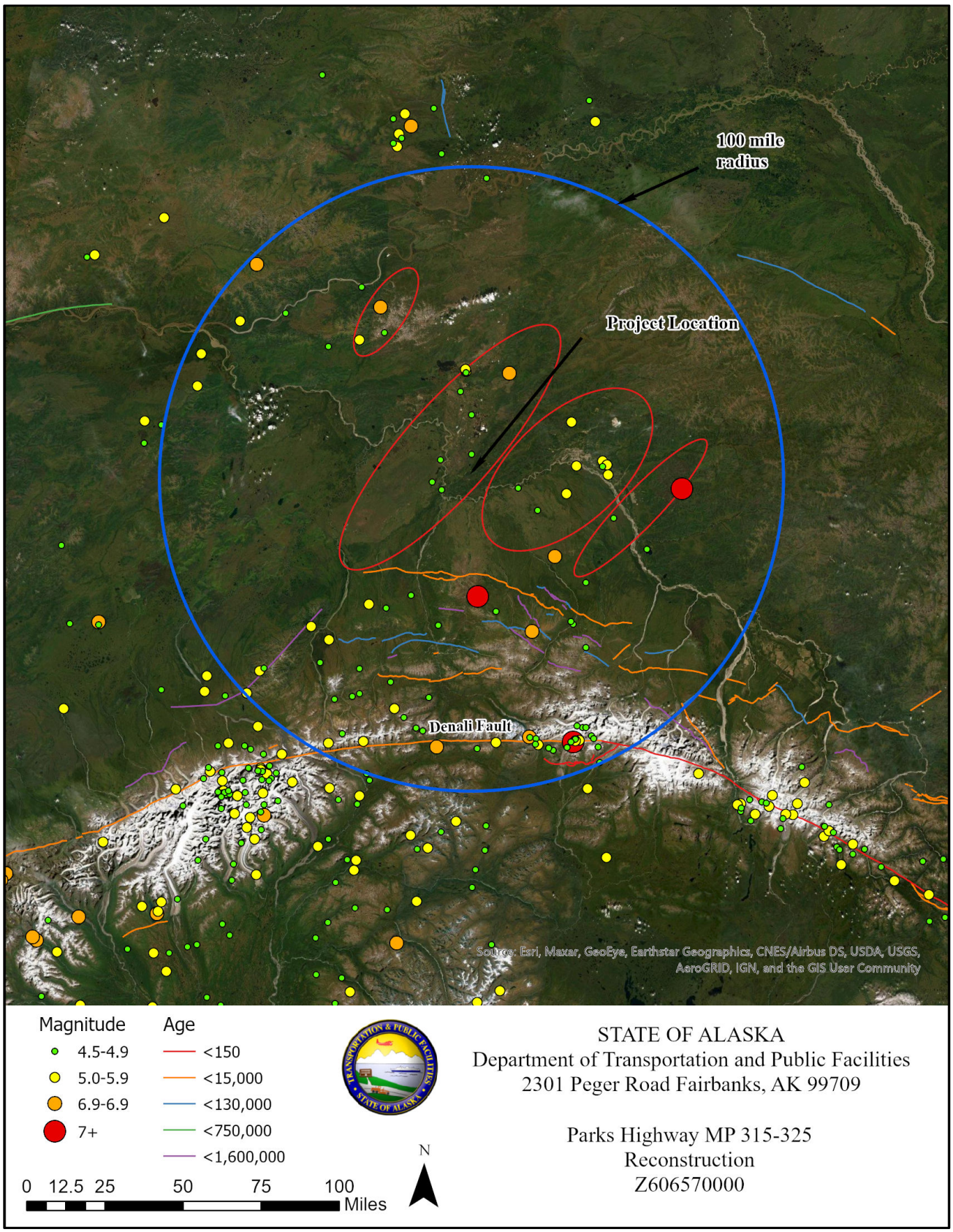

Figure 3. Seismic Map of Project Area.

FIELD INVESTIGATION

Fieldwork was conducted between September 1 and October 12, 2019 and April 28 and May 7, 2020 by Northern Region Materials Section (NRMS) Engineering Geologist J. Simpson and Drillers P. Lanigan, M. Sousa, T. Hartford, and G. Nelson. Drilling was conducted utilizing a truck-mounted CME 55 and a track-mounted CME 850X drill rig with 6.5- inch hollow-stem augers and 2-inch diameter rock-core barrels. Samples were collected from auger cuttings, split-spoons samplers and rock-core barrels. Test hole conditions were logged in the field in accordance to the Unified Soil Classification System (USCS). Test hole locations were recorded with a handheld Garmin GPS 64st, using the North American Datum (NAD) 83, with an accuracy of 50 feet. Samples were submitted to the Northern Region Materials Laboratory (NRML) and R&M Consultants for testing. Testing included USCS classifications, moisture contents, organic contents, L.A. Abrasion, Degradation, and Sodium Sulfate Loss.
Other field investigations included a seismic refraction survey where a realignment of the highway will require large cuts in the bedrock. This survey was completed by Logic Geophysics and Analytics. GPR and CCR were also performed near MP 314 where a sinkhole has been causing road distress. These surveys were performed by Logic Geophysics and Analytics and NRMS personnel.

As seismic waves will travel at different velocities through different materials, seismic refraction surveys are performed to interpret certain material properties and the thicknesses of the units that make up a subsurface profile (Alaska Department of Transportation and Public Facilities, 2007). These surveys are accomplished by measuring the time that is required for an induced seismic wave to travel from the energy source to the vibration detectors (geophones) after being refracted by the subsurface materials. Seismic investigations can be performed from the surface or within borings. This seismic investigation was performed from the surface.

GPR uses the principle that the velocity of electromagnetic radiation is dependent upon the material through which it is traveling to analyze the reflections of radar signals transmitted into the ground (Alaska Department of Transportation and Public Facilities, 2007). These signals are continually transmitted and received by a low frequency antenna as it is pulled across the area of interest.

In CCR surveys the earth is used as one conductor of a parallel plate capacitor and the transmitters and receivers are two coaxial cables or dipoles (Bjella et al., 2015). The transmitter sends a continuous-current sine wave through the dipole which polarizes the surrounding soil/rock. The receiver measures induced polarization from which induced resistivity can be collected (Bjella et al., 2015). In CCR surveys depth of readings can be increased or decreased easily by altering space between transmitters and receivers (Bjella et al., 2015). These capabilities allow CCR surveys to be completed relatively quickly. The electrical properties of soil/rock vary drastically due to phase changes of water in-situ. Frozen soil is resistive to current flow, especially when ice contents are high. Measured output of resistivity data from the CCR survey is reported in ohm-meters (ohm-m).

LABORATORY TESTING

Soil samples and test hole conditions were logged in the field using the Unified Soil Classification System. Samples were sealed and transported to the North Region Material Laboratory (NRML) in Fairbanks for Phase 1 of the project and to R&M Consultants in Anchorage for Phase 2. Selected samples were tested in accordance with ASTM/AASHTO methods (Table 3). Testing methods classifications, moisture contents, organic contents, L.A. Abrasion, Degradation, and Sodium Sulfate Loss.
Other laboratory testing included PLM CARB 435 for naturally-occurring asbestos (NOA) the North Nenana Quarry Material Site. These tests were performed by EMSL Analytical, Inc.

Table 3. Tests and Standards.

Test Method	AASHTO	ASTM
Index Tests		
Gradation	T27	C136
Minus #200 Gradation	T11	C117
Hydrometer	T88	D422
Liquid Limit	T89	D4318
Plastic Limit	T90	D4318
Moisture Content – Aggregate Soil	T255 T265	C566 D2216
Organic Content (Burn)	T267	
Proctor	T180	D1557
USCS Classification	D2487	
Fine Specific Gravity	T100	D854
Coarse Specific Gravity	T85	D127
Quality Tests		
Degradation	T13	
Los Angeles Abrasion	T96	C131
Sodium Soundness	T104	C88
Nordic Abrasion	ATM 312	

SUBSURFACE FINDINGS

A total of seventy-five test holes were drilled for this investigation. The original scope of this project spanned from MP 305 to MP 325. Currently, the project scope includes a realignment and grade raise from MP 319 to MP 325. Drilling for this investigation includes some areas that have been removed from the scope. Descriptions and data have been separated by current project scope and what has been removed from the project.

Station 1393+00 to 1687+00 (Current Project)

Twenty-seven test holes were drilled in this section (Figure 4); 3 realignment/cut, 2 at the base of areas where large cuts are to be made, 6 realignment/fill, 4 grade raise, and 11 shallow

embankment. The cuts that are planned for the realignment are deep and located in the bedrock. These test holes were cored and samples were tested to determine whether this large amount of material is suitable for use in the project.

Realignment/Cut:

Three test holes were cored for this realignment where large bedrock cuts will take place. This bedrock consisted of muscovite and graphitic schist that was highly to completely weathered and weak to extremely weak. A seismic refraction survey was performed where TH19-022 and TH19-023 were drilled. This survey suggests some uniformity of the bedrock conditions where cuts were to be made. This survey also showed higher velocity material in certain areas, but it is important to note that this survey does not reflect the current realignment, as it was changed from the original plans for this project. These higher velocities fall within the range of marginal to non-rippable material depending on the type of equipment used. Marginally rippable material can have velocities that range from 6,300 to 10,700 feet/second and non-rippable material can have velocities as low as 8,100 feet/second (Caterpillar, 2018). There is the possibility of encountering non-rippable material and additional seismic surveys can assist in determining how much material may be non-rippable. Four samples were tested for quality and all four failed to meet specifications for crushable material. L.A Abrasion, Degradation, and Sodium Sulfate results ranged from 52% to 58%, 1 to 3, and 11% to 18%, respectively.

While drilling TH19-022 and TH19-024, drill reaction suggested that a large fracture zone was encountered. An attempt was made to continue past this zone in TH19-022; however the core tooling became lodged and unable to remove. The water level from the water introduced during coring and the attempt to remove the tooling on September 2, 2019, as of October 23, 2019, had barely dropped. When this same drill reaction was encountered in TH19-024 on September 7, 2019, drilling stopped and a monitoring well was installed in the test hole. When initially read, there was 6.5 inches of water in the well. As of October 23, 2019, this level had only dropped by approximately 2.5 inches. On October 23, 2019, pressure transducers were installed in these test holes data from them was downloaded on May 29, 2020. The data showed that the water level in TH19-022 dropped approximately 15 feet, from 12 feet below the top of the casing to 27 feet. In TH19-024, water levels had dropped to below the bottom of the monitoring well. Due to the difficulties drilling TH19-022 and TH19-024 and the issues of the water levels not dropping after drilling was complete, two test holes were drilled (TH19-025 and TH19-026) at the base of these hills, off the shoulder of the highway, to see if shallow groundwater would be encountered. These test holes were drilled to 40 feet in depth and encountered 2 to 3 feet of fill overlying highly weathered bedrock. No groundwater was encountered. It is believed that TH19-022 became plugged and the water introduced while drilling and trying to remove tooling has been unable to completely drain. Table 4 describes these 5 test holes.

Table 4. Realignment/Cut Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
TH19-022	138.25	• 6" organic mat • 3' silt • 134.75' highly to completely weathered schist bedrock (containing varying amounts of muscovite, graphite, biotite, and garnet)	• silt overburden was wet • shallow bedrock was weathered to silty sand with gravel and well-graded gravel with silt and sand • bedrock that was more completely weathered contained clay-like soil in many areas
TH19-023	90	• 4" organic mat • 1.66' silt • 88' highly to completely weathered schist bedrock (containing varying amounts of muscovite and graphite	
TH19-024	75	• 7" organic mat • 8" silt • 73.75' highly to completely weathered schist bedrock (containing varying amounts of muscovite, graphite, and biotite)	
TH19-025	40	• 1' silty sand with gravel (fill) • 2' sandy silt with gravel (fill) • 37' highly weathered micaceous schist bedrock	
TH19-026	40	• 2' poorly-graded sand with silt and gravel • 38' highly weathered micaceous schist bedrock	

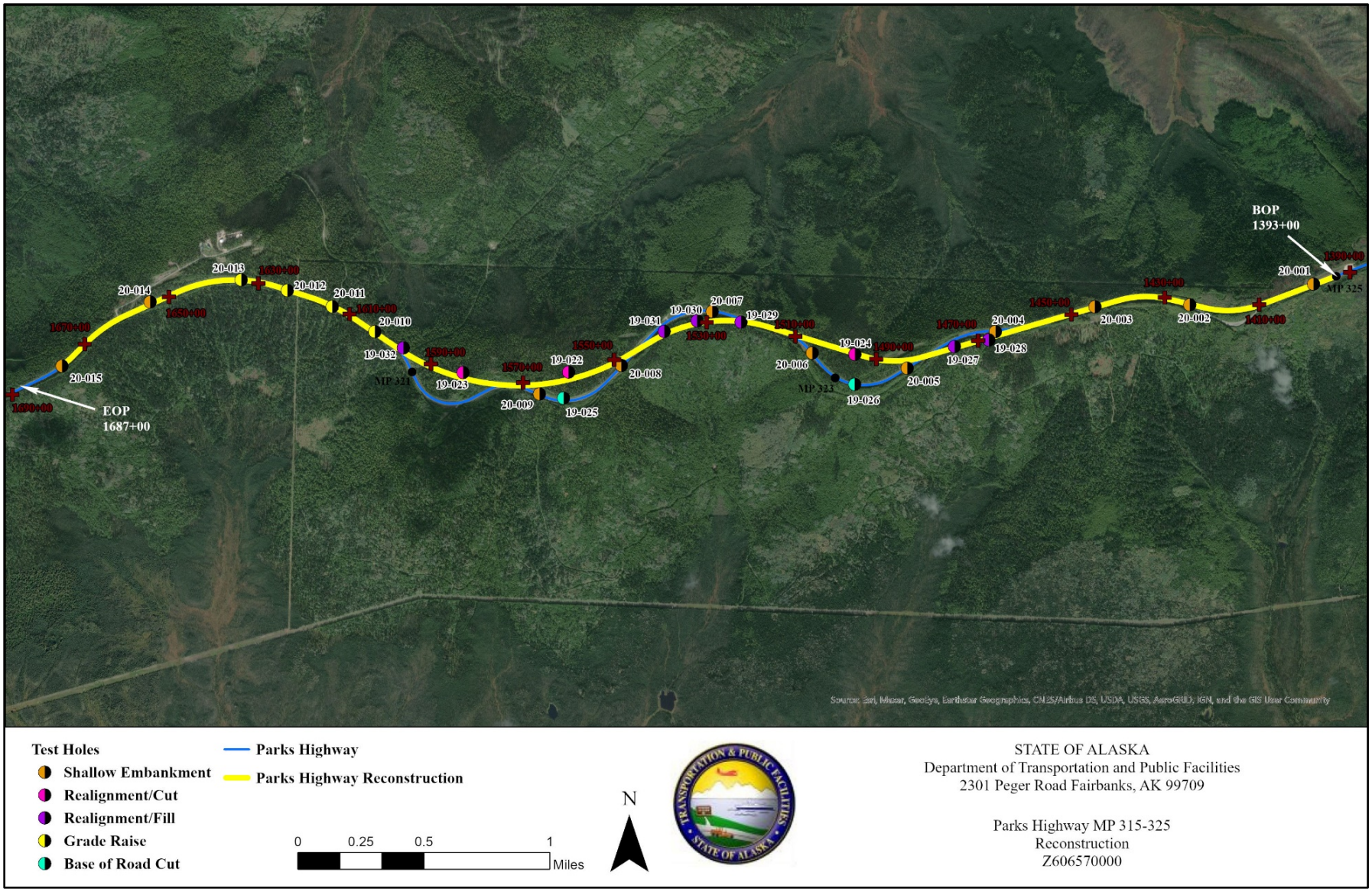

Figure 4. Test Hole Locations for Current Project Scope.

Realignment/Fill:

Six test holes were drilled for the fill portion of the realignment. These test holes (TH19-027 to TH19-032) showed high consistency with silty overburden underlain by highly weathered bedrock. Table 5 describes these test holes.

Table 5. Realignment/Fill Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
TH19-027	25	• 6" organic mat • 4.5' silt • 20' highly weathered micaceous schist bedrock with thin hard layers of black rock (possibly quartzite)	• soils overlying bedrock ranged from moist to wet, loose to very loose • bedrock was weathered to silty sand with gravel, well-graded sand with silt and gravel, and well-graded gravel with silt and sand
TH19-028	31.5	• 6" organic mat • 3.5' silty sand with gravel • 27.5' highly weathered micaceous and graphitic schist bedrock	
TH19-029	30.5	• 2" organic mat • ~3' sandy silt with gravel • ~27.5' highly weathered micaceous schist bedrock	
TH19-030	24	• 4" organic mat • 4' silt • 19.66' highly weathered micaceous schist bedrock	
TH19-031	26	• 3" organic mat • ~4.25' sandy silt • 21.5' highly weathered micaceous schist bedrock with intermittent hard layers	
TH19-032	30.25	• 4" organic mat • ~10' silt • 20' highly weathered micaceous schist bedrock	

Grade Raise:

Four test holes were drilled for the grade raise portion of the current project (TH20-010 to TH20-013) Table 6 describes these test holes.

Table 6. Grade Raise Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
TH20-010	25.75	• 3" asphalt • 1.75' poorly-graded gravel with silt and sand (fill) • 1.5' silty sand with gravel (fill) • 15.25' silt • 7' highly weathered micaceous and graphitic schist bedrock	• embankment material ranged from dry to moist to moist • soils beneath the embankment ranged from moist to moist to wet, loose to very loose • seasonally frozen ground was encountered in all test holes
TH20-011	22	• 3" asphalt • 1.5' well-graded sand with gravel (fill) • 2' silty sand with gravel (fill) • 13.25' silt • 5' highly weathered micaceous schist bedrock	
TH20-012	17	• 2.5" asphalt • 2.25' poorly-graded gravel with silt and sand (fill) • 2.5' silty sand with gravel (fill) • 5' silt with sand • 5' silty sand with gravel • 2’ highly weathered micaceous and graphitic schist bedrock	
TH20-013	22	• 3" asphalt • ~1.75' well-graded gravel with sand (fill) • 1' silty sand with gravel (fill) • 12' silt • 5' silty sand with gravel • 2' highly weathered micaceous schist bedrock	

Shallow Embankment:

Eleven shallow embankment test holes were drilled in this portion of the project to characterize the condition of the current embankment. These test holes are described in Table 7.

Table 7. Shallow Embankment Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
TH20-001	5	• 5" asphalt • ~4.5 poorly-graded sand with silt and gravel (fill)	• embankment material ranged from dry to moist to moist, medium dense to dense (largely based on drill reaction)
TH20-002	5	• 4" asphalt • 1.66' poorly-graded sand with gravel (fill) • 3' silty sand with gravel (fill)	
TH20-003	5	• 3" asphalt • 2.25' silty sand with gravel (fill) • 2.5' silty sand with gravel	
TH20-004	5	• 2" asphalt • 2.8' poorly-graded sand with silt and gravel (fill) • 2.5' silty sand with gravel (fill)	
TH20-005	5.5	• 5" asphalt • ~2.5' poorly-graded sand with silt and gravel (fill) • 1.25' silty sand with gravel (fill) • 2.25' highly weathered schist bedrock	
TH20-006	5	• 6" asphalt • 9" poorly-graded sand with gravel (fill) • 2' silty sand with gravel (fill) • 2' highly weathered schist bedrock	
TH20-007	5.5	• 3" asphalt • 1.75' poorly-graded sand with silt and gravel (fill) • 3.5' silty sand with gravel (fill)	
TH20-008	4.5	• 3" asphalt • 1.75' poorly-graded sand with silt and gravel (fill) • 2.5' silty sand with gravel (fill)	
TH20-009	4.6	• 3" asphalt • 1.25' well-graded gravel with silt and sand (fill) • 6" silty sand with gravel (fill) • 2.6' highly weathered schist bedrock	
TH20-014	4.5	• 2.5" asphalt • 1.25' poorly-graded gravel with silt and sand (fill) • 2' silty sand with gravel (fill) • 1' silt	
TH20-015	4.5	• 2" asphalt • 1.8' poorly-graded sand with silt and gravel (fill) • 6" silty sand with gravel (fill) • 2' highly weathered schist bedrock	

Comments and Recommendations

The following includes comments and recommendations for the realignment portion involving large cuts in bedrock, the realignment portion involving large fill amounts, and the grade raise.

Realignment/Cut:

Drilling on the major realignment cut sections between 1485+00 and 1592+00 largely encountered highly weathered schist bedrock. Construction equipment typically used on large excavations such as these is expected to be able to excavate most of this material without ripping. However, seismic survey results suggest harder material near the bottom of the excavation limits and locally higher up in the cut sections. The seismic velocities of this material indicates that some of this material will require ripping, and the remainder is likely to require drilling and blasting (per Caterpillar rippability tables). Drill reaction at the bottom of the holes in this section was consistent with encountering harder bedrock. Consider including a pay item for Unclassified Excavation and one for Rock Excavation, with note in Plans that Rock Excavation is expected to require drilling and blasting.

The seismic surveys were conducted between stations 1550+00 and 1592+00, on the previous design alignment roughly 100' north of the recently revised design alignment. Similarly, test holes 19-022 through 19-023 were drilled on the previous alignment. No seismic survey was conducted between 1485+00 and 1510+00. Due to revisions in the alignment, all data is less precise for the current project scope. If time and funding permits, consider additional seismic survey work and/or additional drilling to better define location of harder bedrock.

Realignment/Fill:

We understand there will be two relatively large fills within this project. Review of the Plans and Profile Sheets included in the September 14-15, 2020, 75 Percent Field Review suggests these fills will be located between approximate stations 1462+00 and 1483+00, and 1524+00 and 1539 +00. We also understand the final alignment may differ slightly from what was investigated. Our investigation indicates foundation soils within and near the footprint of these large fills consist of loose, relatively high moisture-content silty soils underlain by highly weathered bedrock. The thickness of the silty overburden encountered within our test holes near these fills commonly ranges between 3 feet and 5 feet. One test hole, however, encountered roughly 10 feet of silt over weathered bedrock.

We believe this relatively wet, loose silt may be susceptible to consolidation and lateral displacement under the load of a large fill. In addition, we believe loading such foundation soils on a hillslope may lead to down-slope movement. If the geometry of the existing ground was relatively flat, we believe embankment distress due to consolidation and lateral displacement would be partially mitigated by placing one or more layers of geotextile, reinforcement low in the embankment. Review of the cross-sections, however, suggest that these large fills will be overlying cross-slopes with gradients on the order of 23 percent. At such angles, we do not believe downslope movement can be mitigated with such use of geotextile.

In portions of these fills where the in-situ geometry is relatively flat, we recommend using one or more layers of geotextile to mitigate lateral deformation of embankment and maximize embankment's resistance to deformation due to vertical consolidation.

In portions of these fills where the in-situ geometry is relatively steep, we recommend excavating silty overburden prior to backfilling. We believe this will mitigate downslope movement of embankment fill by removing the low-shear-strength silty overburden.

Due to revisions in alignment, our subsurface data is less precise, but still, generally applicable. In addition, we understand deep excavations will add cost to the project. We recommend, therefore, further investigation of these deep fills within the final alignment to better characterize the nature and depth of silty overburden. After which, we can refine these recommendations to include project station intervals in which they apply.

Grade Raise:

We understand there will be a relatively large grade raise, reaching up to 50-foot-thick, between approximate stations 1598+00 and 1644+00. Review of the Plans and Profile Sheets included in the September 14-15, 2020, 75 Percent Field Review suggests the centerline of the new alignment generally overlies the centerline of the old alignment.

The subsurface soils we encountered while investigating this stretch of the project generally consist of a sandy and gravelly embankment fill that contains varying concentrations of silt overlying roughly 10 feet to 17 feet of silty soils that underlain by weathered bedrock. At the time of drilling, the silty soils encountered beneath the embankment fill were relatively wet and loose.

The current embankment appears relatively stable within this interval. We did not observe significant evidence of embankment distress such as uneven road surface, asphalt damage, and shoulder deformation during our investigation. We believe, therefore, the existing embankment is performing relatively well within this interval.

We recommend clearing and grubbing previously undisturbed ground that lies within the new footprint in accordance to Section 201-3.03 of the Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction. If the base of this excavation is too soft to facilitate compaction of subsequent lifts, excavate an additional 12 inches and place geotextile, stabilization prior to backfilling. For planning purposes, we recommend anticipating roughly 50 percent of these excavation bases requiring sub excavation and placement of geotextile, stabilization.

We believe some degree of consolidation will occur within the previously unloaded foundation soils beneath the new embankment footprint. We recommend, therefore, the centerline of the new alignment remain as close as possible to the centerline of the existing alignment. The purpose of this recommendation is to prevent embankment distress due to the consolidation of previously unloaded foundation soils from extending into the roadway.

Station 1687+00 to 1950+00 (Removed From Project)

Forty-one test holes were drilled in this section (Figure 5); 5 realignment/fill, 4 realignment/cut, 5 grade raise, 6 shallow embankment, 7 passing/climbing lane, 2 grade lowering, 6 in a distressed area, and 7 located where there is a sinkhole off the highway.

Realignment/Fill:

Five test holes were drilled for this realignment/fill portion that has been removed from the project. Table 8 describes these test holes.

Table 8. Realignment/Fill Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
19-033	31.25	• 2" organic mat • ~14' silt • 17' highly weathered micaceous and graphitic schist bedrock	• silt in these test holes ranged from moist to wet and medium dense to very loose • bedrock was weathered to silty sand with and without gravel and silty gravel with sand
19-036	40.5	• 3" organic mat • 40.25' silt	
19-037	24	• 3" organic mat • 3.75' silt with sand • 8' silt • 12' highly weathered micaceous schist bedrock	
19-038	24	• 2" organic mat • 6" silt • 23.3' highly weathered micaceous schist bedrock	
19-041	29.75	• 4' silty gravel with sand • 6' silt • 19.75' highly weathered graphitic schist bedrock	

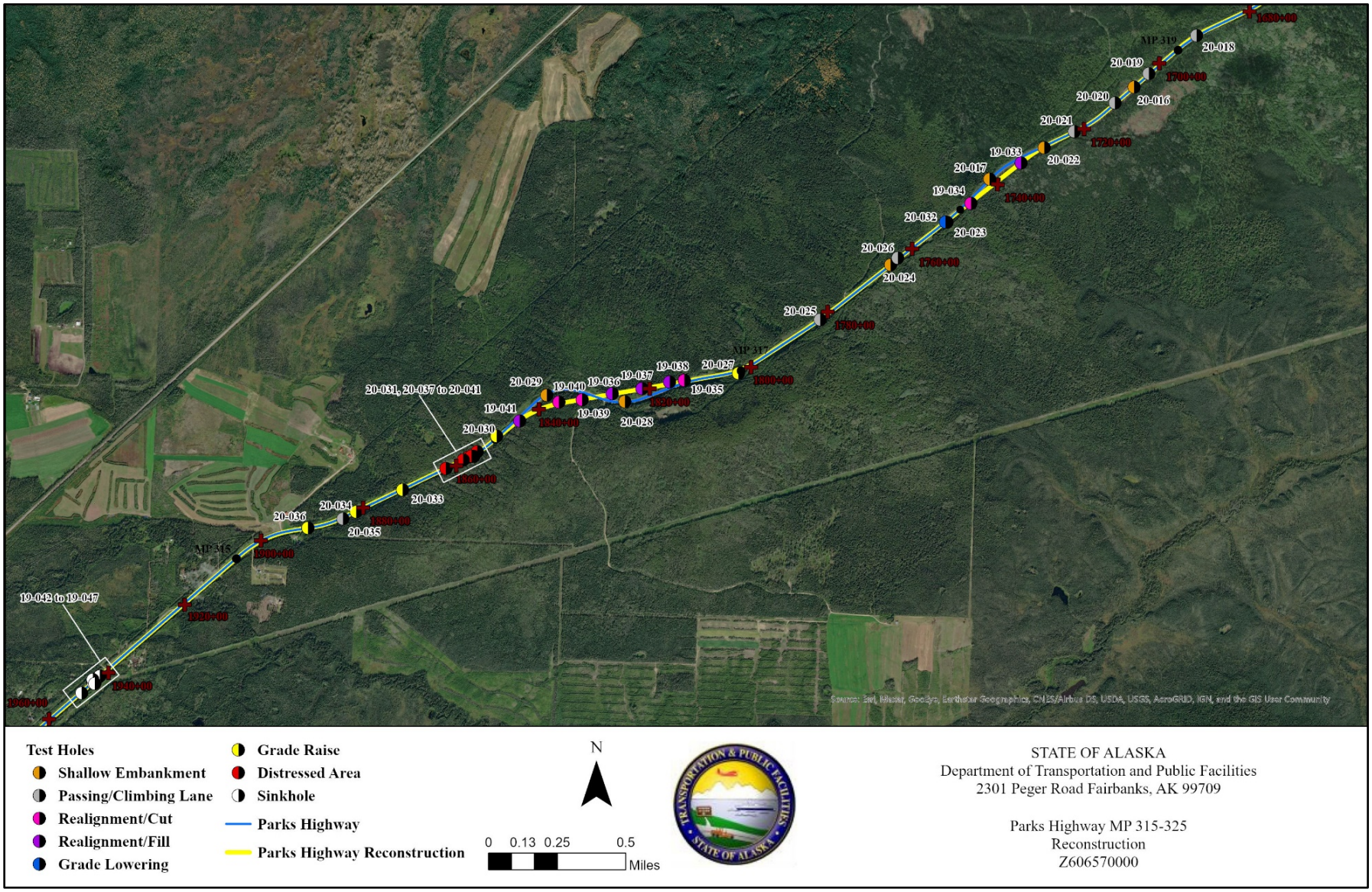

Figure 5. Test Hole Locations for Section That Has Been Removed From Project.

Realignment/Cut:

Four test holes were drilled for this realignment/cut portion that has been removed from the project. Table 9 describes these test holes.

Table 9. Realignment/Cut Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
19-034	31	• 2.75' poorly-graded sand with silt and gravel (fill) • 8' silt • 20.25' highly weathered micaceous schist bedrock	• silt in these test holes ranged from moist to wet and loose to very loose • bedrock was weathered to silty sand with and without gravel, well-graded sand with silt and gravel, and silty gravel with sand
19-035	20	• 3.5' sandy silt with gravel (fill) • 16.5' highly weathered micaceous schist bedrock	
19-039	41.5	• 6" organic mat • 29.25' silt • 11.75' highly weathered micaceous and graphitic schist bedrock	
19-040	33.75	• 5" organic mat • ~26.5' silt • 6.75' highly weathered micaceous schist bedrock	

Grade Raise:

Five test holes were drilled for a grade raise portion that is no longer included in the scope of the project. Table 10 describes these test holes.

Table 10. Grade Raise Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
20-027	17	• 2" asphalt • 1.33' poorly-graded gravel with sand (fill) • 6' silty sand with gravel (fill) • 10.6' highly weathered schist bedrock	• embankment material in these test holes ranged from dry to moist to moist, medium dense to dense • silt encountered beneath the embankment ranged from moist to wet, loose to dense • bedrock encountered beneath the embankment was weathered to silty sand with gravel • several test holes encountered seasonally frozen ground
20-030	42	• 2" asphalt • ~1.3' poorly-graded sand with silt and gravel (fill) • 5.25' silty sand with gravel (fill) • 35.25' silt	
20-033	42	• 2" asphalt • 1.8' poorly-graded sand with silt and gravel (fill) • 1.25' silty sand with gravel (fill) • 38.75' silt	
20-034	32	• 1.5" asphalt • 1.4' poorly-graded gravel with silt and sand (fill) • 4.25' silty sand with gravel (fill) • 26.25' silt	
20-036	22	• 2" asphalt • 1.8' poorly-graded sand with silt and gravel • 2.5' silty sand with gravel (fill) • 17.5' silt	

Grade Lowering:

Two test holes were drilled for a grade lowering portion that is no longer included in the scope of the project. Table 11 describes these test holes.

Table 11. Grade Lowering Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
20-023	27	• 2" asphalt • 2.8' poorly-graded sand with silt and gravel (fill) • 24' highly weathered micaceous and graphitic schist bedrock	• embankment material ranged from dry to moist to moist • bedrock was weathered to silty sand with gravel and sandy lean clay
20-032	18	• 2" asphalt • 1.8' poorly-graded sand with silt and gravel (fill) • 2.5' silty sand with gravel (fill) • 13.5' highly weathered schist bedrock	

Passing/Climbing Lane:

Five test holes were drilled for passing/climbing lanes that are no longer included in this project. Table 12 describes these test holes.

Table 12. Passing/Climbing Lane Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
20-018	10.6	• 2" asphalt • 1.8' well-graded sand with gravel (fill) • 3' silty sand with gravel (fill) • 5.66' highly weathered schist bedrock	• embankment material ranged from dry to moist to moist, medium dense to very dense • silt beneath the embankment ranged from moist to wet to wet, and was loose • bedrock beneath the embankment was weathered to silty sand with gravel • several test holes encountered seasonally frozen ground
20-019	30.25	• 3" asphalt • 3' well-graded sand with gravel (fill) • 9" well-graded sand with silt and gravel (fill) • 6.75' silty sand with gravel (fill) • 9.25' sandy silt • 10.25' highly weathered schist bedrock	
20-020	10.25	• 1.5" asphalt • 2.4' poorly-graded sand with silt and gravel (fill) • 1.5' silty sand with gravel (fill) • 6.5' highly weathered micaceous and graphitic schist bedrock	
20-021	10	• 2" asphalt • 1.8' well-graded sand with silt and gravel (fill) • 1' silty sand with gravel (fill) • 7' highly weathered micaceous and graphitic schist bedrock	
20-025	30	• 2" asphalt • 2.3' well-graded sand with gravel (fill) • 3' silty sand with gravel (fill) • 14.5' silt • 10' highly weathered micaceous schist bedrock	
20-026	32	• 2" asphalt • 1.3' well-graded sand with gravel (fill) • 18.75' silty sand with gravel (fill) • ~6' silt • 5.6' highly to completely weathered micaceous schist	
20-035	17	• 2" asphalt • 1.3' well-graded sand with gravel (fill) • 4.5' silty sand with gravel (fill) • 4' silt with sand • 5' silt • 2' silt with sand	

Shallow Embankment:

Six shallow embankment test holes were drilled to characterize the condition of the embankment. These test holes are described in Table 13.

Table 13. Shallow Embankment Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
20-016	5	• 2" asphalt • 4.8' poorly graded gravel with silt and sand (fill)	• embankment material ranged from dry to moist to moist, medium dense to dense
20-017	5	• 3" asphalt • 9" well-graded sand with gravel (fill) • 4' silty sand with gravel (fill)	
20-022	4.5	• 2" asphalt • ~1.5' poorly-graded gravel with silt and sand (fill) • 2.75' silty sand with gravel (fill)	
20-024	4.25	• 2" asphalt • 7" poorly-graded gravel with silt and sand (fill) • 3.5' silty sand with gravel (fill)	
20-028	5	• 2" asphalt • ~1' poorly-graded gravel with silt and sand (fill) • 3.75' silty sand with gravel (fill)	
20-029	5	• 2.5" asphalt • ~3' poorly-graded sand with silt and gravel (fill) • 1' silty sand with gravel (fill) • 9" silt	

Distressed Area:

Six test holes were drilled in a distressed area, near MP 316, where continuing settlement has been occurring. Table 14 describes these test holes.

Table 14. Distressed Area Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
20-031	32	• 4' asphalt • 2.25' well-graded sand with gravel (fill) • 3' silty sand with gravel (fill) • 22.75' silt	•embankment material ranged from dry to moist to moist, loose to medium dense where measured • silt beneath the embankment ranged from moist to wet, medium dense to very loose • there was generally a higher organic content in the silt of these test holes compared to other test holes drilled for this project • seasonal frost was encountered in all the test holes • permafrost was encountered in 20-041 at 30' bgs
20-037	24.5	• 1.2' asphalt • 1.3' poorly-graded sand with silt and gravel (fill) • 3.75' silty sand with gravel (fill) • 1.25' silt • 7.5' silt with sand • 9.5' silt	
20-038	24.5	• 7" asphalt • ~1' poorly-graded sand with gravel (fill) • 3.75' silty sand with gravel (fill) • 19.25' silt	
20-039	24.5	• 2.33' asphalt • 1.33' silty sand with gravel (fill) • ~20' silt	
20-040	24.5	• 10" asphalt • 1.2' poorly-graded sand with silt and gravel (fill) • 3' silty sand with gravel (fill) • 19.5' silt	
20-041	34.5	• 2' asphalt • 1.75' poorly-graded sand with silt and gravel • 2.25' silty sand with gravel (fill) • 3' sandy silt • 24.5' silt	

Sinkhole:

Six test holes were drilled in and near a sinkhole at approximately MP 314. Two of these test holes (TH19-044 and TH19-045) were controls drilled outside of the area of road distress caused by the sinkhole. Table 15 describes these test holes. Ground Penetrating Radar (GPR) and Capacitive Coupled Resistivity (CCR) surveys were conducted as part of the sinkhole investigation. In the CCR survey, conductivity (low ohm-meter values) coincides with the sinkhole linking it to groundwater. The frozen soil presents in the pseudosection (see Appendix C) as upward trending high resistivity values (greater than 1000 ohm-meters). The CCR shows relatively deep permafrost that is more degraded in wet soil at the sinkhole. The source of the groundwater issue appears to be a gully with a second sinkhole that originates in the utility easement running adjacent to the northbound lane of the highway and should be filled.

Table 15. Sinkhole Test Hole Descriptions.

Test Hole Number	Depth (ft)	Description	Comments
19-042	22	• 9" asphalt • 4.5' silty sand with gravel (fill) • 16.75' silt	• embankment material ranged from dry to moist to moist, medium dense to dense • silt ranged from moist to wet to wet, medium dense to very loose • permafrost was encountered in 19-043 at 17.5' bgs and in 19-047 at 30' bgs
19-043	22	• 8" asphalt • ~2' poorly-graded sand with silt and gravel (fill) • 2.25' silty gravel with sand (fill) • 16.75' silt	
19-044	42	• 3" asphalt • 2.5' poorly-graded sand with gravel (fill) • ~1.5' silty sand with gravel (fill) • 37.66' silt	
19-045	42	• 3" asphalt • 1.75' poorly-graded sand with gravel (fill) • 3.25' silty gravel with sand (fill) • 36.75' silt	
19-046	42	• 2.75' well-graded sand with silt (fill) • 39.25' silt	
19-047	37	• 7.5' silt with sand • 29.5' silt	

SLOPE STABILITY ANALYSIS

Rock slope stability analysis was performed on two outcrops where large cuts in bedrock will take place for the realignment. Stereonet plots were completed using Rocscience™ DIPS™ Version 6.0 (Appendix D) to assess rock formation attitudes collected in the field for planar, wedge, and toppling risk.

Rock Slope Stability Stations 1576+00 to 1594+00 (Outcrop 1)

An approximately 1,800-foot long cut will be excavated between Stations 1576+00 to 1594+00. This station interval contains an 80-foot tall (above the proposed alignment) cut in weak to moderately strong, fresh to highly weathered, muscovite schist with close to moderate fracture spacing, roughness profiles of 4-10, and Joint Roughness Coefficient I. This cut has a "keyhole cut" geometry which means steep slopes will be on either side of the road. The cut geometry will strike approximately 100 degrees and based on plan and profile sheets available at the time of this investigation, dip approximately 40 degrees. Literature review indicated a friction angle of 30 degrees was appropriate for this material.

Planar Sliding Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 0.0% of the total critical intersection surface sets plot in the daylight envelopes for cut slopes of 1:1 (H:V), indicating negligible planar sliding risk for north facing 1:1 cuts in this interval. 0.0% of the total critical intersection surface sets plot in the daylight envelopes for cut slopes of 1:1 (H:V), indicating negligible planar sliding risk for south facing 1:1 cuts in this interval.

Wedge Sliding Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 1.72 % of critical intersections of planar surface sets intersect within the wedge sliding zone for cut slopes of 1:1 (H:V), indicating negligible wedge sliding risk for north facing 1:1 slopes in this interval. 3.84 % of critical intersections of planar surface sets intersect within the wedge sliding zone for cut slopes of 1:1(H:V), indicating negligible wedge sliding risk for 1:1 or shallower south facing slopes in this interval.

Toppling Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 6.0% of critical joint sets plot in the toppling zone for 1:1 (H:V) cut slopes indicating slight toppling risk for north facing 1:1 slopes in this interval. 0.0% of critical joint sets plot in the toppling zone for 1:1(H:V) cut slopes indicating negligible toppling risk for south facing slopes in this interval.

Rock Slope Stability Stations 1551+00 to 1565+00 (Outcrop 2)

An approximately 1,400-foot long cut will be excavated between Stations 1551+00 to 1565+00. This station interval contains a 120-foot tall (above the proposed alignment) cut in weak to

moderately strong, fresh to highly weathered, muscovite schist with close to moderate fracture spacing, roughness profiles of 4-10 and Joint Roughness Coefficient I. This cut has a "keyhole cut" geometry which means steep slopes will be on either side of the road. The cut geometry will strike approximately 080 degrees and based on plan and profile sheets available at the time of this investigation dip approximately 30 degrees. The slope stability analysis was performed for a more conservative 45 degree angle; however, since the cut angle seemed to vary along the alignment. Literature review indicated a friction angle of 30 was appropriate for this material.

Planar Sliding Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 2.82% of the total critical intersection surface sets plot in the daylight envelopes for cut slopes of 1:1 (H:V), indicating negligible planar sliding risk for north facing 1:1 cuts in this interval. 0.0% of the total critical intersection surface sets plot in the daylight envelopes for cut slopes of 1:1 (H:V), indicating negligible planar sliding risk for south facing 1:1 cuts in this interval.

Wedge Sliding Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 1.63 % of critical intersections of planar surface sets intersect within the wedge sliding zone for cut slopes of 1:1 (H:V), indicating negligible wedge sliding risk for north facing 1:1 slopes in this interval. 1.16 % of critical intersections of planar surface sets intersect within the wedge sliding zone for cut slopes of 1:1 (H:V), indicating negligible wedge sliding risk for 1:1 or shallower south facing slopes in this interval.

Toppling Risk:

Based on stereonet projections of foliation/fracture planes measured in the field, 7.34% of critical joint sets plot in the toppling zone for 1:1 (H:V) cut slopes, indicating slight toppling risk for north facing 1:1 slopes in this interval. 2.26% of critical joint sets plot in the toppling zone for cut slopes of 1:1 (H:V), indicating negligible toppling risk for south facing slopes in this interval.

MATERIAL SITE INVESTIGATION: NORTH NENANA QUARRY

North Nenana Quarry is located on Doyon Limited Lands, east of the Parks Highway at MP 306 on FAA Hill Road. Prior to NRMS investigating this material site, Rowland Engineering Consultants (RECON) conducted a field investigation in which mapping and sampling of existing material in the pit were completed. RECON's investigation revealed that the pit dominantly consists of chloritic, calc-silicate schist and a low-grade biotite-quartz gneiss. Their preliminary test results of the samples taken during this investigation showed that the material had the potential to meet our specifications for riprap and crushed aggregate products.
NRMS conducted a rock coring investigation at this quarry during October 2019 (Figure 6). This investigation was completed using a track-mounted CME 850 drill rig with 2-inch diameter rock-core barrels in the existing pit and in the undeveloped portion of the quarry. Five grab samples were also obtained from existing stockpiles and rubble at the bottom of several pit walls (Figure 7).

Location and Access

This material site is located east of the Parks Highway at MP 306 on FAA Hill Road. It is secured with a locked gate.

Land Status

North Nenana Quarry is located on Doyon Limited Lands.

Overburden and Vegetation

Vegetation in the undeveloped portion of this material site generally consists of spruce and birch trees. Two test holes drilled in the undeveloped portion encountered 2-inches of organic mat and 9-inches to 1-foot of silt overlying the bedrock.

Groundwater

Groundwater was not encountered during this investigation.

Frozen Ground

Permafrost was not encountered during this investigation. Seasonally frozen ground should be expected in the undeveloped portion of this material site.

Subsurface Findings

A total of seven test holes were drilled at this material site. Three were drilled in the existing quarry floor, two on the upper bench, and two in the undeveloped portion of the site.
The majority of the bedrock cored at this site was determined to be schist containing various combinations of quartz, biotite, muscovite, talc, chlorite, and calcite. Table 16 lists the description of the bedrock encountered in each test hole.

Table 16. Bedrock Descriptions from Test Holes in North Nenana Quarry.

Test Hole Number	Depth (ft)	Location	Bedrock Description
19-048	34.5	Quarry Floor	• gray to gray/white schist • varying combinations of quartz, biotite, talc, muscovite, calcite, and chlorite • foliated • very close discontinuity spacing • slightly weathered • strong
19-049	35	Quarry Floor	• gray schist • contained chlorite, calcite, biotite, and quartz • foliated • close to very close discontinuity spacing • highly weathered • weak to very weak
19-050	40	Upper Bench	• majority of this test hole contained what is believed to be fault gouge • identifiable rock included schist with varying combinations of calcite, muscovite, biotite, quartz, and talc • highly to completely weathered • weak to extremely weak
19-051	65.5	Upper Bench	• alternating layers of gray/brown schist and black/gray phyllite and possibly slate • schist contained varying combinations of chlorite, biotite, calcite, and muscovite • phyllite/slate contained chlorite and biotite • moderate to very close discontinuity spacing • slightly to completely weathered • weak to strong
19-052	45.5	Un-developed Area	• brown and gray schist • varying combinations of muscovite, graphite, quartz, and talc • moderate to very close discontinuity spacing • moderately to completely weathered • extremely weak to strong
19-053	45	Un-developed Area	• gray and gray/black schist • varying combinations of calcite, graphite, quartz, talc, and biotite • moderate to very close discontinuity spacing • slightly to completely weathered • weak to strong
19-054	44	Quarry Floor	• 20 feet gray schist containing chlorite, biotite, muscovite, and quartz with close to very close discontinuity spacing, slightly weathered, and strong • 10 feet white/gray impure marble with wide discontinuity spacing, slightly weathered, and very strong • marble contained 3 foot highly weathered and highly fractured section

Laboratory Results

Along with bedrock cored at this quarry, five grab samples were obtained from existing stockpiles and rubble at the bottom of several of the quarry walls. These grab samples and samples from each test hole were submitted to NRML for L.A. Abrasion, Degradation, and Sodium Sulfate Loss Testing. Four of the five grab samples and seven of the eight test holes samples failed to meet the specifications for crushable material.
Table 17 and Table 18 list the results of this testing for the grab samples and test holes, respectively.

Table 17. North Nenana Quarry Grab Sample Test Results.

Sample Number	L.A. Abrasion (%)	Degradation	Sodium Sulfate Loss (%)
GS-1	21	33	7
GS-2	20	47	7
GS-3	24	23	17
GS-4	23	25	8
GS-5	27	17	10

Table 18. North Nenana Quarry Test Hole Sample Test Results.

Test Hole Number	Sample Number	Sample Interval (ft)	Test Results		
			L.A. Abrasion (%)	Degradation	Sodium Sulfate Loss (%)
19-048	19-4617	7-34	21	28	5.3
19-049	19-4618	15-35	24	6	insufficient sample for testing
19-050	19-4619	10-24	35	3	insufficient sample for testing
19-051	19-4621	25-60	22	10	9.4
19-052	19-4622	22.5-45	34	4	29.5
19-053	19-4620	10-45	22	12	10
19-054	19-4623	9-29	24	13	5.4
	19-4624	29-44	22	57	5.5

Several of the test holes contained what is believed to be talc. Talc has been associated with asbestos mineralogy, therefore bulk samples were taken from each test hole and tested for the presence of NOA (Naturally Occurring Asbestos). One of the seven samples contained less than 0.25% of tremolite (Table 19). Tremolite is a member of the amphibole group of silicate minerals and is one of the recognized types of asbestos. The presence of NOA in a material site does not necessarily mean that the material cannot be used. There are AK Statutes in which protocols are established for contractors using material sites with NOA present.

Table 19. North Nenana Quarry NOA Test Results.

Test Hole Number	Sample Number	Asbestos % and Type
19-048	19-4617a	None Detected
19-049	19-4618a	None Detected
19-050	19-4619a	None Detected
19-051	19-4621a	None Detected
19-052	19-4622a	None Detected
19-053	19-4620a	<0.25% Tremolite
19-054	19-4623a	None Detected

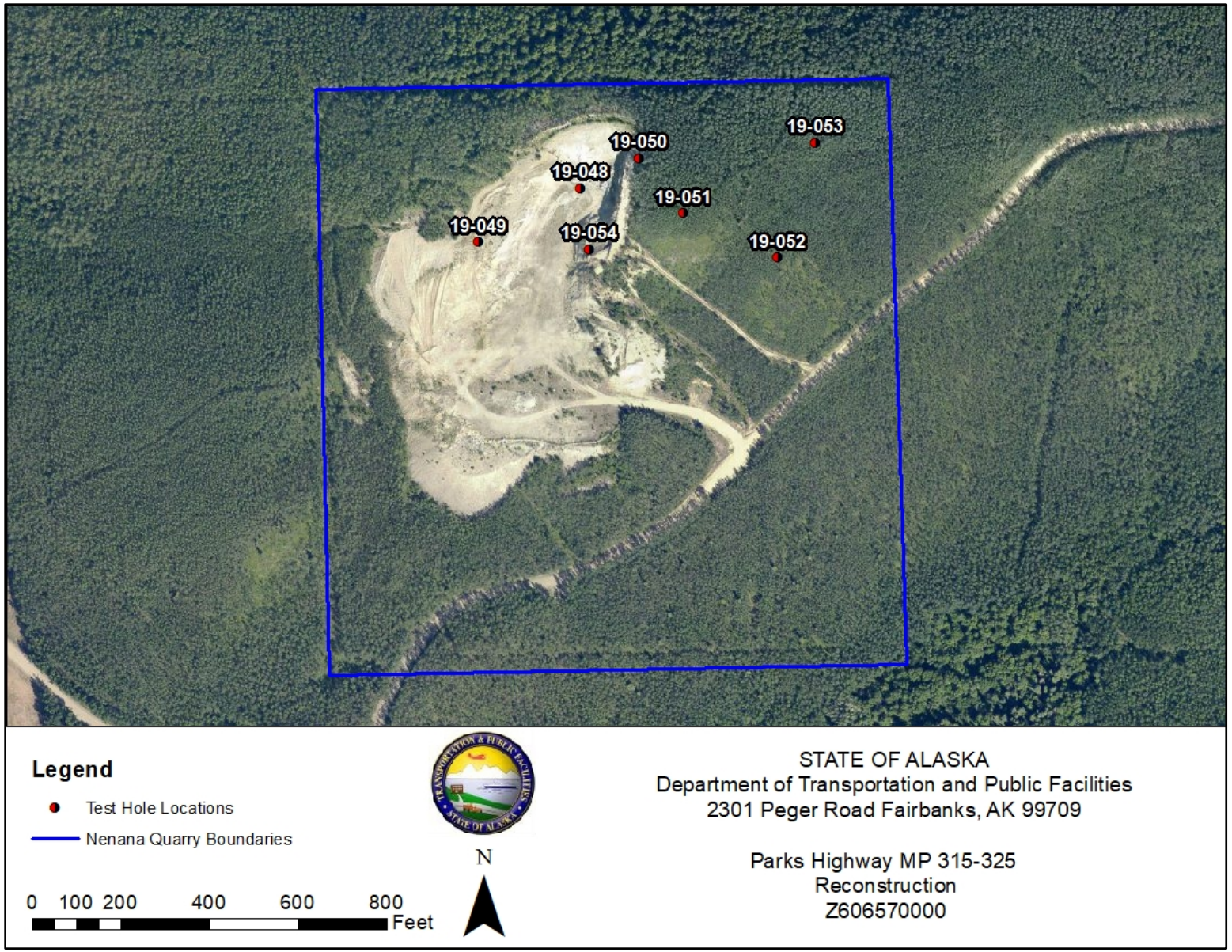

Figure 6. Test Hole Locations for North Nenana Quarry.

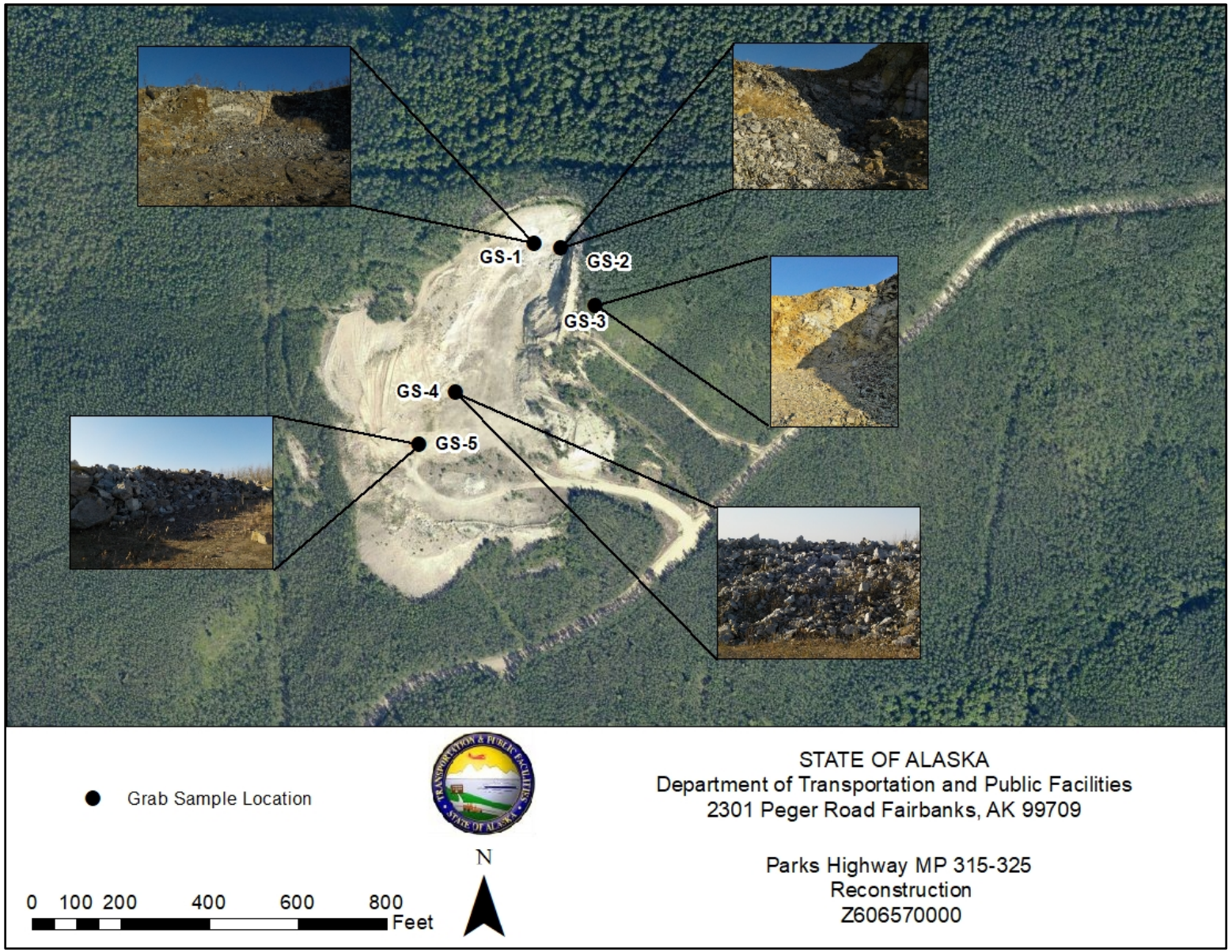

Figure 7. Grab Sample Locations for North Nenana Quarry.

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APPENDIX A-TEST HOLE LOGS

Current Project

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-022
Project Number	AKSAS	Total Depth	138.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/1/2019 - 9/2/2019
Field Crew	P. Lanigan, M. Sousa, G. Nelson, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.69874°, W148.74709°
Weather	50F cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, birch, willows

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0															SUBSURFACE MATERIAL
	1		AUGER	19-4390												ORG MAT 6"
	2															Tn-Bn SILT wet
	3															SAMPLE 19-4390 (1.0-1.5): ML, 91.1% -200, NM 35.9%, ORG 4.5%, NV, NP
	4		AUGER	19-4391 19-4392												Bn-Gy BEDROCK, soft(Graphitic Muscovite Schist) highly weathered bedrock, highly micaceous, weathered to silty sand with gravel, 3"-
	5															SAMPLE 19-4391 (3.5-3.8): NM 9.5%, ORG 1.9%
	6															SAMPLE 19-4392 (4.0-4.5): SM, 25.9% -200, NV, NP
	7		AUGER	19-4393												Tn-Or 1"- gravel pieces with sandy silt
	8															SAMPLE 19-4393 (6.5-8.5): SM, 21.9% -200, LL 27, NP
	9				4											Gy-Bn(Graphitic Schist) highly weathered, oxidized
	10				5											SAMPLE 19-4394 (10.5-11.0): NM 5.1%, ORG 1.1%
	11		SS	19-4394	12 13											harder layers but still highly weathered oxidized with thin hard layers
	12															SAMPLE 19-4395 (14.0-16.0): SM, 18.7% -200, NV, NP
	13															
	14				8											
	15		SS	19-4395	19 33											
	16				32											
	17															
	18															
	19				27											
	20				53											
	21															
	22															
	23															
	24															
	25															
	26															highly to completely weathered (clay-like soil with 3.5"- gravel pieces), very weak to extremely weak, slightly micaceous, small quartz vein
	27															SAMPLE 19-4613 (25.5-100.0): SSc 17.7, LA 55, DEG 3
	28							1	2.9	0	40					
	29															
	30															
	31															highly to completely weathered (clay-like soil with 2"- gravel pieces), very weak to extremely weak, oxidized
	32															
	33							2	2.7	0	31.7					
	34															
	35															
Coring	36															(Muscovite Schist) very close to extremely close discontinuity spacing, highly to completely weathered (clay-like soil with 1"- gravel pieces), weak to extremely weak
	37															
	38							3	2.7	0	16.7					
	39															
	40															
	41															Tn-Bn less soil, more intact pieces, clay-like soil has slight sandy content, oxidized
	42															
	43							4	3.5	0	43.3					
	44															
	45															
	46															Bn-Tn very close to extremely close discontinuity spacing, foliated, highly to completely weathered, weak to extremely weak
	47															
	48							5		0	51.7					
	49															
	50															

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-022

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	50															
	51															Tn-Bn
	52															very close to extremely close discontinuity spacing, foliated, highly to completely weathered, soft to very soft, weak to extremely weak
	53							6		0	53.3	2.5				
	54															
	55															
	56															Bn
	57															less micaceous, highly to completely weathered (silty soil), weak to extremely weak
	58							7	3.2	0	46.7	2				
	59															
	60															
	61															slightly more competent but breaks easily, thin quartz veins, 1" quartz vein at end of run
	62															
	63		CORE	19-4613				8	5	0	40					
	64															
	65															
	66															Bn-Tn
	67															highly to completely weathered, weak to extremely weak, slight increase in mica content and foliated with 2" quartz piece
	68							9	2.4	0	25					
	69															
	70															
	71															Tn
	72															highly to completely weathered, weak to extremely weak, some oxidation, foliated, less micaceous with depth and slightly more competent, but breaks easily, healed fractures, small amount of quartz
	73							10	3.73	21.6	73.3	5				
	74															
	75															
	76															(Garnet Muscovite Schist)
	77															highly weathered, weak to extremely weak, foliated, small graphitic section
	78							11	4.27	0	85	3				
	79															
	80															
	81															Tn-Gy(Graphitic Garnet Muscovite Schist)
	82															highly weathered, weak to extremely weak, foliated, micaceous, one 3/4" quartz vein, oxidized, healed fractures
	83							12	4.1	0	71.6	2.25				
	84															
	85															
	86															moderate discontinuity spacing, moderately to highly weathered, weak to extremely weak, less micaceous, some quartz, oxidized, vertically fractured, breaks easily by hand, healed fractures
	87															
	88							13	6	0	91.7	3.5				
	89															
	90															
	91															
	92															
	93							14	4.45	6.8	97.5	4				
	94															
	95															
	96															highly to completely weathered, very weak, oxidized, breaks easily, 5.5" quartz vein
	97															
	98							15	6	23.4	92.5	4.5				
	99															
	100															
	101															SAMPLE 19-4614 (100.0-138.3): SSc 12.6, LA 52, DEG 2
	102															Bn-Gy
	103							16	4.1	17	93.3	5				highly weathered to soil at bottom of run, degraded garnet in highly micaceous intervals, oxidized, very thin quartz veins
	104															
	105															
	106															Tn(Muscovite Schist)
	107															highly to completely weathered, weak to extremely

Coring

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-022

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
Coring	108		CORE	19-4614				17	3.4	0	93.3					weak, foliated, micaceous, oxidized, 2-1/2" quartz veins, highly fractured in more competent parts
	109															
	110															
	111															Bn
	112															highly to completely weathered, weak to extremely
	113							18	3.1	0	63.3	1.5				weak, foliated, oxidized, micaceous
	114															Gy-Bn(Biotite Muscovite Schist)
	115															
	116															Gy-Bn
	117															highly weathered, weak to extremely weak,
	118							19	2.8	0	85	2				micaceous, oxidized, 1.5" quartz veins
	119															
	120															
	121															Tn-Bn(Garnet Muscovite schist)
	122															highly weathered, weak to extremely weak, small
	123							20	3	9.1	91.7	5				biotite rich sections
	124															
	125															
	126															highly to completely weathered, weak to extremely weak,
	127															oxidized with 2" quartz vein, healed fractures
	128							21		14.3	46.7	4				
	129															
	130															
	131															very low recovery, micaceous, some oxidation
	132															
	133							22		0	1.7	1				
	134															
	135															
	136															
	137							23	4.9		0					
	138														BOH	

NR AKDOT TEST CORE LOG - USCS_PARKS 305-325.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-023
Project Number	AKSAS	Total Depth	90 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/5/2019 - 9/6/2019
Field Crew	P. Lanigan, M. Sousa, G. Nelson, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.69854°, W148.76122°
Weather	50F mostly cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, birch, willows

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0															SUBSURFACE MATERIAL
	1		AUGER	19-4395												ORG MAT 4"
	2															Tn-Bn SILT wet, *sl Org* SAMPLE 19-4395 (1.0-1.8): ML, 98.8% -200, NM 24.3%, ORG 2.9%, NV, NP
	3															
	4															
	5		SS	19-4396	3											
	6			19-4397	4 3 4		7									Tn Soft BEDROCK, soft(Muscovite Schist) foliated, micaceous, weathered to gravel with silt and sand, 1"- SAMPLE 19-4396 (4.5-5.5): GW-GM, 11.2% -200, NV, NP SAMPLE 19-4397 (5.8-6.0): NM 6.6%, ORG 1.8% weathered to silty sand with gravel
	7															
	8															
	9															
	10		SS	19-4398	15 16											SAMPLE 19-4398 (9.5-11.5): SM, 13.4% -200, NV, NP
	11				11 18		27									
	12															
	13															
	14															
	15															
Coring	16							1	4.8	21	63.3	4				very close discontinuity spacing, moderately to highly weathered, weak, slightly graphitic, healed fractures
	17															
	18															
	19															
	20															
	21															
	22							2	5	0	61.7	3.5				increase in graphite
	23															
	24															
	25															
	26															
	27							3	5	25	96.7	5.5				close discontinuity spacing, highly weathered,weak, slightly graphitic, healed fractures
	28															SAMPLE 19-4615 (27.5-90.0): SSc 17.8, LA 54, DEG 1
	29															
	30															
	31															Tn-Gy(Graphitic Muscovite Schist) very close discontinuity spacing, highly to completely weathered (silty soil), weak to extremely weak
	32							4	4.7	19.8	80	5				
	33															
	34															
	35															
	36															very close discontinuity spacing, highly weathered, weak to extremely weak, healed fractures
	37							5	5.9	0	96.7	3.25				
	38															
	39															
	40															
	41															very close discontinuity spacing, highly to completely weathered (clay-like soil), weka to extemely weak, slightly less graphitic
	42							6	4.5	0	76.7	3.75				
	43															
	44															
	45															
	46															Tn(Muscovite Schist) very to extremely close discontinuity spacing, highly weathered, weak to extremely weak, healed fractures, thin graphitic layers
	47							7	4.6	0	73.3	3.25				
	48															
	49															
	50															

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-023

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	50															
	51															
	52							8	4.9	11.2	96.7	6.5				
	53															
	54															
	55															
	56															Tn-Gy(Graphitic Muscovite Schist)
	57							9		0	80	3				very close discontinuity spacing, highly to completely weathered (clay-like soil), weak to extremely weak
	58		CORE	19-4615												
	59															
	60															
	61															Tn(Muscovite Schist)
	62							10		0	76.7	3				highly weathered, weak to extremely weak, slightly graphitic
	63															
	64															
	65															
	66															Tn-Gy(Graphitic Muscovite Schist)
	67							11	5.2	0	61.7	3				highly to completely weathered (silty, clay-like soil), weak to extremely weak
	68															
	69															
Coring	70															
	71															small quartz vein
	72															
	73							12		0	63.3	2				
	74															
	75															
	76															Tn(Muscovite Schist)
	77															highly to completely weathered (mostly soil), soft to very soft, extremely weak, slightly graphitic
	78							13		0	48.3	3.25				
	79															
	80															
	81															
	82															
	83							14		0	55	2.5				
	84															
	85															
	86															Tn-Gy(Graphitic Muscovite Schist)
	87															completely weathered, extremely weak
	88							15		0	63.3					
	89															
	90															BOH

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-024
Project Number	AKSAS	Total Depth	75 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/7/2019
Field Crew	P. Lanigan, M. Sousa, G. Nelson, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70022°, W148.70883°
Weather	60F, partly cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0		AUGER	19-4399												ORG MAT 7"
	1															Tn-Bn SILT wet, *sl Org* SAMPLE 19-4399 (0.8-1.0): ML, 91.2% -200, NM 28.0%, ORG 3.1%, NV, NP
	2															
	3															
	4															
	5		SPT	19-4400	4 5 6		11									Tn Soft BEDROCK, soft(Muscovite Schist) weathered to gravel with silt and sand
	6			19-4401												Gy-Tn highly micaceous, mostly soil SAMPLE 19-4400 (4.3-5.3): GW-GM, 11.7% -200, NV, NP SAMPLE 19-4401 (5.5-6.0): NM 8.8%
	7															
	8															
	9															
	10															Tn very to extremely close discontinuity spacing, highly weathered, weak, healed fractures, small quartz veins
	11							1	2.8	11.7	81.7	6.5				
	12															
	13															
	14															
	15															SAMPLE 19-4616 (15.0-75.0): SSc 11.3, LA 58, DEG 3
	16							2	2.5	8.7	86.7	4.5				
	17															
	18															
	19															
	20															
	21															very to extremely close discontinuity spacing, moderately to highly weathered, weak, healed fractures
	22							3	2.5	26.7	98.3	7.5				
	23															
	24															
	25															
	26															small graphitic section
	27							4	4	9.1	91.7	5				
	28															
	29															
	30															
	31															extremely close discontinuity spacing, highly weathered, weak to extremely weak, slightly graphitic, healed fractures
	32							5	2.75	0	81.7	3				
	33															
	34															
	35															
	36															
	37							6	3.1	0	60	3				
	38															
	39															
	40															
	41															
	42							7	4	0	62	2.5				
	43															
	44															
	45		CORE	19-4616												Tn-Gy(Graphitic Muscovite Schist) extremely close discontinuity spacing, highly to completely weathered, weak to extremely weak, healed fractures
Coring	46															
	47															
	48							8	4.2	0	95	3				
	49															
	50															

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-024

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	50															
	51															very to extremely close discontinuity spacing, highly to completely weathered, weak to extremely weak, biotite?
	52							9	4.5	14	98.3	8.25				
	53															
	54															
	55															
	56															(Biotite Muscovite Schist)
	57															very to extremely close discontinuity spacing, highly to completely weathered, weak to extremely weak, small quartz vein, small graphitic section
	58							10	4.25	0	93.3	3.5				
	59															
	60															
	61															very to extremely close discontinuity spacing, highly weathered, weak to extremely weak
Coring	62															
	63							11	4.8	0	85	3.75				
	64															
	65															
	66															very close discontinuity spacing, moderately to highly weathered, weak to extremely weak, small quartz veins
	67															
	68							12	4.5	8.8	90	4.75				
	69															
	70															
	71															Gy-Tn
	72															very to extremely close discontinuity spacing, highly to completely weathered, weak to extremely weak, small quartz veins
	73							13		18.9	78.3	4.75				
	74															
	75															BOH

NR AKDOT TEST CORE LOG - USCS PARKS 305-325.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/5/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-025
Project Number	Z606570000	Total Depth	40 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/15/2019
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69724°, W148.74767°
Weather		Elevation	
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
At base of road cut from cored 19-022

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0–1										Bn Silty SAND w/ Gravel (fill)	
	1–3										Tn Sandy SILT w/ Gravel (fill) dry to moist, schist fragments, micaceous	
	3–40										Tn Soft BEDROCK, soft(highly weathered micaceous schist) highly weathered to soil, very small amount of intact rock pieces alternating softer and harder layers	
	40										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project: Parks Hwy 305-325 Reconstruction
Project Number: Z606570000
Field Geologist: J. SIMPSON
Field Crew: M. Sousa, G. Nelson
Equipment Type: CME 55 Truck
Weather:
TH Finalized By: J. Simpson
Vegetation:

Test Hole Number: 19-026
Total Depth: 40 feet
Dates Drilled: 9/15/2019
Station, Offset:
Latitude, Longitude: N64.6985°, W148.70876°
Elevation:

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
At base of road cut from cored 19-024

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0–40										Bn Poorly-graded SAND w/ Silt & Gravel (fill)	
											Tn BEDROCK dry to moist, bedrock weathered to sandy silt with gravel, micaceous	
											less micaceous	
											highly micaceous	
											1.5 foot harder layer	
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-027
Project Number	Z606570000	Total Depth	25 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/24/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70083°, W148.69553°
Weather	40F, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, willow, birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ORG MAT 6"	
	1										Bn SILT moist, *sl Org*, trace gravel clumps of tan/orange micaceous soil (possibly very highly weathered bedrock)	**19-4459 (3.0-3.3)** NM=12.6% ORG=2.4% **19-4460 (3.5-4.5)**
	2											
	3		AUGER	19-4459								
	4			19-4460								
	5		SPT	19-4461	2						Tn-Bn Soft BEDROCK, soft(schist) moist, bedrock weathered to sandy silt with trace gravel	**19-4461 (5.0-5.5)** NM=12.8%
	6				5 4		9					
	7				3							
	8										Bk(quartzite?) thin layer of harder rock	
	9											
	10		SPT	19-4462	5						Tn-Bn weathered to gravel with silt and sand with thin black harder layers moist	**19-4462 (10.0-10.8)** USCS=GW-GM P200=10.4% LL=NV PI=NP PL=NV **19-4463 (11.0-11.5)** NM=12.4%
	11			19-4463	9 8		17					
	12				11							
	13											
	14											
	15											
	16		SPT	19-4464	17 39 43		82				weathered to silty sand with gravel	**19-4464 (15.0-17.0)** USCS=SM P200=16.3% LL=NV PI=NP PL=NV
	17				45							
	18										brown sandy cuttings with black rock	
	19											
	20				9						highly weathered with clayey sections, quartz layers, micaceous	
	21		SPT		17 28		45					
	22				37							
	23										harder black rock pieces in cuttings	
	24										slightly micaceous	
	25										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-028
Project Number	Z606570000	Total Depth	31.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/24/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70126°, W148.69096°
Weather	45F, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, birch, willow

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0											
	1		AUGER	19-4465		■					ORG MAT 6"	
	2										Bn Silty SAND w/ Gravel moist to wet	**19-4465 (1.0-1.5)** USCS=SM P200=35.4% NM=17.1% ORG=4.6% LL=NV PI=NP PL=NV
	3											
	4											
	5				3						Tn-Or Soft BEDROCK, soft(schist) weathered to silty sand with quartz, micaceous	
	6				3 3 4		6					
	7											
	8										Tn-Bn alternating tan and brown layers of micaceous weathered bedrock	
	9											
	10		SPT	19-4466	5	■					Tn-Bk moist, micaceous and graphitic, weathered to silty sand with gravel	**19-4466 (9.5-10.0)** NM=7.4%
	11			19-4467	7 7 7	■	14					**19-4467 (10.5-11.5)** USCS=SM P200=16.4% LL=NV PI=NP PL=NV
	12											
	13											
	14											
	15				8							
	16		SPT	19-4468	9 13 18	■	22					**19-4468 (16.0-16.5)** NM=9.2%
	17											
	18											
	19										alternating hard and soft layers	
	20		SPT	19-4469	23 60	■						**19-4469 (19.5-20.0)** NM=9.7%
	21										1.5 foot quartz layer	
	22											
	23											
	24											
	25		SPT		4 53							
	26											
	27											
	28											
	29											
	30		SPT	19-4470	6 33	■	65					**19-4470 (29.5-31.5)** P200=10.4% LL=NV PI=NP PL=NV
	31				32 35	■					BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-029
Project Number	Z606570000	Total Depth	30.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/26/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70188°, W148.7242°
Weather	35F, rain	Elevation	
TH Finalized By	J. Simpson	Vegetation	birch, spruce

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0											
	1		AUGER	19-4471		■					ORG MAT 2"	**19-4471 (1.0-1.5)** NM=15.8% ORG=2.3%
	2										Tn Sandy SILT w/ Gravel (fill?) moist to wet	
	3											
	4		SPT	19-4472	6 7	■					Tn Soft BEDROCK, soft(schist) highly weathered to sand with silt and gravel	**19-4472 (3.5-5.0)** USCS=SW-SM P200=10.6% LL=NV PI=NP PL=NV
	5				7 7	■	14					
	6											
	7											
	8											
	9		SPT		7 16		36					
	10				20 23							
	11											
	12											
	13											
	14				12 20		39				Tn-Bn moist, small quartz vein	
	15				19 16							
	16		SPT	19-4473		■						**19-4473 (15.5-16.0)** NM=8.5%
	17											
	18											
	19				5							
	20		SPT		10 13		23				dark brown layers, less micaceous, thin quartz veins	
	21				16							
	22											
	23											
	24				12 20						Tn	
	25		SPT		40 46		60				highly micaceous	
	26											
	27											
	28											
	29				20 51							
	30		SPT									
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-030
Project Number	Z606570000	Total Depth	24 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/26/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70189°, W148.73007°
Weather	32F, snow/rain mix	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ORG MAT 4"	
	1		AUGER	19-4474		■					Bn SILT wet	**19-4474 (1.0-2.0)** USCS (wash)=ML P200=95.6% NM=21.7% ORG=2.2% LL=NV PI=NP PL=NV
	2					■						
	3											
	4				2							
	5		SPT		3		7				Tn Soft BEDROCK, soft(schist) highly weathered, micaceous	
					4							
	6				5							
	7											
	8											
	9				4	■					weathered to sand with silt and gravel	**19-4475 (9.0-11.0)** USCS=SP-SM P200=8.3% LL=NV PI=NP PL=NV
	10		SPT	19-4475	12	■	20					
	11				8	■						
	12				13	■						
	13											
	14										harder layer, lighter tan	
	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22										more competent with depth	
	23											
	24										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-031
Project Number	Z606570000	Total Depth	26 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/26/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.70123°, W148.73444°
Weather	32F, snow/rain mix	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, birch, willow

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ORG MAT 3"	
	1		AUGER	19-4476		■					Bn Sandy SILT moist	**19-4476 (1.0-2.0)** USCS (wash)=ML P200=60.3% NM=26.7% ORG=4.0% LL=NV PI=NP PL=NV
	2					■						
	3											
	4											
	5		SPT	19-4477	5	■					Tn Soft BEDROCK, soft(schist) highly weathered sand with silt and gravel, micaceous	**19-4477 (4.0-5.5)** USCS=SP-SM P200=9.4% LL=NV PI=NP PL=NV
	6				5	■	10					
	7				10						dry to moist, quartz layer	
	8											
	9											
	10		SPT	19-4478	16	■						**19-4478 (9.0-10.0)** NM=2.5%
	11				21	■	30					
	12				9						6 feet of intermittent hard layers	
	13				11							
	14											
	15		SPT		22							
	16				50							
	17											
	18										quartz layer	
	19				10							
	20		SPT		19		39				less micaceous	
	21				20							
	22				21							
	23											
	24											
	25		SPT		15							
	26				40		90					
					50						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS_PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-032
Project Number	Z606570000	Total Depth	30.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/27/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.69985°, W148.76929°
Weather	30F, partly cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	birch, spruce

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ORG MAT 4"	
	1											
	2		AUGER	19-4479		■					Tn SILT moist, *sl Org*	**19-4479 (2.0-2.5)** USCS (wash)=ML P200=96.9% NM=10.7% ORG=3.8% LL=NV PI=NP PL=NV
	3											
	4		SPT	19-4480	2	■					moist to wet, loose, *sl Org*	**19-4480 (3.5-4.0)** NM=14.2% ORG=3.2%
	5			19-4481	3 2 2	■	5					
	6											
	7											**19-4481 (4.3-4.8)** USCS (wash)=ML P200=97.7% NM=18.1% LL=NV PI=NP PL=NV
	8											
	9		SPT	19-4482	1 1	■					wet, very loose	**19-4482 (8.5-9.5)** USCS (wash)=ML P200=98.2% NM=32.4% LL=NV PI=NP PL=NV
	10			19-4483	1 2	■	2					**19-4483 (10.0-10.5)** NM=25.4% ORG=1.8%
	11										Tn Soft BEDROCK, soft(schist) highly weathered to soil	
	12											
	13											
	14		SPT	19-4484	2 5	■					moist, micaceous, weathered to sand with silt and gravel	**19-4484 (13.5-14.0)** NM=7.5%
	15			19-4485	5 6	■	10					**19-4485 (14.5-15.5)** USCS=SW-SM P200=9.9% LL=NV PI=NP PL=NV
	16											
	17											
	18											
	19		SPT		7 17							
	20				23 21		40				quartz vein	
	21											
	22											
	23											
	24		SPT	19-4487	5 22	■						**19-4487 (24.0-24.5)** NM=13.6%
	25				30 26		52				moist to wet, quartz vein	
	26											
	27											
	28											
	29		SPT		10 12							
	30				48 50		60				BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-001
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70496°, W148.64767°
Weather		Elevation	1312.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0										ASPHALT 5"	
	1		AUGER	20-4008							Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4008 (0.5-2.0)** USCS=SP-SM P200=7.8% NM=4.8% LL=NV PI=NP PL=NV
	2											
	3										Bn-Gy siltier, slightly micaceous	
	4										Bn	
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-002
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70358°, W148.66417°
Weather		Elevation	1284.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0		AUGER	20-4009							ASPHALT 4"	
											Bn Poorly-graded SAND w/ Gravel (fill) dry to moist	**20-4009 (0.5-2.0)** USCS=SP P200=1.4% NM=2.6% LL=NV PI=NP PL=NV
	1											
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3											
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-003
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70332°, W148.67685°
Weather		Elevation	1314.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0		AUGER	20-4010							ASPHALT 3"	
	1										Bn Silty SAND w/ Gravel (fill) moist, slightly micaceous	**20-4010 (1.0-2.5)** USCS=SM P200=15.0% NM=8.0% LL=NV PI=NP PL=NV
	2											
	3										Tn Silty SAND w/ Gravel possibly highly weathered bedrock	
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-004
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70174°, W148.69008°
Weather		Elevation	1227.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0		AUGER	20-4011							ASPHALT 2"	
											Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4011 (0.5-2.0)** USCS=SP-SM P200=10.9% NM=5.9% LL=NV PI=NP PL=NV
	1											
	2											
											Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3											
	4										possible bedrock (highly weathered)	
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-005
Project Number	Z606570000	Total Depth	5.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69951°, W148.70175°
Weather		Elevation	1210.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0										ASPHALT 5"	
	1			20-4012							Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4012 (0.5-2.0)** USCS=SP-SM P200=11.0% NM=2.6% LL=17 PI=NP PL=NV
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3										Tn Soft BEDROCK, soft(schist) highly weathered with thin harder layers	
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-006
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Equipment Type	CME 55 Truck
Weather		Station, Offset	
TH Finalized By	J. Simpson	Vegetation	
Latitude, Longitude	N64.70023°, W148.71452°	Elevation	1195.0

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0										ASPHALT 6"	
	1		AUGER	20-4013							Bn Poorly-graded SAND w/ Gravel (fill) dry to moist	**20-4013 (1.0-2.0)** USCS=SM P200=19.9% NM=5.1% LL=27 PI=4 PL=23
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3										Tn Soft BEDROCK, soft(schist) highly weathered	
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-007
Project Number	Z606570000	Total Depth	5.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/28/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70243°, W148.72807°
Weather		Elevation	1152.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0										ASPHALT 3"	
	1		AUGER	20-4014							Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4014 (0.5-1.5)** USCS=SP-SM P200=6.2% NM=2.1% LL=NV PI=NP PL=NV
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3											
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-008
Project Number	Z606570000	Total Depth	4.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/29/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.6992°, W148.74002°
Weather		Elevation	1405.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 3"	
					9						Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4015 (0.5-2.0)** USCS=SP-SM P200=12.0% NM=3.2% LL=NV PI=NP PL=NV
	1		SPT	20-4015	13							
					12							
	2				16						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill, last couple inches of SPT possibly bedrock	
	3				8							
			SPT		24							
	4				55							
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-009
Project Number	Z606570000	Total Depth	4.6 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/29/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69744°, W148.75087°
Weather		Elevation	1207.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 3"	
			SPT	20-4016	5						Bn Well-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4016 (0.5-1.3)** USCS=GW-GM P200=6.0% NM=1.4% LL=NV PI=NP PL=NV
	1				6							
				20-4017	5						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	**20-4017 (1.5-2.0)** USCS=SM P200=18.9% NM=5.8% LL=26 PI=2 PL=24
	2				13						Tn Soft BEDROCK, soft(Schist)	
	3											
	4										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-010
Project Number	Z606570000	Total Depth	25.75 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/29/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69744°, W148.75087°
Weather		Elevation	1207.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0										ASPHALT 3"	
1		AUGER	20-4018							Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4018 (1.0-2.0)** USCS=GP-GM P200=6.6% NM=1.8% LL=NV PI=NP PL=NV
2											
3				12 17						Tn Silty SAND w/ Gravel (fill)	
4		SPT	20-4019	15 18						moist, schist bedrock fill	**20-4019 (3.5-4.5)** USCS=ML P200=92.0% NM=23.7% LL=29 PI=3 PL=26
5										Bn SILT	
6		SPT	20-4020	11 14 15 17							**20-4020 (5.0-7.0)** USCS=ML P200=96.0% NM=15.5% ORG=2.8% LL=NV PI=NP PL=NV
7											
8				10						Tn-Bn	
9		SPT	20-4021	12 10 7						*sl Org*	**20-4021 (8.0-9.5)** USCS=ML P200=93.8% NM=14.5% ORG=2.5% LL=25 PI=0 PL=25
10				2						Bn	
11		SPT	20-4022	2 2		4				moist, loose, *sl Org*	**20-4022 (11.0-12.0)** USCS=ML P200=94.6% NM=9.6% ORG=2.6% LL=NV PI=NP PL=NV
12				2							
13											
14											
15				1						moist to wet, loose, *sl Org*	
16		SPT	20-4023	2 3		5					**20-4023 (16.0-17.0)** NM=16.2% ORG=2.7%
17				3							
18											
19										Tn Soft BEDROCK, soft(Schist) highly weathered, micaceous and graphitic	
20				10							
21		SPT		12 13		25					
22				15							
23											
24											
25											
		SPT		14 50						BOH	

H-S Auger

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-011
Project Number	Z606570000	Total Depth	22 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/29/2020
Field Crew	M.Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.7021°, W148.77895°
Weather		Elevation	924.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 3"	
1											Bn Well-graded SAND w/ Gravel (fill) dry to moist	
2			AUGER	20-4024								**20-4024 (2.0-2.5)** USCS=SM P200=17.0% NM=5.4% LL=27 PI=1 PL=26
3					6 11						Tn Silty SAND w/ Gravel (fill)	
4			SPT	20-4025	18 21						moist, schist bedrock fill	**20-4025 (3.8-4.5)** USCS=ML P200=89.0% NM=17.5% ORG=3.0% LL=25 PI=2 PL=23
5											Bn-Tn SILT moist to wet, *sl Org*	
6			SPT	20-4026	13 26 30 34						Tn	**20-4026 (5.0-7.0)** USCS=ML P200=90.0% NM=14.2% ORG=3.3% LL=NV PI=NP PL=NV
7												
8					12							**20-4027 (7.5-9.5)** USCS=ML P200=96.0% NM=17.7% ORG=2.5% LL=25 PI=1 PL=24
9			SPT	20-4027	19 17 17							
10												
11	H-S Auger		SPT	20-4028	3 2 3		5				Bn-Tn moist, loose	**20-4028 (10.5-11.5)** USCS=ML P200=94.3% NM=11.5% ORG=2.6% LL=NV PI=NP PL=NV
12					3							
13												
14												
15					2						moist to wet, loose, *sl Org*	
16			SPT	20-4029	2 3		5					**20-4029 (15.5-16.5)** NM=18.5% ORG=2.9%
17					2						Tn Soft BEDROCK, soft(Schist) highly weathered, micaceous	
18												
19												
20					3							
21			SPT		5 4		9					
22					7						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-012
Project Number	Z606570000	Total Depth	17 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/30/2020
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70294°, W148.78503°
Weather		Elevation	980.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0										ASPHALT 2.5"	
1		AUGER	20-4030							Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4030 (1.0-2.0)** USCS=GP-GM P200=7.9% NM=0.9% LL=NV PI=NP PL=NV
2											
3		SPT	20-4031	5						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	**20-4031 (2.5-4.5)** USCS=SM P200=26.9% NM=9.8% LL=26 PI=3 PL=23
4				12 15 18							
5				12						Bn SILT w/ Sand *sl Org*	
6		SPT	20-4032	30 28 28							**20-4032 (6.0-6.5)** USCS=ML P200=85.0% NM=13.9% ORG=3.7% LL=24 PI=2 PL=22
7											
8		SPT	20-4033	10 17							**20-4033 (7.5-9.5)** USCS=ML P200=85.0% NM=20.4% ORG=3.2% LL=25 PI=1 PL=24
9				13 16							
10		SPT	20-4034	8						Bn Silty SAND w/ Gravel *sl Org*, small quartz and mica chips	**20-4034 (10.0-11.0)** USCS=SM P200=39.0% NM=10.3% ORG=3.8% LL=25 PI=2 PL=23
11				13 12				?			
12				8				?			
13								?			
14										micaceous silt, possibly highly weathered bedrock	
15										Tn Soft BEDROCK, soft(Schist) micaceous/graphitic	
16											
17										BOH	

Drilling Method: H-S Auger

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Field Geologist	J. SIMPSON	Test Hole Number	20-013
Field Crew	P. Lanigan, G. Nelson	Total Depth	22 feet
TH Finalized By	J. Simpson	Dates Drilled	4/30/2020
Project	Parks MP 305-325 Reconstruction	Station, Offset	
Project Number	Z606570000	Latitude, Longitude	N64.70347°, W148.79124°
Equipment Type	CME 55 Truck	Elevation	1019.0
Weather			
Vegetation			

Ground Water Data

	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Drilling Method: H-S Auger

Sample Data

Depth in (Feet)	Casing Blows / ft	Method	Number	Blow Count (raw)	Uncorrected N-Value	Embankment Height	Frozen
3.0–5.0		SPT	20-4035	3, 14, 25, 22			Frozen (3.0–9.5)
5.0–7.0		SPT	20-4036	14, 17, 19, 23			
7.5–9.5		SPT	20-4037	11, 14, 15, 11			
10.0–12.0		SPT		2, 3, 4, 5	7		
15.0–17.0		SPT	20-4038	5, 7, 5, 3	12		
20.0–22.0		SPT		3, 3, 3, 4	6		

SUBSURFACE MATERIAL

Depth (ft)	Subsurface Material
0–0.25	ASPHALT 3"
0.25–1.5	Bn Well-graded GRAVEL w/ Sand (fill) moist
1.5–2.7	Tn Silty SAND w/ Gravel (fill) moist
2.7–15.0	Bn-Tn SILT *sl Org* Tn; at 8: *sl Org*; at 10: moist, loose; at 12: schist pieces
15.0–20.0	Tn Silty SAND w/ Gravel medium dense, micaceous, possibly highly weathered bedrock
20.0–22.0	Tn Soft BEDROCK, soft(Schist)
22	BOH

TEST RESULTS

20-4035 (3.0-4.5)
USCS=ML
P200=88.0%
NM=25.7%
ORG=2.7%
LL=23
PI=2
PL=21

20-4036 (5.0-7.0)
USCS=ML
P200=92.0%
NM=17.7%
ORG=2.5%
LL=23
PI=2
PL=21

20-4037 (7.5-9.5)
USCS=ML
P200=94.0%
NM=25.9%
ORG=3.3%
LL=28
PI=4
PL=24

20-4038 (15.0-17.0)
USCS=SM
P200=44.0%
NM=10.8%
ORG=3.1%
LL=25
PI=2
PL=23

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-014
Project Number	Z606570000	Total Depth	4.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/30/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.70205°, W148.80334°
Weather		Elevation	1044.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2.5"	
			SPT	20-4039	12						Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4039 (0.5-1.5)** USCS=GP-GM P200=7.1% NM=1.3% LL=NV PI=NP PL=NV
	1				10							
					10						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	2				10							
					7							
	3		SPT		12							
					20						Gy SILT mica chips	
	4				38							
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-015
Project Number	Z606570000	Total Depth	4.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/30/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69817°, W148.81471°
Weather		Elevation	1037.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	0										ASPHALT 2"	
					11						Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4040 (0.5-1.5)** USCS=SP-SM P200=6.7% NM=3.1% LL=NV PI=NP PL=NV
	1		SPT	20-4040	14							
					12							
H-S Auger	2				17						Tn Silty SAND w/ Gravel (fill) moist	
											Tn Soft BEDROCK, soft(Schist)	
	3											
	4										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

Removed From Project

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-033
Project Number	Z606570000	Total Depth	31.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/27/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.68919°, W148.84465°
Weather	40F, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, occassional birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS: Realignment/Fill

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Method	Sample Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ORG MAT	
1											2"	
2											Tn SILT	
3			AUGER	19-4488							dry to moist	
4											moist to wet, *sl Org*	**19-4488 (2.5-3.0)** USCS (wash)=ML P200=99.2% NM=18.1% ORG=2.9% LL=NV PI=NP PL=NV
5					3 2							
6			SPT	19-4489	3 3		5				loose	**19-4489 (5.5-6.0)** USCS (wash)=ML P200=94.2% NM=15.3% ORG=1.4% LL=NV PI=NP PL=NV
7												
8												
9											Tn-Bn	
10			SPT	19-4490	2 2		4.5				wet, loose	**19-4490 (9.5-11.0)** USCS (wash)=ML P200=95.1% NM=23.7% LL=NV PI=NP PL=NV
11					2.5 2.5							
12												
13												
14												
15	H-S Auger		SPT	19-4491	3 5		13				Tn-Gy Soft BEDROCK, soft(schist) alternating layers of highly weathered (silty sand with gravel) micaceous and graphitic schist	**19-4491 (14.5-15.5)** USCS=SM P200=26.0% NM=11.4% LL=NV PI=NP PL=NV
16					8 7							
17												
18												
19												
20			SPT	19-4492	4 7		16					**19-4492 (19.5-20.5)** USCS=SM P200=13.1% NM=5.4% LL=NV PI=NP PL=NV
21					9 10						quartz vein	
22												
23												
24												
25					12 20							
26			SPT		24 25		44					
27												
28												
29												
30					29 24							
31			SPT		30 50		54				BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-034
Project Number	Z606570000	Total Depth	31 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/27/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.68698°, W148.85066°
Weather	40F, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0											
	1		AUGER	19-4494							Bn-Gy Poorly-graded SAND w/ Silt & Gravel (fill) moist	**19-4494 (1.0-2.0)** USCS=GP-GM P200=6.5% NM=6.2% LL=NV PI=NP PL=NV
	2											
	3											
	4		SPT	19-4495	2 3 2 3		5				Tn SILT moist to wet Bn-Tn wet, loose	**19-4495 (4.0-5.0)** USCS (wash)=ML P200=89.9% NM=15.0% ORG=1.5% LL=NV PI=NP PL=NV
	5											
	6											
	7											
	8											
	9		SPT	19-4496	2 2.5 2.5 3		5				wet, *sl Org*	**19-4496 (9.0-10.0)** USCS=ML P200=88.8% NM=22.2% ORG=2.4% LL=NV PI=NP PL=NV
	10											
	11										Tn Soft BEDROCK, soft(schist) highly weathered, micaceous	
	12											
	13											
	14											
	15		SPT	19-4497	3 3 3 6		6				moist, weathered to sand with silt and gravel, small quartz pieces	**19-4497 (14.0-15.5)** USCS=SW-SM P200=11.7% NM=7.9% LL=NV PI=NP PL=NV
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25		SPT	19-4498	12 24 24 27		48				weathered to silty gravel with sand	**19-4498 (24.0-26.0)** USCS=GM P200=14.5% NM=5.9% LL=NV PI=NP PL=NV
	26											
	27											
	28											
	29											
	30		SPT		13 26 27 15		53				quartz vein	
	31										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project: Parks Hwy 305-325 Reconstruction
Project Number: Z606570000
Test Hole Number: 19-035
Total Depth: 20 feet
Dates Drilled: 9/28/2019
Field Geologist: J. SIMPSON
Field Crew: P. Lanigan, M. Sousa, T. Hartford
Equipment Type: CME 850
Station, Offset:
Weather: 35F, cloudy, windy
Latitude, Longitude: N64.67722°, W148.88579°
TH Finalized By: J. Simpson
Vegetation:
Elevation:

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											Tn-Bn Sandy SILT w/ Gravel (fill) weathered bedrock fill	
1			AUGER	19-4498		■						**19-4498 (1.0-2.5)** USCS=SM P200=13.6% NM=6.9% LL=NV PI=NP PL=NV
2						■						
3						■						
4			SPT	19-4499	4	■					Tn Soft BEDROCK, soft(schist) moist, weathered to silty gravel with sand, micaceous with quartz	**19-4499 (4.0-5.0)** USCS=GM P200=12.5% NM=4.2% LL=NV PI=NP PL=NV
5					7	■						
6					6		13					
7					6							
8											harder layer with 5"- rock pieces in cuttings	
9					2							
10	H-S Auger		SPT		4							
11					3		7					
12					4							
13											biotite schist?	
14					2	■					moist, weathered to silty sand with gravel	**19-4500 (14.0-15.0)** USCS=SM P200=23.7% NM=9.8% LL=NV PI=NP PL=NV
15			SPT	19-4500	4	■						
16					3		7					
17					5							
18												
19											Bn-Gy hard layer	
20											REFUSAL BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-036
Project Number	Z606570000	Total Depth	40.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/28/2019
Field Crew	P. Lanigan, M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67641°, W148.894°
Weather	40F, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	birch, spruce, willow

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	0										ORG MAT 3"	
	1					■					Bn-Tn SILT wet, *sl Org*	**19-4501 (1.0-3.0)** USCS (wash)=ML P200=98.1% NM=19.4% ORG=2.6% LL=NV PI=NP PL=NV
	2		AUGER	19-4501		■						
	3					■						
	4				2						loose, *Org*	
	5		SPT	19-4502	3 3 4	■	6					**19-4502 (4.0-5.5)** USCS (wash)=ML P200=97.1% NM=24.8% ORG=5.7% LL=NV PI=NP PL=NV
	6											
	7											
	8										Bn wet	
	9		SPT	19-4503	1 1	■					wet, very loose, *Org*	**19-4503 (8.5-9.5)** USCS (wash)=ML P200=89.2% NM=35.1% ORG=5.6% LL=NV PI=NP PL=NV
	10				1.5 1.5		2.5					
	11											
	12											
	13											
H-S Auger	14		SPT	19-4504	1 1.5	■					very loose, *sl Org*	**19-4504 (13.5-14.5)** USCS (wash)=ML P200=93.8% NM=26.3% ORG=4.5% LL=NV PI=NP PL=NV
	15				1.5 2		3					
	16											
	17											
	18											
	19		SPT	19-4505	1 3	■					loose	**19-4505 (18.5-20.0)** USCS (wash)=ML P200=94.7% NM=20.5% ORG=3.1% LL=NV PI=NP PL=NV
	20				2 4	■	5					
	21											
	22											
	23											
	24		SPT	19-4506	2 3	■					Tn moist to wet, loose	**19-4506 (23.5-25.0)** USCS (wash)=ML P200=85.4% NM=11.3% ORG=1.8% LL=NV PI=NP PL=NV
	25				3 5	■	6					
	26											
	27											
	28											
	29		SPT	19-4507	3 4	■					moist to wet, loose	**19-4507 (28.5-30.0)** USCS (wash)=ML P200=94.0%
	30				5	■	9					

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-036

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	30				5							NM=16.3% ORG=1.8% LL=NV PI=NP PL=NV
	31											
	32											
	33											
	34		SPT	19-4508	3 6 6		12				wet, medium dense	**19-4508 (33.5-35.0)** USCS (wash)=ML P200=96.4% NM=19.7% ORG=1.7% LL=NV PI=NP PL=NV
	35				7							
	36											
	37											
	38											
	39		SPT	19-4509	4 6		15				moist to wet, medium dense	**19-4509 (38.5-40.5)** USCS (wash)=ML P200=98.2% NM=15.6% ORG=1.4% LL=NV PI=NP PL=NV
	40				9 8						BOH	

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-037
Project Number	Z606570000	Total Depth	24 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/29/2019
Field Crew	M. Sousa, T. Hartford, G. Nelson	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67672°, W148.89037°
Weather	40F, rain, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, willow, birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ORG MAT 3"	
1			AUGER	19-4510		■					Bn SILT w/ Sand wet, *Org*	**19-4510 (1.0-2.0)** USCS=ML P200=78.4% NM=23.5% ORG=6.1% LL=NV PI=NP PL=NV
2						■						
3												
4			SPT	19-4511	2	■					SILT moist to wet, loose	**19-4511 (4.0-4.5)** USCS (wash)=ML P200=96.2% NM=17.4% ORG=1.6% LL=NV PI=NP PL=NV
5					2		5					
					3							
6					3							
7												
8												
9												
10	H-S Auger		SPT	19-4512	2	■					moist, loose	**19-4512 (9.0-10.0)** USCS (wash)=ML P200=92.1% NM=11.3% ORG=1.1% LL=NV PI=NP PL=NV
					3	■	6					
11					3							
					4							
12												
13												
14											Tn-Bn Soft BEDROCK, soft(schist) moist, weathered to silty sand with gravel, slightly micaceous with quartz	
			SPT	19-4513	2	■						**19-4513 (14.0-15.0)** USCS=SM P200=20.6% NM=8.1% ORG=2.1% LL=NV PI=NP PL=NV
15					6	■	14					
					8							
16					12							
17											more competent with depth	
18												
19											immediate refusal when SPT attempted	
20												
21												
22												
23												
24											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-038
Project Number	Z606570000	Total Depth	24 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/29/2019
Field Crew	M. Sousa, T. Hartford, G. Nelson	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67712°, W148.88699°
Weather	40F, cloudy, light rain	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, willow, birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ORG MAT 2"	
	1		AUGER	19-4514		■					Bn-Tn SILT moist	**19-4514 (1.0-2.0)** USCS=SM P200=39.0% NM=6.9% LL=NV PI=NP PL=NV
	2					■						
	3										Tn Soft BEDROCK, soft(schist) moist, weathered to silty sand with gravel, slightly micaceous	
	4				6	■					Bn-Tn	
	5		SPT	19-4515	6 4	■	10				micaceous with quartz veins	**19-4515 (4.0-5.5)** USCS=SM P200=16.6% NM=8.2% LL=NV PI=NP PL=NV
	6				4							
	7											
	8											
	9				6							
	10		SPT		4 6		10					
	11				9							
	12											
	13										quartz rich	
	14				13						Tn-Bn	
	15		SPT		50							
	16											
	17											
	18										harder layers	
	19				28							
	20		SPT		53							
	21											
	22										large quartz vein	
	23											
	24										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-039
Project Number	Z606570000	Total Depth	41.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/29/2019
Field Crew	M. Sousa, T. Hartford, G. Nelson	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67604°, W148.89766°
Weather	40F, cloudy, light rain	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce, occassionl birch

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS: Realignment/Cut

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ORG MAT 6"	
1											Tn-Bn SILT moist, *sl Org*	**19-4517 (1.5-3.0)** USCS (wash)=ML P200=94.9% NM=11.4% ORG=3.1% LL=NV PI=NP PL=NV
2			AUGER	19-4517		■						
3						■						
4												
5			SPT	19-4518	2	■					Tn-Gy loose	**19-4518 (4.5-5.5)** USCS (wash)=ML P200=92.8% NM=10.0% ORG=1.5% LL=NV PI=NP PL=NV
6					2	■	4					
7					2							
8												
9												
10			SPT	19-4519	1.5	■					Tn-Bn moist to wet, very loose, *sl Org*	**19-4519 (9.5-10.5)** USCS (wash)=ML P200=93.8% NM=17.8% ORG=2.1% LL=NV PI=NP PL=NV
11					2		3.5					
12					3							
13											Bn	
14												
15	H-S Auger		SPT	19-4520	2	■					Bn-Tn loose	**19-4520 (14.5-16.0)** USCS (wash)=ML P200=98.6% NM=17.7% ORG=2.1% LL=NV PI=NP PL=NV
16					3	■	6					
17					3	■						
18					2							
19												
20			SPT	19-4521	2	■					Tn moist, loose	**19-4521 (19.5-20.5)** USCS (wash)=ML P200=98.7% NM=11.9% ORG=1.1% LL=NV PI=NP PL=NV
21					3	■	7					
22					4							
23					4							
24												
25			SPT	19-4522	2	■					loose	**19-4522 (24.5-26.5)** USCS (wash)=ML P200=96.7% NM=10.3% ORG=1.1% LL=NV PI=NP PL=NV
26					3	■	6					
27					3	■						
28					5	■						
29												
30					4							

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-039

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	30				6						Tn-Or Soft BEDROCK, soft(schist) weahtered to silty sand with gravel, slightly micaceous with graphitic layers	**19-4523 (30.0-31.5)** USCS=SM P200=35.6% NM=10.5% LL=NV PI=NP PL=NV
	31		SPT	19-4523	7		13					
	32				7							
	33											
	34											
	35		SPT	19-4524	8		16					**19-4524 (34.5-36.0)** USCS=SM P200=36.2% NM=11.3% LL=NV PI=NP PL=NV
	36				7							
	37				9							
	38				12							
	39											
	40		SPT		2		41					
	41				19							
					22							
					19							

BOH

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-040
Project Number	Z606570000	Total Depth	33.75 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/30/2019
Field Crew	M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67587°, W148.9005°
Weather	40, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	spruce

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Cut

Depth in (Feet)	Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	SUBSURFACE MATERIAL	TEST RESULTS
0						ORG MAT 5"	
1	AUGER	19-4525a				Tn SILT moist to wet, *sl Org*	**19-4525a (1.0-1.5)** NM=13.4% ORG=2.4%
2							
3	AUGER	19-4525	2			moist, loose	**19-4525 (2.0-3.0)** USCS (wash)=ML P200=95.7% NM=12.0% LL=NV PI=NP PL=NV
4	SPT	19-4526	3 3 3		6		**19-4526 (3.5-4.5)** USCS (wash)=ML P200=97.4% NM=9.4% ORG=1.0% LL=NV PI=NP PL=NV
5							
6							
7							
8	SPT	19-4527	1.5 1.5			moist to wet, very loose, *sl Org*	**19-4527 (8.0-9.0)** USCS (wash)=ML P200=93.2% NM=16.2% ORG=2.3% LL=NV PI=NP PL=NV
9			2 2		3.5		
10							
11							
12							
13	SPT	19-4528	2 3			moist, loose	**19-4528 (13.0-14.0)** USCS (wash)=ML P200=97.5% NM=11.5% LL=NV PI=NP PL=NV
14		19-4528a	4 2		7		**19-4528a (14.3-14.8)** NM=12.6% ORG=1.2%
15							
16							
17							
18	SPT	19-4529	3 3			moist, loose	**19-4529 (18.0-19.0)** USCS (wash)=ML P200=95.2% NM=10.7% ORG=1.3% LL=NV PI=NP PL=NV
19			3 2		6		
20							
21							
22							
23	SPT	19-4530	2 3			loose	**19-4530 (23.0-24.0)** USCS (wash)=ML P200=96.4% NM=10.4% ORG=0.9% LL=NV PI=NP PL=NV
24			4 3		7		
25							
26							
27						Tn-Or Soft BEDROCK, soft(schist) weathered to silty sand, slightly micaceous	
28	SPT	19-4531	3 5				**19-4531 (28.0-29.0)** USCS=SM P200=41.3% NM=14.4%
29			7 7		12	highly graphitic	
30							

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-040

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	30											LL=NV PI=NP PL=NV
	31											
	32											
	33				42 52							
			SPT								BOH	

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-041
Project Number	Z606570000	Total Depth	29.75 feet
Field Geologist	J. SIMPSON	Dates Drilled	9/30/2019
Field Crew	M. Sousa, T. Hartford	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.67482°, W148.90524°
Weather	40, cloudy	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Realignment/Fill

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										Bn Silty GRAVEL w/ Sand (fill?) moist to wet, *sl Org*, schist gravel	**19-4532 (1.0-2.0)** USCS=GM P200=34.1% NM=16.4% ORG=2.3% LL=NV PI=NP PL=NV
	1		AUGER	19-4532								
	2											
	3											
	4											
	5		SPT	19-4533	2 2		4.5				Bn SILT wet, loose, *sl Org*	**19-4533 (4.5-5.5)** USCS=ML P200=92.8% NM=25.0% ORG=3.0% LL=NV PI=NP PL=NV
	6				2.5 2.5							
	7											
	8											
	9											
	10		SPT	19-4534	1.5 1.5		4.5				moist to wet	**19-4534 (9.5-10.0)** USCS=ML P200=81.4% NM=17.6% ORG=2.5% LL=NV PI=NP PL=NV
	11				3 4						Gy Soft BEDROCK, soft(schist) weathered to silty gravel with sand, graphitic	
	12											
	13											
	14											
	15		SPT	19-4535	6 7		13					**19-4535 (14.5-15.3)** USCS=GM P200=21.3% NM=8.9% LL=NV PI=NP PL=NV
	16			19-4535a	6 7							**19-4535a (15.5-16.0)** NM=6.8%
	17											
	18											
	19											
	20		SPT		7 11		20					
	21				9 9							
	22										harder layer	
	23											
	24											
	25		SPT	19-4536	10 10		19				weathered to silty sand	**19-4536 (24.5-26.5)** USCS=SM P200=39.7% NM=11.8% LL=NV PI=NP PL=NV
	26				9 11							
	27											
	28											
	29											
			SPT		50						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-042
Project Number	Z606570000	Total Depth	22 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/1/2019
Field Crew	P. Lanigan, T. Hartford	Station, Offset	12RT
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.66045°, W148.95651°
Weather	cloudy, 40F	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Sinkhole, southbound lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 9"	
	1										Bn Silty SAND w/ Gravel (fill) moist, 2"-	
	2											
	3		SPT	19-4537	4 8	■ ■						**19-4537 (2.5-3.5)** USCS=SM P200=21.2% NM=6.5% ORG=1.7% LL=NV PI=NP PL=NV
	4				9 12							
	5				4							
	6		SPT	19-4538	9 15 18	■	24				Bn-Tn SILT wet, *Org*, oxidation	**19-4538 (5.5-6.0)** USCS (wash)=ML P200=98.6% NM=21.5% ORG=5.7% LL=NV PI=NP PL=NV
	7											
	8		SPT	19-4539	6 7 9	■	16				Tn-Gy moist to wet, medium dense, slight oxidation	**19-4539 (8.0-8.5)** USCS (wash)=ML P200=96.2% NM=12.7% ORG=1.3% LL=NV PI=NP PL=NV
	9				8							
	10				5						moist to wet, medium dense, oxidation	
	11		SPT	19-4540	7 8 8	■ ■	15					**19-4540 (11.0-12.0)** USCS (wash)=ML P200=97.0% NM=14.3% ORG=1.2% LL=NV PI=NP PL=NV
	12											
	13				5 6		12				moist to wet, medium dense, slight oxidation	
	14		SPT	19-4541	6 9	■ ■						**19-4541 (13.5-14.5)** USCS (wash)=ML P200=96.3% NM=14.1% ORG=1.2% LL=NV PI=NP PL=NV
	15				5						moist, medium dense	
	16		SPT	19-4542	6 7	■ ■	13					**19-4542 (15.5-16.5)** USCS (wash)=ML P200=93.1% NM=11.0% ORG=1.2% LL=NV PI=NP PL=NV
	17				7							
	18				3 4						Gy-Tn moist to wet, loose	
	19		SPT	19-4543	4 5	■	8					**19-4543 (18.5-19.0)** USCS (wash)=ML P200=89.2% NM=14.7% ORG=1.5% LL=NV PI=NP PL=NV
	20				3						moist to wet, loose, slight oxidation	
	21				4 5	■	9					
	22		SPT	19-4544	4	■					BOH	**19-4544 (21.0-22.0)** USCS (wash)=ML P200=86.0% NM=14.5% ORG=1.7% LL=NV PI=NP PL=NV

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-043
Project Number	Z606570000	Total Depth	22 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/1/2019
Field Crew	P. Lanigan, T. Hartford	Station, Offset	9.5LT
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.66034°, W148.95657°
Weather	cloudy, 40F	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Sinkhole, northbound lane

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 8"	
1	H-S Auger		AUGER	19-4545							Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist, 2"-	**19-4545 (1.0-1.5)** USCS=SP-SM P200=10.1% LL=NV PI=NP PL=NV
2												
3					4 8						Tn-Bn Silty GRAVEL w/ Sand (fill) moist, weathered schist bedrock fill	
4			SPT	19-4546	12 15							**19-4546 (3.5-4.5)** USCS=GM P200=17.4% NM=7.1% ORG=1.7% LL=NV PI=NP PL=NV
5												
6					4 10						Tn-Bn SILT moist to wet, *sl Org*, oxidation	
7			SPT	19-4547	11 11							**19-4547 (6.0-7.0)** USCS (wash)=ML P200=98.9% NM=15.8% ORG=3.1% LL=NV PI=NP PL=NV
8					2 5						moist to wet, medium dense, slight oxidation	
9			SPT	19-4548	6 6		11					**19-4548 (8.5-9.5)** USCS (wash)=ML P200=99.4% NM=13.4% ORG=1.9% LL=NV PI=NP PL=NV
10					2 5						Gy-Tn moist to wet, loose, oxidation	
11			SPT	19-4549	4 4		9					**19-4549 (11.0-12.0)** USCS (wash)=ML P200=95.9% NM=14.8% ORG=1.3% LL=NV PI=NP PL=NV
12												
13					2 4						moist, loose, oxidation	
14			SPT	19-4549a	4 4		8					**19-4549a (13.8-14.5)** USCS (wash)=ML P200=94.6% NM=11.8% ORG=1.3% LL=NV PI=NP PL=NV
15					2						moist, loose, increase in moisture at bottom of sample	
16					3 4		7				Gy wet, *sl Org*	
17			SPT	19-4550	11							**19-4550 (16.5-17.0)** USCS (wash)=ML P200=94.6% NM=19.5% ORG=2.8% LL=NV PI=NP PL=NV
18					6 13						Nbn, 31.5F	
19			SPT	19-4551	12 12							**19-4551 (18.8-19.5)** USCS (wash)=ML P200=93.7% NM=33.1% ORG=1.8% LL=NV PI=NP PL=NV
20			SPT	19-4552	6 13						very small, thin ice vein, otherwise Nbe	**19-4552 (20.0-20.8)** USCS (wash)=ML P200=91.2% LL=NV PI=NP PL=NV
21					11							
22				19-4553	12						BOH	**19-4553 (21.5-22.0)** NM=35.1% ORG=2.1%

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project: Parks Hwy 305-325 Reconstruction
Project Number: Z606570000
Test Hole Number: 19-044
Total Depth: 42 feet
Dates Drilled: 10/2/2019
Field Geologist: J. SIMPSON
Field Crew: P. Lanigan, T. Hartford
Equipment Type: CME 55 Truck
Station, Offset:
Weather: rain, 35F
Latitude, Longitude: N64.6598°, W148.95796°
TH Finalized By: J. Simpson
Vegetation:
Elevation:

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Sinkhole control, northbound lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 3"	
	1										Bn Poorly-graded SAND w/ Gravel (fill) dry to moist woven geotextile	
	2											
	3		SPT	19-4554	8 12 13 14	■					Tn-Bn Silty SAND w/ Gravel (fill) moist, weathered schist bedrock fill	**19-4554 (3.0-3.5)** USCS=SM P200=22.9% NM=6.8% LL=NV PI=NP PL=NV
	4											
	5				5						Bn-Tn SILT moist Tn	
	6		SPT	19-4555	6 6 5	■	12				moist, medium dense, slightly oxidated	**19-4555 (5.5-6.0)** USCS (wash)=ML P200=96.2% NM=11.5% ORG=1.3% LL=NV PI=NP PL=NV
	7											
	8		SPT	19-4556	1 2 2 3	■	4				Tn-Gy moist to wet, loose, slight increase in moisture, very slightly organic	**19-4556 (8.0-8.5)** USCS (wash)=ML P200=91.6% NM=13.7% LL=NV PI=NP PL=NV
	9											
	10				1 2						moist to wet, loose, *sl Org*	
	11		SPT	19-4557	4 4	■	6					**19-4557 (11.0-12.0)** USCS (wash)=ML P200=91.6% NM=18.4% ORG=2.6% LL=NV PI=NP PL=NV
	12											
	13		SPT	19-4558	1 3 4 5	■	7				Bn-Tn wet, loose, *sl Org*	**19-4558 (13.0-14.0)** USCS (wash)=ML P200=95.7% NM=21.3% ORG=2.9% LL=NV PI=NP PL=NV
	14											
	15		SPT	19-4559	1 4 3 5	■	7				Bn wet, loose, *sl Org*, slightly oxidized	**19-4559 (15.0-17.0)** USCS (wash)=ML P200=89.4% NM=19.9% ORG=4.6% LL=NV PI=NP PL=NV
	16											
	17											
	18		SPT	19-4560	1 3 3 5	■	6				Tn-Bn wet, loose	**19-4560 (18.0-18.5)** USCS (wash)=ML P200=96.9% NM=21.3% ORG=4.2% LL=NV PI=NP PL=NV
	19											
	20											
	21		SPT	19-4561	1 3 3 4	■	6				Bn-Tn wet, loose, *Org*, last couple inches of sample highly oxidized	**19-4561 (20.5-21.0)** USCS (wash)=ML P200=97.0% NM=24.3% ORG=5.7% LL=NV PI=NP PL=NV
	22											
	23		SPT	19-4562	WOH 0 1 1.5	■	1				Bn wet, very loose, *Org*	**19-4562 (22.5-23.0)** USCS (wash)=ML P200=96.1% NM=25.0% ORG=6.7% LL=NV
	24											
	25											

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-044

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	25				1						wet, loose, *Org*	PI=NP PL=NV
	26		SPT	19-4563	2	■	6					**19-4563 (25.5-26.0)** USCS (wash)=ML P200=88.1% NM=23.4% ORG=5.1% LL=NV PI=NP PL=NV
					4							
	27				5							
	28				2						wet, loose, *Org*	
					2							
	29		SPT	19-4564	3	■	5					**19-4564 (28.5-29.0)** USCS (wash)=ML P200=94.5% NM=22.8% ORG=5.8% LL=NV PI=NP PL=NV
					4							
	30											
					2						wet, loose, *sl Org*	
	31		SPT	19-4565	2	■	5					**19-4565 (30.5-31.0)** USCS (wash)=ML P200=96.6% NM=19.4% ORG=4.5% LL=31 PI=NP PL=NV
					3							
	32				4							
	33											
	34											
	35											
					2						Tn-Bn	
	36		SPT	19-4566	3	■	8				moist to wet, loose, *sl Org*	**19-4566 (35.5-36.0)** USCS (wash)=ML P200=90.3% NM=16.9% ORG=3.0% LL=NV PI=NP PL=NV
					5							
	37				5							
	38											
	39											
	40											
					3						wet, loose, *sl Org*	
	41		SPT	19-4567	4	■	10					**19-4567 (40.5-41.0)** USCS (wash)=ML P200=96.5% NM=19.2% ORG=3.7% LL=NV PI=NP PL=NV
					6							
					7							
	42										BOH	

H-S Auger

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-045
Project Number	Z606570000	Total Depth	42 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/2/2019
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.66072°, W148.9558°
Weather	snow/rain 32F	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Sinkhole control, southbound lane

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 3"	
1											Bn Poorly-graded SAND w/ Gravel (fill) dry to moist	
2												
3			SPT	19-4568	4 11 14	■	25				Tn-Bn Silty GRAVEL w/ Sand (fill) moist, medium dense, weathered schist bedrock fill	**19-4568 (3.0-4.0)** USCS=GM P200=17.2% NM=7.2% LL=NV PI=NP PL=NV
4					12							
5					5							
6			SPT	19-4569	5 8	■					Bn-Tn SILT wet, *sl Org*	**19-4569 (5.5-6.5)** P200=0.0% NM=20.3% ORG=3.9% LL=NV PI=NP PL=NV
7					7							
8					2						Tn	
9			SPT	19-4570	4 5	■	9				moist to wet, loose	**19-4570 (8.0-9.0)** USCS (wash)=ML P200=98.4% NM=12.2% ORG=0.9% LL=NV PI=NP PL=NV
10					5							
11					2 4						moist to wet, loose	
12	H-S Auger		SPT	19-4571	5 5	■	9					**19-4571 (11.0-12.0)** USCS (wash)=ML P200=98.3% NM=13.0% ORG=1.2% LL=NV PI=NP PL=NV
13					2							
14			SPT	19-4572	3 5	■	8				moist, loose	**19-4572 (13.0-13.5)** USCS (wash)=ML P200=99.1% NM=11.5% ORG=1.0% LL=NV PI=NP PL=NV
15					5							
16			SPT	19-4573	2 3 5	■	8				moist, loose	**19-4573 (15.0-16.5)** USCS (wash)=ML P200=97.6% NM=12.0% ORG=1.2% LL=NV PI=NP PL=NV
17					5							
18					2						moist, loose	
19			SPT	19-4574	4 5	■	9					**19-4574 (18.0-19.0)** USCS (wash)=ML P200=96.8% NM=10.8% ORG=1.2% LL=NV PI=NP PL=NV
20					4							
21			SPT	19-4575	2 3 3	■	6				Tn-Gy moist, loose	**19-4575 (20.5-21.5)** USCS (wash)=ML P200=91.3% NM=12.0% ORG=1.5% LL=NV PI=NP PL=NV
22					2							
23												
24												
25												

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-045

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	25											
	26		SPT	19-4576	2 5 7 9		12				Bn-Tn wet, medium dense, *Org*, slight oxidation	**19-4576 (25.5-26.5)** USCS (wash)=ML P200=89.2% NM=26.9% ORG=6.0% LL=NV PI=NP PL=NV
	27											
	28											
	29											
	30				4						Bn	
	31		SPT	19-4577	7 8 9		15				wet, medium dense, *sl Org*	**19-4577 (30.5-31.5)** USCS (wash)=ML P200=89.3% NM=20.1% ORG=4.9% LL=NV PI=NP PL=NV
	32											
	33											
	34											
	35				4						Gy	
	36		SPT	19-4578	5 7 10		12				wet, medium dense, *sl Org*	**19-4578 (35.5-36.5)** USCS (wash)=ML P200=95.4% NM=23.0% ORG=4.1% LL=NV PI=NP PL=NV
	37											
	38											
	39											
	40				3						wet, medium dense, *Org*	
	41		SPT	19-4579	6 9 9		15					**19-4579 (40.5-41.5)** USCS (wash)=ML P200=78.1% NM=22.2% ORG=5.5% LL=NV PI=NP PL=NV
	42										BOH	

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-046
Project Number	Z606570000	Total Depth	42 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/2/2019
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.66052°, W148.95663°
Weather	rain/35F	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Sinkhole

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										Bn Well-graded SAND w/ Silt (fill) moist to wet	
	1											
	2											
	3				2						Bn SILT wet, *sl Org*	
	4		SPT	19-4580	1 2 2							**19-4580 (3.5-4.5)** USCS=ML P200=93.4% NM=38.2% ORG=3.5% LL=NV PI=NP PL=NV
	5											
	6		SPT	19-4581	WOH 0 0		0				Tn wet, very loose	**19-4581 (5.5-6.0)** USCS (wash)=ML P200=95.9% NM=23.5% ORG=1.6% LL=NV PI=NP PL=NV
	7				2							
	8		SPT	19-4582	1 1		2				wet, very loose	**19-4582 (8.0-8.3)** USCS (wash)=ML P200=97.4% NM=19.6% ORG=1.1% LL=NV PI=NP PL=NV
	9				1 1							
	10		SPT	19-4583	0.5						wet, very loose, slight oxidation	**19-4583 (10.3-10.5)** USCS (wash)=ML P200=97.9% NM=19.8% ORG=1.2% LL=NV PI=NP PL=NV
	11				0.5 0.5 0.5		1					
	12											
	13		SPT	19-4584	1 2		4				moist to wet, very loose, slight oxidation	**19-4584 (13.0-13.5)** USCS (wash)=ML P200=97.4% NM=16.5% ORG=1.0% LL=NV PI=NP PL=NV
	14				2 2							
	15											
	16		SPT	19-4585	1 1 2		3				Tn-Gy moist, very loose, slight oxidation	**19-4585 (15.5-16.3)** USCS (wash)=ML P200=93.9% NM=17.9% ORG=1.2% LL=NV PI=NP PL=NV
	17				3							
	18		SPT	19-4586	2 3 3		6				moist to wet, loose, slight oxidation	**19-4586 (18.0-19.0)** USCS (wash)=ML P200=97.7% NM=19.4% ORG=1.5% LL=NV PI=NP PL=NV
	19				4							
	20											
	21		SPT	19-4587	1.5 1.5 1.5		3				Bn-Tn wet, very loose, increase in oxidation	**19-4587 (20.3-21.0)** USCS (wash)=ML P200=91.7% NM=19.1% ORG=1.9% LL=NV PI=NP PL=NV
	22				2.5							
	23		SPT	19-4588	1 3 3		6				wet, loose, slight oxidation	**19-4588 (23.0-24.0)** USCS (wash)=ML P200=96.0% NM=28.5% ORG=5.4%
	24				4						*Org*, small organic layer	
	25											

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-046

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	25										wet, loose	LL=NV PI=NP PL=NV
	26		SPT	19-4589	1 3 3		6					**19-4589 (25.5-26.5)** USCS (wash)=ML P200=95.7% NM=29.3% ORG=4.5% LL=NV PI=NP PL=NV
	27				3							
	28											
	29											
	30											
	31		SPT	19-4590	2 3 3		6				Bn wet, loose, *Org* organic layer	**19-4590 (30.5-31.5)** USCS (wash)=ML P200=94.7% NM=29.2% ORG=6.6% LL=NV PI=NP PL=NV
	32				5							
	33										wood chunks in cuttings	
	34											
	35											
	36		SPT	19-4591	1 2 4		6				Bn wet, loose, *Org*, very slightly organic	**19-4591 (35.5-36.5)** USCS (wash)=ML P200=91.6% NM=30.0% ORG=5.4% LL=NV PI=NP PL=NV
	37				4							
	38											
	39											
	40											
	41		SPT	19-4592	2 3 4		7				wet, loose, *Org*	**19-4592 (40.5-41.5)** USCS (wash)=ML P200=94.0% NM=27.4% ORG=5.4% LL=NV PI=NP PL=NV
	42				5						BOH	

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project: Parks Hwy 305-325 Reconstruction
Project Number: Z606570000
Field Geologist: J. SIMPSON
Field Crew: P. Lanigan, T. Hartford
Equipment Type: CME 55 Truck
Weather: rain/37F
TH Finalized By: J. Simpson
Vegetation:

Test Hole Number: 19-047
Total Depth: 37 feet
Dates Drilled: 10/3/2019
Station, Offset:
Latitude, Longitude: N64.66032°, W148.95639°
Elevation:

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Off of northbound lane, across from drainage that leads to second sinkhole

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											Bn SILT w/ Sand wet	
1	H-S Auger		AUGER	19-4594								**19-4594 (0.5-1.5)** USCS (wash)=ML P200=92.2% NM=34.8% ORG=3.2% LL=NV PI=NP PL=NV
2												
3			SPT	19-4595	WOH 0						very loose, *Org*, chunks of wood	**19-4595 (2.5-3.0)** USCS=ML P200=78.6% NM=44.9% ORG=5.7% LL=NV PI=NP PL=NV
4					0 3		0					
5											Bn-Tn	
6			SPT	19-4596	2 1.5 2.5		4				wet, very loose, *Org*, oxidized and organic layers	**19-4596 (5.5-6.5)** USCS=ML P200=83.1% NM=38.6% ORG=9.0% LL=NV PI=NP PL=NV
7					5							
8					2						Tn	
9			SPT	19-4597	3 7 8		10				wet, very loose, *sl Org*	**19-4597 (8.0-9.0)** USCS (wash)=ML P200=91.1% NM=21.7% ORG=3.6% LL=NV PI=NP PL=NV
10					4						moist to wet, loose, *sl Org*	
11			SPT	19-4598	4 6 10		10					**19-4598 (10.5-11.5)** USCS (wash)=ML P200=97.5% NM=16.8% ORG=2.4% LL=NV PI=NP PL=NV
12												
13			SPT	19-4599	4 6 7		13				moist to wet, medium dense, slight oxidation	**19-4599 (13.0-14.0)** USCS (wash)=ML P200=92.0% NM=14.1% ORG=1.3% LL=NV PI=NP PL=NV
14					8							
15					3						moist to wet, medium dense	
16			SPT	19-4600	6 6		12					**19-4600 (15.5-16.5)** USCS (wash)=ML P200=89.9% NM=14.3% ORG=1.5% LL=NV PI=NP PL=NV
17					7							
18			SPT	19-4601	2						wet, loose, *sl Org*	**19-4601 (17.8-18.0)** USCS (wash)=ML P200=86.1% NM=27.7% ORG=2.8% LL=NV PI=NP PL=NV
19				19-4602	3 5 7		8				Gy wet, *sl Org*	**19-4602 (18.3-18.8)** USCS (wash)=ML P200=96.7% NM=31.7% ORG=3.1% LL=NV PI=NP PL=NV
20												
21			SPT	19-4603	2 3 5		8				wet, loose, *Org*	**19-4603 (20.3-21.3)** USCS (wash)=ML P200=89.0% NM=33.2% ORG=5.2% LL=NV PI=NP PL=NV
22					5							
23					1.5						wet, loose, *Org*	**19-4604 (23.0-24.0)** USCS=ML P200=90.8% NM=43.9% ORG=6.1%
24			SPT	19-4604	1.5 4 5		5.5					
25												

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325.GPJ AK.DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-047

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	25											25
					1						wet, loose, *Org*, increase in moisture and organics	LL=NV PI=NP PL=NV
	26		SPT	19-4605	2 4		6					**19-4605 (25.5-26.5)** USCS (wash)=ML P200=88.3% NM=51.4% ORG=8.3% LL=NV PI=NP PL=NV
	27				4							27
	28								?		slower drill reaction, possibly frozen	28
	29								?			29
	30								?			30
H-S Auger					6						wet, *Org*	**19-4606 (30.0-31.8)** USCS (wash)=ML P200=89.4% NM=51.4% ORG=5.8% LL=NV PI=NP PL=NV
	31		SPT	19-4606	10 9						very small ice veins, otherwise nbn/nbe	31
	32				9							32
	33											33
	34											34
	35				5						Gy-Bn	35
	36		SPT	19-4607	10 17						wet, *Org*, small ice vein at bottom of sample	**19-4607 (35.5-37.0)** USCS (wash)=ML P200=91.2% NM=48.7% ORG=5.7% LL=NV PI=NP PL=NV
	37				17						BOH	37

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-016
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/30/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69335°, W148.83102°
Weather		Elevation	1014.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1		SPT	20-4041	16 / 21 / 22		43				Bn Poorly-graded GRAVEL w/ Silt & Sand dry to moist, dense	**20-4041 (0.5-1.5)** USCS=GP-GM P200=7.5% NM=1.9% LL=NV PI=NP PL=NV
	2				28							
	3										moisture increases slightly	
	4											
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-017
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	4/30/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.68829°, W148.84842°
Weather		Elevation	908.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 3"	
					8						Bn Well-graded SAND w/ Gravel (fill) moist	
	1		SPT		12						Tn Silty SAND w/ Gravel (fill) moist, refusal at 4.25 ft with SPT, possble bedrock below this point	
					15							
	2				12							
					5							
	3		SPT		11		23					
					12							
	4				50							
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-018
Project Number	Z606570000	Total Depth	10.6 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/1/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69615°, W148.82353°
Weather		Elevation	1059.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing/Climbing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1										Bn Well-graded SAND w/ Gravel (fill) moist	
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill, possibly highly weathered bedrock from 4 ft bgs	
	3											
	4											
	5				21						Tn Soft BEDROCK, soft(Schist) highly weathered to silty sand with gravel	**20-4042 (5.0-7.0)** USCS=SM P200=18.9% NM=4.9% LL=25 PI=0 PL=25
	6		SPT	20-4042	36		69					
	7				33							
	8				30							
	9											
	10		SPT		15							
					50						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-019
Project Number	Z606570000	Total Depth	30.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/1/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69408°, W148.82927°
Weather		Elevation	1019.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing/Climbing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 3"	
	1										Bn Well-graded SAND w/ Gravel (fill) moist	
	2											
	3											
	4										Bn Well-graded SAND w/ Silt & Gravel (fill) moist	
	5				28						Tn-Gy Silty SAND w/ Gravel (fill) moist, very dense, micaceous and graphitic bedrock fill	
	6		SPT		39		89					
	7				50							
	8				47							
	9											
	10											
	11				14							
	12				25						Bn Sandy SILT moist to wet, *sl Org*, mica chips	**20-4043 (11.0-12.0)** USCS=ML P200=59.9% NM=14.3% ORG=3.5% LL=31 PI=8 PL=23
	13		SPT	20-4043	31							
	14				30						Bn-Gy	
	15											
	16											
	17											
	18											
	19											
	20											
	15				3							**20-4044 (15.0-17.0)** USCS=ML P200=59.0% NM=17.4% ORG=4.4% LL=28 PI=2 PL=26
	16		SPT	20-4044	4		9					
	17				5						Gy moist to wet, *sl Org*	
	18				7							

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop.

☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 20-019

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	20		SPT		9						Tn Soft BEDROCK, soft(Schist) highly weathered with graphitic layers	
	21				19							
	22				28							
	23				38							
	24											
	25		SPT		50							
	26											
	27											
	28											
	29											
	30		SPT		50						BOH	

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-020
Project Number	Z606570000	Total Depth	10.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/1/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69249°, W148.83331°
Weather		Elevation	1014.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing/Climbing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 1.5"	
	1		AUGER	20-4045		■					Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4045 (0.5-1.5)** USCS=SP-SM P200=7.6% NM=5.3% LL=NV PI=NP PL=NV
	2											
	3										Tn Silty SAND w/ Gravel (fill) moist	
	4										Tn Soft BEDROCK, soft(Schist) highly weathered micaceous and graphitic bedrock with thin hard layers BODR, quartzite pieces in cuttings	
	5		SPT		50							
	6											
	7											
	8										Bn-Tn	
	9											
	10		SPT		50						Gy-Bn	
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-021
Project Number	Z606570000	Total Depth	10 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/1/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69092°, W148.83821°
Weather		Elevation	949.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing/Climbing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1										Bn Well-graded SAND w/ Silt & Gravel (fill) moist	
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3		SPT		4 16						Tn Soft BEDROCK higly weathered, micaceous with graphitic layers	
	4				50 46							
	5				30							
	6		SPT		31 22							
	7				23							
	8											
	9											
	10										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop.

☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-022
Project Number	Z606570000	Total Depth	4.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/2/2020
Field Crew	P. Lanigan, M. Sousa	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.69003°, W148.84184°
Weather		Elevation	949.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 2"	
					10						Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4046 (0.5-1.5)** USCS=GP-GM P200=7.1% NM=2.7% LL=NV PI=NP PL=NV
1			SPT	20-4046	10							
					12							
2	H-S Auger				14						Tn Silty SAND w/ Gravel (fill) moist	
					7						medium dense	**20-4047 (2.5-4.0)** USCS=SM P200=19.0% NM=8.1% LL=27 PI=2 PL=25
3			SPT	20-4047	8							
					10		18					
4					20						last few inches possibly bedrock	
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-023
Project Number	Z606570000	Total Depth	27 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/2/2020
Field Crew	P. Lanigan, M. Sousa	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.68595°, W148.8535°
Weather		Elevation	960.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Lowering

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1		AUGER	20-4048							Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4048 (0.5-1.5)** USCS=SP-SM P200=7.2% NM=1.4% LL=NV PI=NP PL=NV
	2											
	3				8							
	4		SPT	20-4049	11 21 29						Tn Soft BEDROCK, soft(Schist) moist, micaceous, highly weathered to silty sand with gravel	**20-4049 (3.0-5.0)** USCS=SM P200=24.8% NM=5.9% LL=25 PI=-18 PL=43
	5		SPT		50							
	6											
	7											
	8											
	9		AUGER	20-4050								**20-4050 (8.0-10.0)** NM=6.7%
	10				10						highly weathered to sandy lean clay	**20-4051 (10.0-12.0)** USCS=CL P200=61.0% NM=11.3% LL=29 PI=11 PL=18
	11		SPT	20-4051	15 23							
	12				22				?			
	13								?			
	14								?			
	15								?			
	16		SPT		6 10 21 25		31				micaceous with graphitic layers	
	17											
	18											
	19											
	20				9							
	21		SPT		11 20 21		31					
	22											
	23											
	24											
	25											
	26		SPT		19 17 16 26		33					
	27										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-024
Project Number	Z606570000	Total Depth	4.25 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/2/2020
Field Crew	P. Lanigan, M. Sousa	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.68362°, W148.86028°
Weather		Elevation	889.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0		SPT	20-4052	9						ASPHALT 2"	
											Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) moist	**20-4052 (0.3-0.8)** USCS=GP-GM P200=5.8% NM=1.1% LL=NV PI=NP PL=NV
	1				13						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
					16							
	2				17							
					5							
	3		SPT		15		33					
					18							
	4				50						refusal on piece of quartz BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-025
Project Number	Z606570000	Total Depth	30 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/2/2020
Field Crew	P. Lanigan, M. Sousa	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.68063°, W148.86871°
Weather		Elevation	835.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1										Bn Well-graded SAND w/ Gravel (fill) moist	
	2											
	3										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	4											
	5				18							
	6		SPT	20-4053	24 28						Tn SILT moist to wet, *sl Org*	**20-4053 (5.5-7.0)** USCS=ML P200=93.0% NM=14.5% ORG=2.6% LL=25 PI=3 PL=22
	7				29							
	8											
	9											
	10		SPT	20-4054	11						wet	**20-4054 (10.0-11.0)** USCS=ML P200=86.0% NM=23.1% ORG=3.3% LL=NV PI=NP PL=NV
	11				10							
	12				10 10							
	13											
	14											
	15		SPT	20-4055	1						moist to wet, loose	**20-4055 (15.0-16.0)** NM=15.2% ORG=3.3%
	16				2 2		4					
	17				5							
	18											
	19											
	20				2						Tn Soft BEDROCK micaceous sandy silt, most likely highly weathered bedrock	
	21		SPT		5 5		10					
	22				5							
	23											
	24											
	25											
	26		SPT		31 23 37 50		60					
	27											
	28											
	29										hard layer, larger pieces of rock in returns	
	30										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop.

☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-026
Project Number	Z606570000	Total Depth	32 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/3/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.684°, W148.85942°
Weather		Elevation	873.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1											
	2										Bn Well-graded SAND w/ Gravel (fill) dry to moist	
	3											
	4										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	5				21							
	6		SPT		45		83				very dense	
	7				38							
	8				48							
	9											
	10											
	11		SPT		23							
	12				52							
	13				50							
	14											
	15											
	16		SPT		6		19				medium dense, decrease in gravel	
	17				10							
	18				9							
	19				11							
	20											
	21		SPT	20-4056	5						Tn SILT moist to wet, *sl Org*	**20-4056 (20.5-22.0)** USCS=ML P200=94.0% NM=12.9% ORG=2.5% LL=24 PI=1 PL=23
	22				7							
	23				8							
	24				10							
	25											
	26		SPT	20-4057	3							**20-4057 (25.0-26.0)** USCS=ML P200=94.0% NM=17.9% ORG=2.2% LL=25 PI=3 PL=22
	27				4							
	28				4						Tn Soft BEDROCK, soft(Schist) micaceous, highly to completely weathered	
	29				6							
	30											
	31		SPT		14		43					
	32				21							
					22							
					24						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-027
Project Number	Z606570000	Total Depth	17 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/3/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67768°, W148.87856°
Weather		Elevation	783.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Method	Sample Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 2"	
1	H-S Auger		AUGER	20-4058		■					Bn Poorly-graded GRAVEL w/ Sand (fill) dry to moist	**20-4058 (0.5-1.0)** USCS=GP P200=3.5% NM=1.4% LL=NV PI=NP PL=NV
2			AUGER	20-4059		■					Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	**20-4059 (1.5-2.5)** P200=18.9% NM=5.0%
3			SPT		8						dense	
4			SPT		16 23		39					
5			SPT		34 20	■					dry to moist	**20-4060 (5.0-7.0)** NM=2.3%
6			SPT	20-4060	49 50	■						
7			SPT			■					Tn Soft BEDROCK, soft(Schist) moist, highly weathered to silty sand with gravel	
8			SPT		18 40		90					
9			SPT		50 50							
10												
11												
12												
13			SPT	20-4061	13 24	■	53					**20-4061 (13.0-14.0)** USCS=SM P200=21.0% NM=6.5% ORG=2.8% LL=NV PI=NP PL=NV
14			SPT		29 22	■						
15			SPT		9							
16			SPT		15 18		33					
17			SPT		25						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-028
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/3/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67601°, W148.89238°
Weather		Elevation	697.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
			SPT	20-4062	17 15						Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	**20-4062 (0.5-1.0)** P200=7.1% NM=1.8%
	1				14						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill, possible bedrock from 4 to 5 ft bgs	
	2			20-4063	11							**20-4063 (1.5-3.0)** USCS=SM P200=25.0% NM=6.1% LL=27 PI=3 PL=24
	3		SPT		9 15		32					
	4				17 32							
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-029
Project Number	Z606570000	Total Depth	5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/3/2020
Field Crew	M. Sousa, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67622°, W148.90199°
Weather		Elevation	621.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Shallow Embankment

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2.5"	
					9						Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist, medium dense	**20-4064 (0.5-2.5)** USCS=SP-SM P200=6.6% NM=5.5% LL=NV PI=NP PL=NV
	1		SPT	20-4064	11		25					
					14							
	2				16							
					13							
	3		SPT		23						Tn Silty SAND w/ Gravel (fill) moist	
					32							
	4				28						Tn SILT moist	
	5										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-030
Project Number	Z606570000	Total Depth	42 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/4/2020
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 55 Truck
		Station, Offset	
		Weather	
		Latitude, Longitude	N64.67398°, W148.90799°
TH Finalized By	J. Simpson	Vegetation	
		Elevation	612.0

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0											ASPHALT 2"	
1	H-S Auger		AUGER	20-4065							Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4065 (0.5-1.5)** USCS=SP-SM P200=7.0% NM=2.1% LL=NV PI=NP PL=NV
2												
3			SPT	20-4066	16 15						Tn Silty SAND w/ Gravel (fill) dry to moist, dense, schist bedrock fill	**20-4066 (2.5-4.5)** USCS=SM P200=14.0% NM=3.1% LL=25 PI=0 PL=25
4					18 17		33					
5												
6			SPT		24 36 41							
7					50						Tn-Bn SILT moist to wet, *sl Org*	
8			SPT	20-4067	25 37							**20-4067 (7.5-9.5)** USCS=ML P200=95.0% NM=12.9% ORG=2.4% LL=NV PI=NP PL=NV
9					38 36							
10												
11			SPT	20-4068	16 28 23		51				Tn moist, very dense, *sl Org*, almost frozen (32.5°)	**20-4068 (10.0-12.0)** USCS=ML P200=93.0% NM=9.3% ORG=2.4% LL=NV PI=NP PL=NV
12					17							
13												
14												
15												
16			SPT	20-4069	4 8 9 7		17				medium dense, *sl Org*	**20-4069 (15.0-17.0)** NM=9.7% ORG=2.4%
17												
18												
19												
20												
21			SPT	20-4070	3 3 6 6		9				loose	**20-4070 (20.0-22.0)** USCS=ML P200=94.5% NM=9.8% ORG=2.4% LL=NV PI=NP PL=NV
22												
23												
24												
25												

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 20-030

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
	25											
					3						medium dense	**20-4071 (25.0-27.0)**
	26		SPT	20-4071	5		11					NM=11.2%
					6							ORG=2.4%
	27				7							
	28											
	29											
	30											
					3						medium dense	
	31		SPT		7		14					
					7							
	32				8							
	33											
H-S Auger	34											
	35											
					3						medium dense	**20-4072 (35.0-37.0)**
	36		SPT	20-4072	5		11					USCS=ML
					6							P200=93.0%
	37				8							NM=10.3%
												ORG=2.4%
	38											LL=NV
	39											PI=NP
												PL=NV
	40				5						Bn-Gy	
					8						medium dense, mica chips	
	41		SPT		10		18					
					8							
	42										BOH	

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-031
Project Number	Z606570000	Total Depth	32 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/4/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67284°, W148.91139°
Weather		Elevation	519.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Distressed Area (GPR Target #3)

Depth in (Feet)	Sample Method	Sample Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0									ASPHALT 48"	
5	SPT		4 7						Bn Well-graded SAND w/ Gravel (fill) moist	
7	SPT		14 22						Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
8	SPT		18 29 44							
9			29							
10	SPT	20-4073	12 13 14 10						Bn-Tn SILT wet, *sl Org*	**20-4073 (10.0-12.0)** USCS=ML P200=94.0% NM=22.4% ORG=3.7% LL=28 PI=3 PL=25
13	SPT		WOH 1 1		2				very loose, 1" recovery	
15	AUGER	20-4074	WOH 0 0 0		0				Bn-Tn wet, very loose, *Org*, 1" recovery	**20-4074 (14.0-18.0)** USCS=ML P200=90.0% NM=21.2% ORG=5.3% LL=NV PI=NP PL=NV
18	SPT		WOH 0 0 0		0				very loose, 1/2" recovery	
20	SPT	20-4075	0.5 0.5 1 1		1.5				wet, very loose, *Org*	**20-4075 (20.0-21.0)** P200=93.5% NM=22.1% ORG=5.6%
23	SPT	20-4076	WOH 0 1 2		1				Tn very loose	**20-4076 (24.0-24.5)** USCS=ML P200=92.6% NM=14.2% ORG=4.0% LL=29 PI=2 PL=27
25			3 3						moist to wet, loose, *sl Org*	
26	SPT	20-4077	5 5		8					**20-4077 (26.0-27.0)** NM=12.5% ORG=2.8%
30	SPT	20-4078	2 3 4 4		7				moist to wet, loose, *sl Org*	**20-4078 (30.0-32.0)** USCS=ML P200=98.3% NM=12.7% ORG=2.1% LL=NV PI=NP PL=NV
32									BOH	

Drilling Method: H-S Auger

Drilling Notes: Test hole took all cuttings and extra soil to backfill when drilling was complete.

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-032
Project Number	Z606570000	Total Depth	18 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/4/2020
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.68596°, W148.85368°
Weather		Elevation	923.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Lowering

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
S-S Auger	0										ASPHALT 2"	
	1		AUGER	20-4079							Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4079 (1.0-2.0)** USCS=SP-SM P200=8.3% NM=4.7% LL=NV PI=NP PL=NV
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3											
	4											
	5										Tn Soft BEDROCK, soft(Schist) highly weathered	
	6											
	7											
	8										hard layer	
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											
	18										BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-033
Project Number	Z606570000	Total Depth	42 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/5/2020
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67101°, W148.91934°
Weather		Elevation	491.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Sample Method	Sample Number	Blow Count (raw)	Uncorrected N-Value	Frozen	SUBSURFACE MATERIAL	TEST RESULTS
0						ASPHALT 2"	
1	AUGER	20-4080				Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4080 (0.5-1.5)** USCS=SP-SM P200=5.6% NM=12.1% LL=NV PI=NP PL=NV
2							
3			7			Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
4	SPT	20-4081	13 21 30			Tn SILT moist to wet, *sl Org*	**20-4081 (3.5-4.5)** USCS=ML P200=86.0% NM=13.9% ORG=2.4% LL=NV PI=NP PL=NV
5							
6	SPT	20-4082	16 21 27				**20-4082 (5.0-7.0)** USCS=ML P200=93.0% NM=13.6% ORG=2.3% LL=NV PI=NP PL=NV
7			19				
8			12			moist to wet, dense, *sl Org*, almost frozen (33°)	
9	SPT	20-4083	14 18 15	32			**20-4083 (8.0-9.5)** USCS=ML P200=93.0% NM=15.1% ORG=2.3% LL=NV PI=NP PL=NV
10							
11	SPT	20-4084	5 2 3 3	5		wet, loose, *sl Org*, almost frozen (32.5°)	**20-4084 (10.0-12.0)** NM=24.7% ORG=3.9%
12							
13							
14							
15							
16	SPT	20-4085	2 3 4	7		moist to wet, loose, *sl Org*	**20-4085 (15.0-16.0)** USCS=ML P200=92.7% NM=12.8% ORG=2.8% LL=NV PI=NP PL=NV
17			4				
18							
19							
20							
21	SPT	20-4086	2 3 4	7		moist, loose	**20-4086 (20.0-21.0)** NM=9.3% ORG=2.2%
22			4				
23							
24							
25							

Drilling Method: H-S Auger

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 20-033

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count (raw)	Sample Data: Sample Interval	Sample Data: Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	25		SPT	20-4087	2	■					loose	**20-4087 (25.0-26.0)** USCS=ML P200=95.9% NM=9.9% ORG=1.8% LL=25 PI=1 PL=24
	26				4	■	9					
					5							
	27				6							
	28											
	29											
	30				3	■					moist to wet, medium dense, *sl Org*	**20-4088 (30.0-31.5)** P200=94.1% NM=16.7% ORG=3.5%
	31		SPT	20-4088	6	■						
					8	■	14					
	32				8							
	33											
	34											
	35				3	■					moist to wet, medium dense	**20-4089 (35.0-36.5)** USCS=ML P200=91.0% NM=12.6% ORG=2.8% LL=24 PI=1 PL=23
	36		SPT	20-4089	6	■						
					6	■	12					
	37				8							
	38											
	39											
	40				6	■					moist to wet, medium dense	**20-4090 (40.0-41.5)** NM=10.3% ORG=3.6%
	41		SPT	20-4090	8	■						
					9	■	17					
	42				11						BOH	

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-034
Project Number	Z606570000	Total Depth	32 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/5/2020
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 55 Truck
Station, Offset		Weather	
Latitude, Longitude	N64.66978°, W148.92496°	TH Finalized By	J. Simpson
Vegetation		Elevation	474.0

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Sample Method	Sample Number	Blow Count (raw)	Uncorrected N-Value	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0							
1	AUGER	20-4091				ASPHALT 1.5"	**20-4091 (0.5-1.0)** USCS=GP-GM P200=7.4% NM=1.3% LL=NV PI=NP PL=NV
2						Bn Poorly-graded GRAVEL w/ Silt & Sand (fill) dry to moist	
3	SPT	20-4092	5 8 12 15	20			**20-4092 (2.5-4.5)** USCS=SM P200=19.0% NM=0.5% LL=NV PI=NP PL=NV
4						Tn Silty SAND w/ Gravel (fill) dry to moist, medium dense, schist bedrock fill	
5			14				
6	SPT	20-4093	23 20 20			Tn SILT moist, *sl Org*	**20-4093 (5.8-7.0)** USCS=ML P200=93.4% NM=11.0% ORG=2.4% LL=NV PI=NP PL=NV
7							
8	SPT	20-4094	12 16 21 26				**20-4094 (7.5-9.5)** USCS=ML P200=94.0% NM=10.5% ORG=2.5% LL=NV PI=NP PL=NV
9							
10	SPT	20-4095	7 10			moist, medium dense, *sl Org*	**20-4095 (10.0-11.0)** NM=10.6% ORG=3.5%
11			8 7	18			
12							
13							
14							
15	SPT	20-4096	1 2			moist to wet, loose, *sl Org*	**20-4096 (15.0-16.0)** USCS=ML P200=93.0% NM=13.0% ORG=4.3% LL=NV PI=NP PL=NV
16			2 3	4			
17							
18							
19							
20	SPT	20-4097	2 2			Bn-Tn moist, loose, *sl Org*	**20-4097 (20.0-21.0)** USCS=ML P200=94.0% NM=8.9% ORG=4.7% LL=29 PI=2 PL=27
21			4 4	6			
22							
23							
24							
25	SPT	20-4098	2 3			moist, loose, *sl Org*	**20-4098 (25.0-26.0)** USCS=ML P200=95.0% NM=10.7% ORG=3.4% LL=NV PI=NP PL=NV
26			4 4	7			
27							
28							
29							
30	SPT	20-4099	2 4			moist, loose, *sl Org*	**20-4099 (30.0-31.5)** NM=9.2% ORG=2.8%
31			4 4	8			
32						BOH	

Drilling Method: H-S Auger

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-035
Project Number	Z606570000	Total Depth	17 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/5/2020
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.6694°, W148.92656°
Weather		Elevation	470.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Passing Lane

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 2"	
	1										Bn Well-graded SAND w/ Gravel (fill) moist	
	2										Tn Silty SAND w/ Gravel (fill) moist, schist bedrock fill	
	3										3" quartz pieces in cuttting	
	4											
	5		SPT		47							
	6		SPT		41 50						Tn-Bn SILT w/ Sand moist to wet, *sl Org*, mica chips	**20-4100 (6.5-8.5)** USCS=ML P200=85.0% NM=14.7% ORG=3.9% LL=25 PI=3 PL=22
	7		AUGER	20-4100								
	8		AUGER	20-4100								
	9											
	10										*sl Org*, gravelly layer BODR	
	11		SPT	20-4101	19 20 17						SILT	**20-4101 (10.0-12.0)** USCS=ML P200=87.0% NM=13.9% ORG=3.4% LL=NV PI=NP PL=NV
	12		SPT	20-4101	11						Bn-Tn	
	13								?			
	14								?			
	15								?			
	16		SPT	20-4102	6 6 6		12				SILT w/ Sand moist, medium dense, *sl Org*	**20-4102 (15.0-17.0)** USCS=ML P200=82.0% NM=8.4% ORG=2.5% LL=NV PI=NP PL=NV
	17				5						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-036
Project Number	Z606570000	Total Depth	22 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/5/2020
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.66885°, W148.9308°
Weather		Elevation	414.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Grade Raise

Depth in (Feet)	Drilling Method	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0												
1	H-S Auger		AUGER	20-4103							ASPHALT 2"	**20-4103 (0.5-1.5)** USCS=SP-SM P200=8.6% NM=1.5% LL=NV PI=NP PL=NV
2											Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	
3			SPT	20-4104	4							**20-4104 (2.5-4.5)** USCS=SM P200=19.8% NM=5.1% LL=NV PI=NP PL=NV
4					12 13 13		25				Tn Silty SAND w/ Gravel (fill) moist, medium dense, schist bedrock fill	
5												
6			SPT	20-4105	6						Tn SILT *sl Org*	**20-4105 (5.0-7.0)** USCS=ML P200=94.0% NM=20.1% ORG=3.0% LL=NV PI=NP PL=NV
7					17 21 22							
8			SPT	20-4106	8							**20-4106 (7.5-9.5)** USCS=ML P200=93.4% NM=23.9% ORG=2.8% LL=NV PI=NP PL=NV
9					21 19 20							
10												
11			SPT	20-4107	3						moist to wet, *sl Org*	**20-4107 (10.0-12.0)** NM=18.2% ORG=2.9%
12					4 5 4							
13												
14												
15												
16			SPT	20-4108	2						moist to wet, loose, *sl Org*	**20-4108 (15.0-17.0)** USCS=ML P200=96.0% NM=15.0% ORG=2.5% LL=27 PI=2 PL=25
17					5 5 6		10					
18												
19												
20												
21			SPT	20-4109	3						wet, loose, *sl Org*	**20-4109 (20.0-22.0)** NM=24.0% ORG=3.3%
22					4 4 4		8				BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-037
Project Number	Z606570000	Total Depth	24.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/6/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67314°, W148.91032°
Weather		Elevation	564.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Distressed Area

Depth in (Feet)	Sample Method	Sample Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
0							ASPHALT 14"	
1	AUGER	20-4110					Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4110 (1.0-2.0)** USCS=SP-SM P200=6.0% NM=1.0% LL=NV PI=NP PL=NV
2								
3	SPT	20-4111	5 11 13 14		24		Tn Silty SAND w/ Gravel (fill) moist, medium dense, schist bedrock fill	**20-4111 (3.0-4.5)** P200=17.0% NM=4.2%
4								
5			23 33					
6	SPT	20-4112	40 46				Tn SILT *sl Org*	**20-4112 (6.3-7.0)** USCS=ML P200=89.0% NM=10.8% ORG=2.6% LL=NV PI=NP PL=NV
7								
8	SPT	20-4113	12 29 30 30				Bn SILT w/ Sand *sl Org*	**20-4113 (7.5-9.5)** USCS=ML P200=82.0% NM=11.2% ORG=2.7% LL=24 PI=1 PL=23
9								
10	SPT	20-4114	7 10		17		moist, medium dense	**20-4114 (10.0-10.5)** USCS=ML P200=95.0% NM=10.9% ORG=3.0% LL=24 PI=2 PL=22
11			7 5					
12	SPT	20-4115	2 3		6		moist, loose, *sl Org*	**20-4115 (12.5-13.5)** NM=10.0% ORG=2.8%
13			3 3					
14								
15	SPT	20-4116	1 3		7		Bn SILT moist to wet, loose, *sl Org*, moisture increasing?	**20-4116 (15.0-16.0)** USCS=ML P200=91.0% NM=15.2% ORG=4.0% LL=NV PI=NP PL=NV
16			4 4				organic layer	
17								
18	SPT	20-4117	1 3		7		Bn wet, loose, *Org*	**20-4117 (17.8-18.5)** USCS=ML P200=93.0% NM=20.5% ORG=6.7% LL=36 PI=3 PL=33
19			4 4					
20	SPT	20-4118	1 3		7		wet, loose, *Org*	**20-4118 (20.0-21.0)** USCS=ML P200=94.0% NM=21.6% ORG=7.0% LL=NV PI=NP PL=NV
21			4 4					
22								
23	SPT	20-4119	2 2		5		wet, loose, *Org*	**20-4119 (22.5-23.5)** NM=23.0% ORG=7.1%
24			3 3				BOH	

Drilling Method: H-S Auger

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-038
Project Number	Z606570000	Total Depth	24.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/6/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67288°, W148.91072°
Weather		Elevation	569.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS: Distressed Area

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 7"	
	1		SPT	20-4120	6 13						Bn Poorly-graded SAND w/ Gravel (fill) dry to moist	**20-4120 (1.0-1.5)** USCS=SP P200=4.9% NM=1.8% LL=NV PI=NP PL=NV
	2			20-4121	11 18							**20-4121 (2.0-2.5)** USCS=SM P200=16.9% NM=4.6% LL=NV PI=NP PL=NV
	3										Tn Silty SAND w/ Gravel (fill) moist	
	4											
	5				19						Tn SILT moist to wet, *sl Org*	
	6		SPT	20-4122	26 31							**20-4122 (5.5-7.0)** USCS=ML P200=94.0% NM=13.9% ORG=2.2% LL=NV PI=NP PL=NV
	7				34				?			
	8				13				?		moist, medium dense, *sl Org*	**20-4123 (7.5-9.5)** USCS=ML P200=93.0% NM=8.5% ORG=2.3% LL=NV PI=NP PL=NV
	9		SPT	20-4123	13 13 14		26		?			
	10				7						moist to wet, medium dense, *sl Org*	**20-4124 (10.0-12.0)** USCS=ML P200=91.0% NM=13.6% ORG=2.7% LL=NV PI=NP PL=NV
	11		SPT	20-4124	9 7 4		16					
	12											
	13		SPT	20-4125	1 4						moist, loose, *sl Org*	**20-4125 (12.5-13.5)** NM=9.9% ORG=2.6%
	14				3 4		7					
	15											
	16		SPT	20-4126	1 2 3		5				moist to wet, loose, *sl Org* Bn	**20-4126 (15.0-16.0)** USCS=ML P200=96.0% NM=16.2% ORG=3.3% LL=28 PI=2 PL=26
	17				3							
	18		SPT	20-4127	2 3						wet, loose, *sl Org*	**20-4127 (17.5-19.0)** USCS=ML P200=96.0% NM=19.4% ORG=3.6% LL=28 PI=2 PL=26
	19				3		6					
	20											
	21		SPT	20-4128	2 3 4		7				wet, loose, *sl Org*	**20-4128 (20.0-21.5)** NM=22.8% ORG=4.9%
	22				5							
	23		SPT	20-4129	2 3						wet, loose, *sl Org*	**20-4129 (22.5-23.5)** NM=19.6% ORG=4.2%
	24				3 6		6				BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-039
Project Number	Z606570000	Total Depth	24.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/6/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.6729°, W148.91103°
Weather		Elevation	540.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Distressed Area

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 28"	
	3		SPT	20-4130	3 3						Bn Silty SAND w/ Gravel (fill) dry to moist, loose	**20-4130 (2.5-3.5)** USCS=SM P200=16.0% NM=1.0% LL=NV PI=NP PL=NV
	4			20-4131	6 15						Tn moist	**20-4131 (4.0-4.5)** P200=14.9% NM=4.9%
	6				7 21 23							
	7		SPT	20-4132	24				?		Tn SILT moist, *sl Org*	**20-4132 (6.5-7.0)** USCS=ML P200=93.1% NM=11.2% ORG=2.4% LL=25 PI=3 PL=22
	8		SPT	20-4133	6 13				?		medium dense	**20-4133 (7.5-9.0)** USCS=ML P200=90.0% NM=7.1% ORG=2.1% LL=24 PI=1 PL=23
	9				13 13		26		?			
	10		SPT	20-4134	3				?		moist, medium dense, *sl Org*	**20-4134 (10.0-11.0)** NM=9.2% ORG=2.8%
	11				7 4		11					
	12				3							
	13		SPT	20-4135	1 1						moist, very loose, *sl Org*	**20-4135 (12.5-13.5)** USCS=ML P200=94.0% NM=8.8% ORG=2.5% LL=NV PI=NP PL=NV
	14				2 2		3					
	15		SPT	20-4136	1						moist to wet, very loose, *sl Org*	**20-4136 (15.0-16.0)** NM=13.8% ORG=3.2%
	16				1.5 2.5		4					
	17				2							
	18		SPT	20-4137	1 1.5						Tn-Bn moist to wet, very loose, *sl Org*	**20-4137 (17.5-18.5)** USCS=ML P200=95.4% NM=17.0% ORG=3.8% LL=28 PI=3 PL=25
	19				2.5 3		4					
	20		SPT	20-4138	1 3						moist to wet, loose, *sl Org*	**20-4138 (20.0-21.0)** USCS=ML P200=94.9% NM=18.9% ORG=3.4% LL=NV PI=NP PL=NV
	21				2 4		5					
	22											**20-4139 (22.0-23.5)** USCS=ML P200=95.2% NM=33.7% ORG=4.8% LL=31 PI=3 PL=28
	23		SPT	20-4139	1 2						Bn wet, loose, *sl Org*	
	24				3 4		5					
											BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-040
Project Number	Z606570000	Total Depth	24.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/7/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.67268°, W148.912°
Weather		Elevation	586.0
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Distressed Area

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 10"	
	1		AUGER	20-4140							Bn Poorly-graded SAND w/ Silt & Gravel (fill) moist	**20-4140 (1.0-2.0)** USCS=SP-SM P200=7.6% NM=8.0% LL=NV PI=NP PL=NV
	2											
	3				7							
	4		SPT	20-4141	9 14 18		23				Tn Silty SAND w/ Gravel (fill) dry to moist, medium dense, schist bedrock fill	**20-4141 (3.0-4.5)** USCS=SM P200=15.9% NM=3.5% LL=NV PI=NP PL=NV
	5								?			
	6		SPT	20-4142	14 26 25 21						Tn SILT moist, *sl Org*	**20-4142 (5.5-7.0)** USCS=ML P200=92.0% NM=11.6% ORG=2.4% LL=NV PI=NP PL=NV
	7											
	8				7							
	9		SPT	20-4143	11 11 11							**20-4143 (8.0-9.0)** USCS=ML P200=92.0% NM=11.4% ORG=3.0% LL=NV PI=NP PL=NV
	10		SPT	20-4144	6 8						moist, *sl Org*	**20-4144 (10.0-10.8)** NM=5.5% ORG=3.0%
	11				5 3							
	12											
	13		SPT	20-4145	1.5 2.5		5.5				moist to wet, loose, *sl Org*	**20-4145 (12.5-13.5)** USCS=ML P200=95.0% NM=14.1% ORG=3.0% LL=26 PI=1 PL=25
	14				3 3							
	15											
	16		SPT	20-4146	1 3		6				moist to wet, loose, *sl Org*	**20-4146 (15.0-16.0)** USCS=ML P200=96.2% NM=12.7% ORG=3.2% LL=NV PI=NP PL=NV
	17				3 4							
	18		SPT	20-4147	2 4		8				moist to wet, loose, *sl Org*	**20-4147 (17.5-18.5)** NM=16.9% ORG=3.1%
	19				4 5							
	20											
	21		SPT	20-4148	3 5 5		10				moist to wet, medium dense, *sl Org*	**20-4148 (20.0-21.5)** USCS=ML P200=93.0% NM=18.2% ORG=3.8% LL=28 PI=2 PL=26
	22				5							
	23		SPT	20-4149	4 7		16				moist to wet, medium dense, *sl Org*	**20-4149 (22.5-24.0)** NM=12.6% ORG=2.9%
	24				9 10						BOH	

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks MP 305-325 Reconstruction	Test Hole Number	20-041
Project Number	Z606570000	Total Depth	34.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	5/7/2020
Field Crew	P. Lanigan, T. Hartford	Station, Offset	
Equipment Type	CME 55 Truck	Latitude, Longitude	N64.6722°, W148.91409°
Weather		Elevation	514.0
TH Finalized By	J. Simpson		
Vegetation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:
Distressed Area

Drilling Method	Depth in (Feet)	Casing Blows / ft	Sample Data: Method	Number	Blow Count (raw)	Sample Interval	Uncorrected N-Value	Embankment Height	Frozen	Graphic Log	SUBSURFACE MATERIAL	TEST RESULTS
H-S Auger	0										ASPHALT 24"	
	1											
	2											
	3		AUGER	20-4150	7 7						Bn Poorly-graded SAND w/ Silt & Gravel (fill) dry to moist	**20-4150 (2.0-3.5)** USCS=SP-SM P200=5.1% NM=1.1% LL=NV PI=NP PL=NV
	4			20-4151	13 17							**20-4151 (4.0-4.5)** NM=3.3%
	5										Tn Silty SAND w/ Gravel dry to moist, schist bedrock fill	
	6		SPT	20-4152	7 23 32							**20-4152 (5.0-6.5)** USCS=SM P200=17.9% NM=4.6% LL=NV PI=NP PL=NV
	7				33							
	8				19						Tn Sandy SILT *sl Org*, sporadic pebbles, mica chips, quartz pieces	**20-4153 (7.5-9.5)** USCS=ML P200=56.0% NM=8.9% ORG=3.5% LL=NV PI=NP PL=NV
	9		SPT	20-4153	30 36							
	10				35							
	11				12						Tn SILT *sl Org*	**20-4154 (10.0-11.5)** USCS=ML P200=92.0% NM=20.8% ORG=4.2% LL=NV PI=NP PL=NV
	12		SPT	20-4154	18 10						*sl Org*, 1/8" thick black fibrous organic material	
	13				6						Tn-Bn	**20-4155 (12.5-13.3)** USCS=ML P200=85.9% NM=13.3% ORG=4.5% LL=27 PI=1 PL=26
	14		SPT	20-4155	2 2 1.5		3.5				moist to wet, very loose, *sl Org*	
	15				0.5							
	16		SPT	20-4156	WOH 0 0		0				Bn moist, very loose, *Org*, 3" recovery	**20-4156 (15.0-15.3)** NM=9.8% ORG=6.5%
	17				0							
	18		SPT	20-4157	WOH 0		0				moist to wet, very loose, *Org*, 4" recovery	**20-4157 (17.5-17.8)** P200=94.6% NM=16.1% ORG=5.4%
	19				0							
	20				2							
	21		SPT	20-4158	5 6		11				wet, medium dense, *Org*	**20-4158 (20.0-21.5)** USCS=ML P200=95.5% NM=24.9% ORG=5.6% LL=33 PI=2 PL=31
	22				6							
	23		SPT	20-4159	1 1		1.5				Tn moist to wet, very loose, *sl Org*	**20-4159 (22.5-23.0)** USCS=ML P200=94.2% NM=18.3% ORG=4.7% LL=NV PI=NP PL=NV
	24				0.5 0.5							
	25				WOH						very loose, 1" recovery	
	26				0 0		0					
	27				0							
	28		SPT	20-4160	2 2		5				moist to wet, loose, *sl Org*	**20-4160 (27.5-28.5)** P200=95.6% NM=13.6% ORG=3.7%
	29				3 4							
	30				9				?		Bn	**20-4161 (30.0-32.0)** USCS=ML P200=98.9% NM=36.5% ORG=2.1% LL=NV PI=NP PL=NV
	31		SPT	20-4161	11 12 12						*sl Org*, Nbe	
	32											
	33				9							**20-4162 (32.5-34.5)** NM=38.2% ORG=2.0%
	34		SPT	20-4162	13 13 8						BOH	

Drilling Notes: Test hole took all cuttings and extra soil to backfill when drilling was complete.

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☒ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST HOLE LOG - USCS PARKS 305-325_1_LABDATAENTERED.GPJ AK DOT - APRIL 2020.GDT 1/11/21

North Nenana Quarry

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-048
Project Number	AKSAS	Total Depth	34.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/5/2019
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 850
		Station, Offset	
Weather	32F windy, cloudy	Latitude, Longitude	N64.58129°, W149.10533°
TH Finalized By	J. Simpson	Vegetation	
		Elevation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0–4															Rubble and highly weathered bedrock
Coring	5															Gy-Wh BEDROCK, hard(Quartz Biotite Talc Muscovite Calcite Schist) Foliated, very close discontinuity spacing, slightly weathered, strong
	6–7							1		19.4	90	5.5				
	7–9															Gy BEDROCK, soft(Quartz Biotite Muscovite Schist) Foliated, very close discontinuity spacing, slightly weathered, strong
	9–12							2	11	22.1	100	8.25				Gy-Wh BEDROCK, hard(Quartz Muscovite Talc Biotite Calcite Schist) Foliated, very close discontinuity spacing, slightly weathered, strong SAMPLE 19-4617 (7.0-34.0): SSc 5.3, LA 21, DEG 28
	12–17							3	8.3	37.3	98	6.5				
	17–22		CORE	19-4617				4	7.9	10.7	93	6				
	22–27							5	6.5	60	97	10				
	27–32							6	6.25	38.8	97	5				Gy-Wh BEDROCK, hard(Quartz Biotite Chlorite Talc Calcite Schist) Foliated, very close discontinuity spacing, slightly weathered, strong
	32–34															Gy-Wh BEDROCK, hard(Quartz Muscovite Biotite Calcite Schist) Foliated, very close discontinuity spacing, slightly weathered, strong
	BOH															

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-049
Project Number	AKSAS	Total Depth	35 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/5/2019
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 850
Station, Offset			
Weather	32F, windy, snow	Latitude, Longitude	N65.58097°, W149.10681°
TH Finalized By	J. Simpson	Vegetation	
Elevation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Sample Data: Number	Sample Data: Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0–15															Rubble and highly weathered bedrock
Coring	15–35		CORE	19-4618				1	3.6	16.2	57	5.5				Gy BEDROCK, soft(Chlorite Calcite Biotite Quartz Schist) foliated, close to very close discontinuity spacing, highly weathered, weak to very weak SAMPLE 19-4618 (15.0-35.0): LA 24, DEG 6
								2	6.5	53.7	78	12.5				
								3	6.8	0	8	5				very low recovery in last 10 feet of core, rock type seems consistent with first 10 feet, possibly an increase in biotite and a decrease in quartz
								4	5.75	0	5	3				
	35															BOH

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-050
Project Number	AKSAS	Total Depth	40 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/6/2019
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.58147°, W149.10448°
Weather	31F, cloudy, slight wind	Elevation	
TH Finalized By	J. Simpson	Vegetation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0–10															Gy-Tn BEDROCK highly weathered bedrock
Coring	10–40		CORE	19-4619				1	3.9	17.9	47	5				Bn-Gy BEDROCK, soft(alternating layers of Quartz Calcite Muscovite Biotite Schist and Talc Schist) highly to completely weathered, weak to extremely weak SAMPLE 19-4619 (10.0-24.0): LA 35, DEG 3
								2	5	0	77	3.75				
								3	3.75	22.4	48					Bn-Gy BEDROCK, soft(Quartz Muscovite Biotite Schist) Completely weathered
								4	5	0	48					
								5	5.8	0	27	2				
								6	5.8	0	53					
	40															BOH

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-051
Project Number	AKSAS	Total Depth	65.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/7/2019
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 850
Station, Offset		Weather	31F, cloudy, slight wind
Latitude, Longitude	N64.58113°, W149.10385°	TH Finalized By	J. Simpson
Vegetation		Elevation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0															Rubble
	10															
Coring	11							1	5.2	0	68	3				Gy-Bn BEDROCK, soft(Chlorite Biotite Schist) Foliated, very close discontinuity spacing, highly weathered, weak to medium weak
	16							2	4.5	0	42	4				Bk-Gy BEDROCK, soft(Biotite Chlorite Phyllite/(Slate?)) very close discontinuity spacing, highly weathered, weak to medium weak
	23							3	8	35.1	70	7.5				Gy-Bn BEDROCK, soft(Chlorite Biotite Schist) Foliated, very close discontinuity spacing, moderately to highly weathered, medium weak to strong
	25															

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-051

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	25															SAMPLE 19-4621 (25.0-60.0): SSc 9.4, LA 22, DEG 10
	26															Bk-Gy BEDROCK, soft(Biotite Chlorite Phyllite/(Slate?)) very close discontinuity spacing, highly weathered, weak to medium weak
	27															
	28							4	3.6	18	90	9.75				Gy-Bn BEDROCK, soft(Chlorite Biotite Schist) Foliated, very close discontinuity spacing, moderately to highly weathered, medium weak to strong
	29															
	30															
	31															
	32															
	33							5	3.75	23.6	92	9				
	34															
	35															
	36															Gy-Bn BEDROCK, soft(Chlorite Calcite Biotite Schist) Foliated, very close discontinuity spacing, moderately to highly weathered, medium weak to strong
	37															
	38							6	6.6	43.6	98	11				
	39															
	40															
	41															Gy-Bn BEDROCK, soft(Biotite Calcite Schist) moderate discontinuity spacing, slightly weathered, medium weak to strong
	42															
	43			CORE	19-4621			7	5.5	43.5	97	8.25				
	44															
	45															
	46															Gy-Bn BEDROCK, soft(Muscovite Biotite Calcite Schist) moderate discontinuity spacing, slightly to highly weathered, medium weak to strong
	47															
	48							8	5.1	70.7	97	15				
	49															
	50															
	51															
	52															
	53							9	4	27.3	90	5.25				Gy-Bn BEDROCK, soft(Quartz Muscovite Biotite Schist)

Coring

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-051

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	54															highly to completely weathered, intact pieces: strong
	55															
	56															
	57															
	58							10	4	0	48					
Coring	59															
	60															
	61															
	62															
	63							11	4.9	0	63	3.5				
	64															
	65															BOH

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-052
Project Number	AKSAS	Total Depth	45.5 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/8/2019
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 850
		Station, Offset	
Weather	33F, windy, snow/rain mix	Latitude, Longitude	N64.58085°, W149.10251°
TH Finalized By	J. Simpson	Vegetation	
		Elevation	

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0															ORG MAT
	1															Tn SILT dry to moist
	2															Bn BEDROCK, soft(Schist) highly to completely weathered bedrock
	3															
	4															
	5															
	6															
	7															
	8															
	9															
	10															
Coring	11							1	2.9	0	52					Bn-Gy BEDROCK, soft(Alternating layers of Muscovite and Graphitic Schist) completely weathered, extremely weak
	12															
	13															
	14															
	15															
	16															
	17															
	18							2	4	0	70					
	19															
	20															
	21															
	22															
	23							3	3.6	7.7	97	4.25				Gy BEDROCK, soft(Quartz Talc Muscovite Schist) very close discontinuity spacing, highly to completely weathered, weak SAMPLE 19-4622 (22.5-45.0): SSc 29.5, LA 34, DEG 4
	24															
	25															
	26															
	27															Gy BEDROCK, soft(Graphitic Schist) highly to completely weathered, weak
	28							4	6.3	0	90					
	29															
	30															Gy BEDROCK, soft(Talc Graphitic Schist) very close discontinuity spacing, highly to completely

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-052

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log
Coring	30		CORE	19-4622				5	3.3	28.6	93	6.5			
	31														
	32														
	33														
	34														
	35														
	36							6	2.75	62.5	97	14			
	37														
	38														
	39														
	40														
	41							7	2.5	23.2	97	13.5			
	42														
	43														
	44														
	45														

SUBSURFACE MATERIAL

weathered, weak to extremely weak

Gy BEDROCK, soft(Talc Quartz Graphitic Schist)
moderate discontinuity spacing, moderately weathered, medium weak to strong

BEDROCK, soft(Quartz Graphitic Schist)
moderate discontinuity spacing, slightly to moderately weathered, medium weak to strong

BOH

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-053
Project Number	AKSAS	Total Depth	45 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/10/2019
Field Crew	P. Lanigan, G. Nelson	Station, Offset	
Equipment Type	CME 850	Latitude, Longitude	N64.58155°, W149.10194°
Weather	32F, snow		
TH Finalized By	J. Simpson	Vegetation	Elevation

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0															ORG MAT
	1															Tn SILT dry to moist
	2															Bn BEDROCK, soft(Schist) highly weathered bedrock
	3															
	4															
	5															Gy-Bk BEDROCK, soft(Calcite Graphitic Schist) very close discontinuity spacing, moderately weathered, weak
	6															
	7							1	5.1	0	68					Gy BEDROCK, hard(Quartz Biotite Calcite Schist) close to very close discontinuity spacing, slightly to moderately weathered, strong
	8															
	9															
	10															SAMPLE 19-4620 (10.0-45.0): SSc 10.0, LA 22, DEG 12
Coring	11															
	12							2	6.2	15	67	6				
	13															
	14															
	15															
	16															
	17							3	7.2	28.9	85	5.5				
	18															
	19															
	20															Gy BEDROCK, hard(Biotite Calcite Quartz Schist) moderate discontinuity spacing, slightly weathered, strong
	21															
	22							4	6.9	48.9	73	7.25				
	23															
	24															
	25															
	26															
	27		CORE	19-4620				5	6.9	82.8	97	10.25				
	28															
	29															
	30															

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-053

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
	30															
	31															
	32															
	33							6	6.75	32.4	90	6.5				
	34															Two foot intensely fractured zone
	35															
	36															
Coring	37							7	6.4	71.1	85	16				
	38															
	39															
	40															Two foot intensely fractured, highly to completey weathered zone
	41															
	42															
	43							8		34.2	63	6.5				
	44															
	45															BOH

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Project	Parks Hwy 305-325 Reconstruction	Test Hole Number	19-054
Project Number	AKSAS	Total Depth	44 feet
Field Geologist	J. SIMPSON	Dates Drilled	10/11/2019
Field Crew	P. Lanigan, G. Nelson	Equipment Type	CME 850
Station, Offset			
Weather	30F, cloudy	Latitude, Longitude	N64.58092°, W149.10522°
TH Finalized By	J. Simpson	Vegetation	
Elevation			

Ground Water Data	While Drilling	After Drilling
Depth in (ft.)		
Time		
Date		
Symbol		

GENERAL COMMENTS:

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Sample Data: Method	Number	Blow Count	Sample Interval	N-Value	Run Data: Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log	SUBSURFACE MATERIAL
H-S Auger	0–9															Rubble and weathered bedrock
Coring	9–29		CORE	19-4623				1	5.9	32.8	80	6				Gy BEDROCK, hard(Chlorite Biotite Muscovite Quartz Schist) close to very close discontinuity spacing, slightly weathered, strong, occassional small amounts of calcite SAMPLE 19-4623 (9.0-29.0): SSc 5.4, LA 24, DEG 13
								2	4	9.9	80	4.75				
								3	3.8	53	97	12				
								4	4	93.6	98	9.5				
	29–30															Wh-Gy BEDROCK, hard(Impure Marble) wide discontinuity spacing, slightly weathered, very

Note: Unless otherwise noted, all samples are taken with 1-3/8-in. ID Standard Penetration Sampler driven with 140 lb. hammer with 30-in. drop. ☐ CME Auto Hammer ☐ Cathead Rope Method

NR AKDOT TEST CORE LOG - USCS_NENANA QUARRY.GPJ_NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

FINAL TEST HOLE LOG

STATE OF ALASKA DOT/PF
Northern Region Materials
Geology Section

Test Hole Number 19-054

Drilling Method	Depth in (Feet)	Casing Size Blows / ft	Method	Number	Blow Count	Sample Interval	N-Value	Run Number	Time (minutes)	RQD	Recovery	Longest Pc. (in.)	Structural Data	Frozen	Graphic Log
Coring	30–44		CORE	19-4624				5	4.1	59.1	92	24.75			
								6	4.5	84.7	90	14.25			
								7	5.25	93.5	90	13			

SUBSURFACE MATERIAL

strong

SAMPLE 19-4624 (29.0-44.0): SSc 5.5, LA 22, DEG 57

~ 3 foot highly fractured and highly weathered section

BOH

NR AKDOT TEST CORE LOG - USCS NENANA QUARRY.GPJ NR_AKDOT_PRECON_USCS_06_28_07.GDT 1/4/21

APPENDIX B-LABORATORY RESULTS

Current Project

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-022	19-022	19-022	19-022	19-022	19-022	19-023
DEPTH (feet)		1.0-1.5	3.5-3.8	4.0-4.5	6.5-8.5	10.5-11.0	14.0-16.0	1.0-1.8
LATITUDE		N64.69874°	N64.69874°	N64.69874°	N64.69874°	N64.69874°	N64.69874°	N64.69854°
LONGITUDE		W148.74709°	W148.74709°	W148.74709°	W148.74709°	W148.74709°	W148.74709°	W148.76122°
LAB NUMBER		**19-4390**	**19-4391**	**19-4392**	**19-4393**	**19-4394**	**19-4395**	**19-4395**
DATE SAMPLED		1-Sep-19	1-Sep-19	1-Sep-19	1-Sep-19	1-Sep-19	1-Sep-19	5-Sep-19
% Passing	**3"**							
	2"							
	1.5"			95				
Gravel	**1.0"**			95	97		95	
	0.75"			91	95		90	
	0.5"			84	88		82	
	0.375"			80	83		78	
	#4	99		68	69		66	
	#8	99		60	59		59	
	#10	99		59	54		53	
	#16	98		51	49		48	
	#30	97		44	41		39	
Sand	**#40**	96		41	37		35	
	#50	95		38	34		32	
	#60	95		36	32		30	100
	#80	94		34	29		27	99
	#100	93		32	28		25	99
Silt/Clay	**#200**	91.1		25.9	21.9		18.7	98.8
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV		NV	27		NV	NV
PLASTIC LIMIT		NV		NV	NV		NV	NV
PLASTIC INDEX		NP		NP	NP		NP	NP
USCS CLASSIFICATION		ML		SM	SM		SM	ML
USCS SOIL DESCRIPTION		Si		SiSa w/Gr	SiSa w/Gr		SiSa w/Gr	Si
NATURAL MOISTURE		35.9	9.5			5.1		24.3
ORGANICS		4.5	1.9			1.1		2.9
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]						sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-023	19-023	19-023	19-024	19-024	19-024	19-027
DEPTH (feet)		4.5-5.5	5.8-6.0	9.5-11.5	0.8-1.0	4.3-5.3	5.5-6.0	3.0-3.3
LATITUDE		N64.69854°	N64.69854°	N64.69854°	N64.70022°	N64.70022°	N64.70022°	N64.70083°
LONGITUDE		W148.76122°	W148.76122°	W148.76122°	W148.70883°	W148.70883°	W148.70883°	W148.69553°
LAB NUMBER		**19-4396**	**19-4397**	**19-4398**	**19-4399**	**19-4400**	**19-4401**	**19-4459**
DATE SAMPLED		5-Sep-19	5-Sep-19	5-Sep-19	7-Sep-19	7-Sep-19	7-Sep-19	24-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**	95		95		96		
	0.75"	90		91		92		
	0.5"	79		83		81		
	0.375"	71		77		74		
	#4	53		63	100	54		
	#8	42		49	99	44		
	#10	37		42	98	38		
	#16	32		36	97	33		
	#30	24		28	95	26		
Sand	**#40**	22		25	95	23		
	#50	19		22	94	20		
	#60	18		21	94	19		
	#80	16		19	93	17		
	#100	15		18	93	16		
Silt/Clay	**#200**	11.2		13.4	91.2	11.7		
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV		NV	NV	NV		
PLASTIC LIMIT		NV		NV	NV	NV		
PLASTIC INDEX		NP		NP	NP	NP		
USCS CLASSIFICATION		GW-GM		SM	ML	GW-GM		
USCS SOIL DESCRIPTION		WGGr w/Si&Sa		SiSa w/Gr	Si	WGGr w/Si&Sa		
NATURAL MOISTURE			6.6		28.0		8.8	12.6
ORGANICS			1.8		3.1			2.4
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS					sl Org[1]			sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-027	19-027	19-027	19-027	19-028	19-028	19-028
DEPTH (feet)		5.0-5.5	10.0-10.8	11.0-11.5	15.0-17.0	1.0-1.5	9.5-10.0	10.5-11.5
LATITUDE		N64.70083°	N64.70083°	N64.70083°	N64.70083°	N64.70126°	N64.70126°	N64.70126°
LONGITUDE		W148.69553°	W148.69553°	W148.69553°	W148.69553°	W148.69096°	W148.69096°	W148.69096°
LAB NUMBER		**19-4461**	**19-4462**	**19-4463**	**19-4464**	**19-4465**	**19-4466**	**19-4467**
DATE SAMPLED		24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**		95					94
	0.75"		95		97			87
	0.5"		74		92	93		83
	0.375"		67		86	88		79
	#4		48		69	79		72
	#8		41		58	74		68
	#10		36		52	74		63
	#16		31		46	72		58
	#30		24		37	68		47
Sand	**#40**		21		32	66		41
	#50		19		29	62		35
	#60		17		27	59		32
	#80		15		24	52		27
	#100		14		22	47		24
Silt/Clay	**#200**		10.4		16.3	35.4		16.4
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT			NV		NV	NV		NV
PLASTIC LIMIT			NV		NV	NV		NV
PLASTIC INDEX			NP		NP	NP		NP
USCS CLASSIFICATION			GW-GM		SM	SM		SM
USCS SOIL DESCRIPTION			WGGr w/Si&Sa		SiSa w/Gr	SiSa w/Gr		SiSa w/Gr
NATURAL MOISTURE		12.8		12.4		17.1	7.4	
ORGANICS						4.6		
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS						sl Org[1]		

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-028	19-028	19-028	19-029	19-029	19-029	19-030
DEPTH (feet)		16.0-16.5	19.5-20.0	29.5-31.5	1.0-1.5	3.5-5.0	15.5-16.0	1.0-2.0
LATITUDE		N64.70126°	N64.70126°	N64.70126°	N64.70188°	N64.70188°	N64.70188°	N64.70189°
LONGITUDE		W148.69096°	W148.69096°	W148.69096°	W148.7242°	W148.7242°	W148.7242°	W148.73007°
LAB NUMBER		**19-4468**	**19-4469**	**19-4470**	**19-4471**	**19-4472**	**19-4473**	**19-4474**
DATE SAMPLED		24-Sep-19	24-Sep-19	24-Sep-19	26-Sep-19	26-Sep-19	26-Sep-19	26-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**			48				
	0.75"			41		89		
	0.5"			38		75		
	0.375"			34		69		
	#4			28		57		
	#8			25		47		
	#10			25		46		
	#16			23		36		
	#30			20		27		
Sand	**#40**			18		23		
	#50			17		19		
	#60			16		18		100
	#80			15		16		99
	#100			13		14		99
Silt/Clay	**#200**			10.4		10.6		95.6
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT				NV		NV		NV
PLASTIC LIMIT				NV		NV		NV
PLASTIC INDEX				NP		NP		NP
USCS CLASSIFICATION						SW-SM		ML
USCS SOIL DESCRIPTION				WGGr w/Si&Sa		WGSa w/Si&Gr		Si
NATURAL MOISTURE		9.2	9.7		15.8		8.5	21.7
ORGANICS					2.3			2.2
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS					sl Org[1]			sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-030	19-031	19-031	19-031	19-032	19-032	19-032
DEPTH (feet)		9.0-11.0	1.0-2.0	4.0-5.5	9.0-10.0	2.0-2.5	3.5-4.0	4.3-4.8
LATITUDE		N64.70189°	N64.70123°	N64.70123°	N64.70123°	N64.69985°	N64.69985°	N64.69985°
LONGITUDE		W148.73007°	W148.73444°	W148.73444°	W148.73444°	W148.76929°	W148.76929°	W148.76929°
LAB NUMBER		**19-4475**	**19-4476**	**19-4477**	**19-4478**	**19-4479**	**19-4480**	**19-4481**
DATE SAMPLED		26-Sep-19	26-Sep-19	26-Sep-19	26-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**			97				
	0.75"	85		96				
	0.5"	75		87				
	0.375"	69		79				
	#4	55		64				
	#8	49		45				
	#10	48	100	36				
	#16	39	99	30				
	#30	30	98	23				
Sand	**#40**	26	95	21				
	#50	21	88	18				
	#60	20	85	17		100		
	#80	16	78	15		99		100
	#100	14	74	14		99		99
Silt/Clay	**#200**	8.3	60.3	9.4		96.9		97.7
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV		NV		NV
PLASTIC LIMIT		NV	NV	NV		NV		NV
PLASTIC INDEX		NP	NP	NP		NP		NP
USCS CLASSIFICATION		SP-SM	ML	SP-SM		ML		ML
USCS SOIL DESCRIPTION		PGSa w/Si&Gr	SaSi	PGSa w/Si&Gr		Si		Si
NATURAL MOISTURE			26.7		2.5	10.7	14.2	18.1
ORGANICS			4.0			3.8	3.2	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS			sl Org[1]			sl Org[1]	sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-032	19-032	19-032	19-032	19-032	19-022	19-022
DEPTH (feet)		8.5-9.5	10.0-10.5	13.5-14.0	14.5-15.5	24.0-24.5	25.5-100.0	100.0-138.3
LATITUDE		N64.69985°	N64.69985°	N64.69985°	N64.69985°	N64.69985°	N64.69874°	N64.69874°
LONGITUDE		W148.76929°	W148.76929°	W148.76929°	W148.76929°	W148.76929°	W148.74709°	W148.74709°
LAB NUMBER		**19-4482**	**19-4483**	**19-4484**	**19-4485**	**19-4487**	**19-4613**	**19-4614**
DATE SAMPLED		27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19	1-Sep-19	1-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"				95			
	0.375"				85			
	#4				60			
	#8				47			
	#10				40			
	#16				35			
	#30				26			
Sand	**#40**				23			
	#50				20			
	#60				18			
	#80	100			15			
	#100	99			14			
Silt/Clay	**#200**	98.2			9.9			
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV			NV			
PLASTIC LIMIT		NV			NV			
PLASTIC INDEX		NP			NP			
USCS CLASSIFICATION		ML			SW-SM			
USCS SOIL DESCRIPTION		Si			WGSa w/Si&Gr			
NATURAL MOISTURE		32.4	25.4	7.5		13.6		
ORGANICS			1.8					
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION							55	52
DEGRAD. VALUE							3	2
SODIUM SULF. (CRSE)							18	13
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS								

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-023	19-024					
DEPTH (feet)		27.5-90.0	15.0-75.0					
LATITUDE		N64.69854°	N64.70022°					
LONGITUDE		W148.76122°	W148.70883°					
LAB NUMBER		**19-4615**	**19-4616**					
DATE SAMPLED		5-Sep-19	7-Sep-19					
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16							
	#30							
Sand	**#40**							
	#50							
	#60							
	#80							
	#100							
Silt/Clay	**#200**							
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT								
PLASTIC LIMIT								
PLASTIC INDEX								
USCS CLASSIFICATION								
USCS SOIL DESCRIPTION								
NATURAL MOISTURE								
ORGANICS								
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION		54	58					
DEGRAD. VALUE		1	3					
SODIUM SULF. (CRSE)		18	11					
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS								

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-001	20-002	20-003	20-004	20-005	20-006	20-007
DEPTH (feet)		0.5-2.0	0.5-2.0	1.0-2.5	0.5-2.0	0.5-2.0	1.0-2.0	0.5-1.5
LATITUDE		N64.70496°	N64.70358°	N64.70332°	N64.70174°	N64.69951°	N64.70023°	N64.70243°
LONGITUDE		W148.64767°	W148.66417°	W148.67685°	W148.69008°	W148.70175°	W148.71452°	W148.72807°
LAB NUMBER		**20-4008**	**20-4009**	**20-4010**	**20-4011**	**20-4012**	**20-4013**	**20-4014**
DATE SAMPLED		28-Apr-20	28-Apr-20	28-Apr-20	28-Apr-20	28-Apr-20	28-Apr-20	28-Apr-20
% Passing	**3"**							
	2"							
	1.5"	100			100	100	100	
Gravel	**1.0"**	99	99	100	96	95	94	100
	0.75"	95	99	97	92	90	91	97
	0.5"	87	91	92	84	83	87	87
	0.375"	81	82	88	78	77	84	77
	#4	66	61	78	68	62	72	59
	#8	57	44	70	62	52	59	46
	#10	55	41	69	61	50	57	43
	#16	52	34	64	58	46	42	37
	#30	45	23	58	52	39	38	29
Sand	**#40**	38	16	54	45	34	34	24
	#50	30	11	47	37	28	32	19
	#60	24	8	44	30	23	30	16
	#80	19	5	37	24	19	28	13
	#100	16	4	31	20	16	27	11
Silt/Clay	**#200**	7.8	1.4	15.0	10.9	11.0	19.9	6.2
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	17	27	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	23	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	4	NP
USCS CLASSIFICATION		SP-SM	SP	SM	SP-SM	SP-SM	SM	SP-SM
USCS SOIL DESCRIPTION		PGSa w/Si&Gr	PGSa w/Gr	SiSa w/Gr	PGSa w/Si&Gr	PGSa w/Si&Gr	SiSa w/Gr	PGSa w/Si&Gr
NATURAL MOISTURE		4.8	2.6	8.0	5.9	2.6	5.1	2.1
ORGANICS								
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS								

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-008	20-009	20-009	20-010	20-010	20-010	20-010
DEPTH (feet)		0.5-2.0	0.5-1.3	1.5-2.0	1.0-2.0	3.5-4.5	5.0-7.0	8.0-9.5
LATITUDE		N64.6992°	N64.69744°	N64.69744°	N64.69744°	N64.69744°	N64.69744°	N64.69744°
LONGITUDE		W148.74002°	W148.75087°	W148.75087°	W148.75087°	W148.75087°	W148.75087°	W148.75087°
LAB NUMBER		**20-4015**	**20-4016**	**20-4017**	**20-4018**	**20-4019**	**20-4020**	**20-4021**
DATE SAMPLED		29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20
% Passing	**3"**							
	2"							
	1.5"	100	100					
Gravel	**1.0"**	98	99	100	100			
	0.75"	95	91	97	97			
	0.5"	84	66	92	81			
	0.375"	78	54	87	69			
	#4	63	39	73	50			
	#8	55	32	60	40			
	#10	54	31	58	38			
	#16	50	29	50	34			
	#30	44	25	42	28	100	100	
Sand	**#40**	37	22	38	23	99	99	100
	#50	31	17	34	19	98	99	99
	#60	25	14	32	16	98	99	99
	#80	21	10	28	13	97	98	98
	#100	18	9	26	11	96	98	98
Silt/Clay	**#200**	12.0	6.0	18.9	6.6	92.0	96.0	93.8
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	26	NV	29	NV	25
PLASTIC LIMIT		NV	NV	24	NV	26	NV	25
PLASTIC INDEX		NP	NP	2	NP	3	NP	0
USCS CLASSIFICATION		SP-SM	GW-GM	SM	GP-GM	ML	ML	ML
USCS SOIL DESCRIPTION		PGSa w/Si&Gr	WGGr w/Si&Sa	SiSa w/Gr		PGGr w/Si&Sa	Si	Si
NATURAL MOISTURE		3.2	1.4	5.8	1.8	23.7	15.5	14.5
ORGANICS							2.8	2.5
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS							sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-010	20-010	20-011	20-011	20-011	20-011	20-011
DEPTH (feet)		11.0-12.0	16.0-17.0	2.0-2.5	3.8-4.5	5.0-7.0	7.5-9.5	10.5-11.5
LATITUDE		N64.69744°	N64.69744°	N64.7021°	N64.7021°	N64.7021°	N64.7021°	N64.7021°
LONGITUDE		W148.75087°	W148.75087°	W148.77895°	W148.77895°	W148.77895°	W148.77895°	W148.77895°
LAB NUMBER		**20-4022**	**20-4023**	**20-4024**	**20-4025**	**20-4026**	**20-4027**	**20-4028**
DATE SAMPLED		29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20	29-Apr-20
% Passing	**3"**							
	2"							
	1.5"			100				
Gravel	**1.0"**			99				
	0.75"			98				
	0.5"			90				
	0.375"			85				
	#4			71				
	#8			59				
	#10			56				
	#16			48		100		
	#30			39	100	99		
Sand	**#40**			36	99	99		
	#50			32	98	98	100	
	#60	100		30	97	98	99	100
	#80	99		26	96	96	99	99
	#100	99		24	95	95	99	99
Silt/Clay	**#200**	94.6		17.0	89.0	90.0	96.0	94.3
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV		27	25	NV	25	NV
PLASTIC LIMIT		NV		26	23	NV	24	NV
PLASTIC INDEX		NP		1	2	NP	1	NP
USCS CLASSIFICATION		ML		SM	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si		SiSa w/Gr	Si	Si	Si	Si
NATURAL MOISTURE		9.6	16.2	5.4	17.5	14.2	17.7	11.5
ORGANICS		2.6	2.7		3.0	3.3	2.5	2.6
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-011	20-012	20-012	20-012	20-012	20-012	20-013
DEPTH (feet)		15.5-16.5	1.0-2.0	2.5-4.5	6.0-6.5	7.5-9.5	10.0-11.0	3.0-4.5
LATITUDE		N64.7021°	N64.70294°	N64.70294°	N64.70294°	N64.70294°	N64.70294°	N64.70347°
LONGITUDE		W148.77895°	W148.78503°	W148.78503°	W148.78503°	W148.78503°	W148.78503°	W148.79124°
LAB NUMBER		**20-4029**	**20-4030**	**20-4031**	**20-4032**	**20-4033**	**20-4034**	**20-4035**
DATE SAMPLED		29-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**		100	100		100		
	0.75"		93	98		98	100	
	0.5"		74	90		98	96	
	0.375"		64	87		98	93	
	#4		47	75	100	97	85	100
	#8		39	60	99	97	74	99
	#10		37	57	98	96	71	99
	#16		34	51	97	95	65	98
	#30		29	44	96	94	57	97
Sand	**#40**		25	42	95	93	54	97
	#50		21	39	94	92	51	96
	#60		18	37	93	91	49	95
	#80		14	34	92	90	46	94
	#100		13	33	91	89	44	93
Silt/Clay	**#200**		7.9	26.9	85.0	85.0	39.0	88.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT			NV	26	24	25	25	23
PLASTIC LIMIT			NV	23	22	24	23	21
PLASTIC INDEX			NP	3	2	1	2	2
USCS CLASSIFICATION			GP-GM	SM	ML	ML	SM	ML
USCS SOIL DESCRIPTION			PGGr w/Si&Sa	SiSa w/Gr	Si w/Sa	Si w/Sa	SiSa w/Gr	Si
NATURAL MOISTURE		18.5	0.9	9.8	13.9	20.4	10.3	25.7
ORGANICS		2.9			3.7	3.2	3.8	2.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]			sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-013	20-013	20-013	20-014	20-015		
DEPTH (feet)		5.0-7.0	7.5-9.5	15.0-17.0	0.5-1.5	0.5-1.5		
LATITUDE		N64.70347°	N64.70347°	N64.70347°	N64.70205°	N64.69817°		
LONGITUDE		W148.79124°	W148.79124°	W148.79124°	W148.80334°	W148.81471°		
LAB NUMBER		**20-4036**	**20-4037**	**20-4038**	**20-4039**	**20-4040**		
DATE SAMPLED		30-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20	30-Apr-20		
% Passing	**3"**							
	2"							
	1.5"					100		
Gravel	**1.0"**				100	99		
	0.75"			100	94	96		
	0.5"			93	75	84		
	0.375"			90	64	77		
	#4			81	46	59		
	#8			73	38	48		
	#10			71	37	47		
	#16		100	66	33	42		
	#30	100	99	60	29	35		
Sand	**#40**	99	99	57	25	29		
	#50	99	98	55	20	23		
	#60	99	98	53	17	17		
	#80	98	97	51	13	13		
	#100	98	97	49	11	11		
Silt/Clay	**#200**	92.0	94.0	44.0	7.1	6.7		
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		23	28	25	NV	NV		
PLASTIC LIMIT		21	24	23	NV	NV		
PLASTIC INDEX		2	4	2	NP	NP		
USCS CLASSIFICATION		ML	ML	SM	GP-GM	SP-SM		
USCS SOIL DESCRIPTION		Si	Si	SiSa w/Gr	PGGr w/Si&Sa	PGSa w/Si&Gr		
NATURAL MOISTURE		17.7	25.9	10.8	1.3	3.1		
ORGANICS		2.5	3.3	3.1				
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]				

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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Removed From Project

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-033	19-033	19-033	19-033	19-033	19-034	19-034
DEPTH (feet)		2.5-3.0	5.5-6.0	9.5-11.0	14.5-15.5	19.5-20.5	1.0-2.0	4.0-5.0
LATITUDE		N64.68919°	N64.68919°	N64.68919°	N64.68919°	N64.68919°	N64.68698°	N64.68698°
LONGITUDE		W148.84465°	W148.84465°	W148.84465°	W148.84465°	W148.84465°	W148.85066°	W148.85066°
LAB NUMBER		**19-4488**	**19-4489**	**19-4490**	**19-4491**	**19-4492**	**19-4494**	**19-4495**
DATE SAMPLED		27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19	27-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**				93			
	0.75"				93	96	96	
	0.5"				89	89	77	
	0.375"				88	86	67	
	#4				76	69	47	
	#8				64	61	39	
	#10				58	55	39	
	#16				52	48	34	
	#30				42	37	28	
Sand	**#40**				39	32	23	
	#50				35	27	17	
	#60				34	25	15	100
	#80			100	31	21	13	99
	#100	100	100	99	30	19	10	99
Silt/Clay	**#200**	99.2	94.2	95.1	26.0	13.1	6.5	89.9
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	SM	SM	GP-GM	ML
USCS SOIL DESCRIPTION		Si	Si	Si	SiSa w/Gr	SiSa w/Gr	PGGr w/Si&Sa	Si
NATURAL MOISTURE		18.1	15.3	23.7	11.4	5.4	6.2	15.0
ORGANICS		2.9	1.4					1.5
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]						

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-034	19-034	19-034	19-035	19-035	19-035	19-036
DEPTH (feet)		9.0-10.0	14.0-15.5	24.0-26.0	1.0-2.5	4.0-5.0	14.0-15.0	1.0-3.0
LATITUDE		N64.68698°	N64.68698°	N64.68698°	N64.67722°	N64.67722°	N64.67722°	N64.67641°
LONGITUDE		W148.85066°	W148.85066°	W148.85066°	W148.88579°	W148.88579°	W148.88579°	W148.894°
LAB NUMBER		**19-4496**	**19-4497**	**19-4498**	**19-4498**	**19-4499**	**19-4500**	**19-4501**
DATE SAMPLED		27-Sep-19	27-Sep-19	27-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**		97	97		97		
	0.75"		91	88	99	80	98	
	0.5"		84	74	96	74	89	
	0.375"		79	66	93	68	85	
	#4	99	63	52	76	53	70	
	#8	97	57	44	61	45	61	
	#10	97	51	44	59	44	55	
	#16	96	44	37	49	37	50	
	#30	95	34	31	38	30	43	
Sand	**#40**	95	29	29	34	28	40	
	#50	94	25	26	29	25	37	
	#60	94	23	25	27	24	35	100
	#80	94	19	23	23	20	32	99
	#100	93	17	20	20	19	30	99
Silt/Clay	**#200**	88.8	11.7	14.5	13.6	12.5	23.7	98.1
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	SW-SM	GM	SM	GM	SM	ML
USCS SOIL DESCRIPTION		Si	WGSa w/Si&Gr	SiGr w/Sa	SiSa w/Gr	SiGr w/Sa	SiSa w/Gr	Si
NATURAL MOISTURE		22.2	7.9	5.9	6.9	4.2	9.8	19.4
ORGANICS		2.4						2.6
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]						sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-036	19-036	19-036	19-036	19-036	19-036	19-036
DEPTH (feet)		4.0-5.5	8.5-9.5	13.5-14.5	18.5-20.0	23.5-25.0	28.5-30.0	33.5-35.0
LATITUDE		N64.67641°	N64.67641°	N64.67641°	N64.67641°	N64.67641°	N64.67641°	N64.67641°
LONGITUDE		W148.894°	W148.894°	W148.894°	W148.894°	W148.894°	W148.894°	W148.894°
LAB NUMBER		**19-4502**	**19-4503**	**19-4504**	**19-4505**	**19-4506**	**19-4507**	**19-4508**
DATE SAMPLED		28-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19	28-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8					100		
	#10					99		
	#16					98		
	#30					97		
Sand	**#40**		99		100	96	100	
	#50		99	100	99	95	99	
	#60		98	99	99	94	99	
	#80		96	99	99	93	98	100
	#100	100	95	98	98	92	98	99
Silt/Clay	**#200**	97.1	89.2	93.8	94.7	85.4	94.0	96.4
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	Si
NATURAL MOISTURE		24.8	35.1	26.3	20.5	11.3	16.3	19.7
ORGANICS		5.7	5.6	4.5	3.1	1.8	1.8	1.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	Org[1]	sl Org[1]	sl Org[1]			

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-036	19-037	19-037	19-037	19-037	19-038	19-038
DEPTH (feet)		38.5-40.5	1.0-2.0	4.0-4.5	9.0-10.0	14.0-15.0	1.0-2.0	4.0-5.5
LATITUDE		N64.67641°	N64.67672°	N64.67672°	N64.67672°	N64.67672°	N64.67712°	N64.67712°
LONGITUDE		W148.894°	W148.89037°	W148.89037°	W148.89037°	W148.89037°	W148.88699°	W148.88699°
LAB NUMBER		**19-4509**	**19-4510**	**19-4511**	**19-4512**	**19-4513**	**19-4514**	**19-4515**
DATE SAMPLED		28-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"					96	99	
	0.5"					92	95	88
	0.375"					85	90	85
	#4		99			69	80	68
	#8		98			61	73	60
	#10		97			60	69	54
	#16		96		100	52	65	48
	#30		93		99	45	59	38
Sand	**#40**		91	100	99	41	56	34
	#50		89	99	99	37	53	31
	#60		87	99	99	35	51	29
	#80		86	99	98	32	48	25
	#100	100	84	99	98	29	47	23
Silt/Clay	**#200**	98.2	78.4	96.2	92.1	20.6	39.0	16.6
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	SM	SM	SM
USCS SOIL DESCRIPTION		Si	Si w/Sa	Si	Si	SiSa w/Gr	SiSa w/Gr	SiSa w/Gr
NATURAL MOISTURE		15.6	23.5	17.4	11.3	8.1	6.9	8.2
ORGANICS		1.4	6.1	1.6	1.1	2.1		
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS			Org[1]			sl Org[1]		

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-039	19-039	19-039	19-039	19-039	19-039	19-039
DEPTH (feet)		1.5-3.0	4.5-5.5	9.5-10.5	14.5-16.0	19.5-20.5	24.5-26.5	30.0-31.5
LATITUDE		N64.67604°	N64.67604°	N64.67604°	N64.67604°	N64.67604°	N64.67604°	N64.67604°
LONGITUDE		W148.89766°	W148.89766°	W148.89766°	W148.89766°	W148.89766°	W148.89766°	W148.89766°
LAB NUMBER		**19-4517**	**19-4518**	**19-4519**	**19-4520**	**19-4521**	**19-4522**	**19-4523**
DATE SAMPLED		29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19	29-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							97
	0.5"							95
	0.375"							95
	#4							85
	#8							78
	#10							72
	#16	100						67
	#30	99						59
Sand	**#40**	99		100				55
	#50	98		99				51
	#60	98	100	99				49
	#80	97	99	98				45
	#100	97	99	98	100	100	100	44
Silt/Clay	**#200**	94.9	92.8	93.8	98.6	98.7	96.7	35.6
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	SM
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	SiSa
NATURAL MOISTURE		11.4	10.0	17.8	17.7	11.9	10.3	10.5
ORGANICS		3.1	1.5	2.1	2.1	1.1	1.1	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]		sl Org[1]	sl Org[1]			

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-039	19-040	19-040	19-040	19-040	19-040	19-040
DEPTH (feet)		34.5-36.0	2.0-3.0	1.0-1.5	3.5-4.5	8.0-9.0	13.0-14.0	14.3-14.8
LATITUDE		N64.67604°	N64.67587°	N64.67587°	N64.67587°	N64.67587°	N64.67587°	N64.67587°
LONGITUDE		W148.89766°	W148.9005°	W148.9005°	W148.9005°	W148.9005°	W148.9005°	W148.9005°
LAB NUMBER		**19-4524**	**19-4525**	**19-4525a**	**19-4526**	**19-4527**	**19-4528**	**19-4528a**
DATE SAMPLED		29-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"	95						
	0.375"	92						
	#4	80						
	#8	74						
	#10	69						
	#16	65						
	#30	57	100					
Sand	**#40**	54	99			100		
	#50	50	99			99		
	#60	49	98		100	99	100	
	#80	45	98		99	98	99	
	#100	43	98		99	98	99	
Silt/Clay	**#200**	36.2	95.7		97.4	93.2	97.5	
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV		NV	NV	NV	
PLASTIC LIMIT		NV	NV		NV	NV	NV	
PLASTIC INDEX		NP	NP		NP	NP	NP	
USCS CLASSIFICATION		SM	ML		ML	ML	ML	
USCS SOIL DESCRIPTION		SiSa w/Gr	Si		Si	Si	Si	
NATURAL MOISTURE		11.3	12.0	13.4	9.4	16.2	11.5	12.6
ORGANICS				2.4	1.0	2.3		1.2
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS				sl Org[1]		sl Org[1]		

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-040	19-040	19-040	19-041	19-041	19-041	19-041
DEPTH (feet)		18.0-19.0	23.0-24.0	28.0-29.0	1.0-2.0	4.5-5.5	9.5-10.0	14.5-15.3
LATITUDE		N64.67587°	N64.67587°	N64.67587°	N64.67482°	N64.67482°	N64.67482°	N64.67482°
LONGITUDE		W148.9005°	W148.9005°	W148.9005°	W148.90524°	W148.90524°	W148.90524°	W148.90524°
LAB NUMBER		**19-4529**	**19-4530**	**19-4531**	**19-4532**	**19-4533**	**19-4534**	**19-4535**
DATE SAMPLED		30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19	30-Sep-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							97
	0.75"			99				95
	0.5"			95	83		99	78
	0.375"			92	77		99	71
	#4			88	64	99	96	56
	#8			81	57	99	94	47
	#10			80	57	99	93	43
	#16			73	52	99	92	40
	#30			66	48	98	90	35
Sand	**#40**			63	46	98	89	33
	#50			59	44	97	89	31
	#60			57	43	97	88	30
	#80			53	41	97	87	29
	#100	100	100	50	39	96	87	28
Silt/Clay	**#200**	95.2	96.4	41.3	34.1	92.8	81.4	21.3
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	SM	GM	ML	ML	GM
USCS SOIL DESCRIPTION		Si	Si	SiSa	SiGr w/Sa	Si	Si w/Sa	SiGr w/Sa
NATURAL MOISTURE		10.7	10.4	14.4	16.4	25.0	17.6	8.9
ORGANICS		1.3	0.9		2.3	3.0	2.5	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS					sl Org[1]	sl Org[1]	sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-041	19-041	19-042	19-042	19-042	19-042	19-042
DEPTH (feet)		15.5-16.0	24.5-26.5	2.5-3.5	5.5-6.0	8.0-8.5	11.0-12.0	13.5-14.5
LATITUDE		N64.67482°	N64.67482°	N64.66045°	N64.66045°	N64.66045°	N64.66045°	N64.66045°
LONGITUDE		W148.90524°	W148.90524°	12RT	12RT	12RT	12RT	12RT
LAB NUMBER		**19-4535a**	**19-4536**	**19-4537**	**19-4538**	**19-4539**	**19-4540**	**19-4541**
DATE SAMPLED		30-Sep-19	30-Sep-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"		99					
	0.5"		97	97				
	0.375"		96	89				
	#4		90	73				
	#8		84	62				
	#10		83	61				
	#16		78	51				
	#30		71	42				100
Sand	**#40**		67	38		100	100	99
	#50		62	34		99	99	99
	#60		61	33		99	99	99
	#80		56	30	100	99	99	99
	#100		53	28	99	99	98	98
Silt/Clay	**#200**		39.7	21.2	98.6	96.2	97.0	96.3
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT			NV	NV	NV	NV	NV	NV
PLASTIC LIMIT			NV	NV	NV	NV	NV	NV
PLASTIC INDEX			NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION			SM	SM	ML	ML	ML	ML
USCS SOIL DESCRIPTION			SiSa	SiSa w/Gr	Si	Si	Si	Si
NATURAL MOISTURE		6.8	11.8	6.5	21.5	12.7	14.3	14.1
ORGANICS				1.7	5.7	1.3	1.2	1.2
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS					Org[1]			

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-042	19-042	19-042	19-043	19-043	19-043	19-043
DEPTH (feet)		15.5-16.5	18.5-19.0	21.0-22.0	1.0-1.5	3.5-4.5	6.0-7.0	8.5-9.5
LATITUDE		N64.66045°	N64.66045°	N64.66045°	N64.66034°	N64.66034°	N64.66034°	N64.66034°
LONGITUDE		12RT	12RT	12RT	9.5LT	9.5LT	9.5LT	9.5LT
LAB NUMBER		**19-4542**	**19-4543**	**19-4544**	**19-4545**	**19-4546**	**19-4547**	**19-4548**
DATE SAMPLED		1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"				99			
	0.5"				87	90		
	0.375"				78	78		
	#4				57	55		
	#8				46	49		
	#10				42	46		
	#16				39	42		
	#30				32	35		
Sand	**#40**	100	100		28	32		
	#50	99	99	99	23	29		
	#60	99	99	99	20	28		
	#80	99	99	99	16	25		
	#100	98	98	98	15	24	100	100
Silt/Clay	**#200**	93.1	89.2	86.0	10.1	17.4	98.9	99.4
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	SP-SM	GM	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	PGSa w/Si&Gr	SiGr w/Sa	Si	Si
NATURAL MOISTURE		11.0	14.7	14.5		7.1	15.8	13.4
ORGANICS		1.2	1.5	1.7		1.7	3.1	1.9
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS							sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-043	19-043	19-043	19-043	19-043	19-043	19-044
DEPTH (feet)		11.0-12.0	13.8-14.5	16.5-17.0	18.8-19.5	20.0-20.8	21.5-22.0	3.0-3.5
LATITUDE		N64.66034°	N64.66034°	N64.66034°	N64.66034°	N64.66034°	N64.66034°	N64.6598°
LONGITUDE		9.5LT	9.5LT	9.5LT	9.5LT	9.5LT	9.5LT	W148.95796°
LAB NUMBER		**19-4549**	**19-4549a**	**19-4550**	**19-4551**	**19-4552**	**19-4553**	**19-4554**
DATE SAMPLED		1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	1-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							93
	0.375"							85
	#4							70
	#8							61
	#10							60
	#16							52
	#30							44
Sand	**#40**							41
	#50							37
	#60					100		36
	#80					99		32
	#100	100	100	100	100	99		30
Silt/Clay	**#200**	95.9	94.6	94.6	93.7	91.2		22.9
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV		NV
PLASTIC LIMIT		NV	NV	NV	NV	NV		NV
PLASTIC INDEX		NP	NP	NP	NP	NP		NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML		SM
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si		SiSa w/Gr
NATURAL MOISTURE		14.8	11.8	19.5	33.1		35.1	6.8
ORGANICS		1.3	1.3	2.8	1.8		2.1	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS				sl Org[1]			sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-044	19-044	19-044	19-044	19-044	19-044	19-044
DEPTH (feet)		5.5-6.0	8.0-8.5	11.0-12.0	13.0-14.0	15.0-17.0	18.0-18.5	20.5-21.0
LATITUDE		N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.6598°
LONGITUDE		W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.95796°
LAB NUMBER		**19-4555**	**19-4556**	**19-4557**	**19-4558**	**19-4559**	**19-4560**	**19-4561**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16							
	#30					100		
Sand	**#40**					99		
	#50				100	99		100
	#60			100	99	98		99
	#80			99	99	97	100	99
	#100	100	100	99	99	96	99	99
Silt/Clay	**#200**	96.2	91.6	91.6	95.7	89.4	96.9	97.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	Si
NATURAL MOISTURE		11.5	13.7	18.4	21.3	19.9	21.3	24.3
ORGANICS		1.3		2.6	2.9	4.6	4.2	5.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS				sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-044	19-044	19-044	19-044	19-044	19-044	19-045
DEPTH (feet)		22.5-23.0	25.5-26.0	28.5-29.0	30.5-31.0	35.5-36.0	40.5-41.0	3.0-4.0
LATITUDE		N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.6598°	N64.66072°
LONGITUDE		W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.95796°	W148.9558°
LAB NUMBER		**19-4562**	**19-4563**	**19-4564**	**19-4565**	**19-4566**	**19-4567**	**19-4568**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							85
	0.5"							70
	0.375"							63
	#4							45
	#8							38
	#10							38
	#16							32
	#30			100				28
Sand	**#40**		100	99		100		26
	#50		99	99		99		24
	#60		98	99		99	100	23
	#80		97	98		98	99	23
	#100	99	96	98	100	97	99	21
Silt/Clay	**#200**	96.1	88.1	94.5	96.6	90.3	96.5	17.2
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	31	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	GM
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	SiGr w/Sa
NATURAL MOISTURE		25.0	23.4	22.8	19.4	16.9	19.2	7.2
ORGANICS		6.7	5.1	5.8	4.5	3.0	3.7	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	Org[1]	Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-045	19-045	19-045	19-045	19-045	19-045	19-045
DEPTH (feet)		5.5-6.5	8.0-9.0	11.0-12.0	13.0-13.5	15.0-16.5	18.0-19.0	20.5-21.5
LATITUDE		N64.66072°	N64.66072°	N64.66072°	N64.66072°	N64.66072°	N64.66072°	N64.66072°
LONGITUDE		W148.9558°	W148.9558°	W148.9558°	W148.9558°	W148.9558°	W148.9558°	W148.9558°
LAB NUMBER		**19-4569**	**19-4570**	**19-4571**	**19-4572**	**19-4573**	**19-4574**	**19-4575**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16							
	#30							
Sand	**#40**							
	#50							
	#60			100				
	#80	100		99		100		100
	#100		100	99	100	99	100	99
Silt/Clay	**#200**		98.4	98.3	99.1	97.6	96.8	91.3
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION			ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	Si
NATURAL MOISTURE		20.3	12.2	13.0	11.5	12.0	10.8	12.0
ORGANICS		3.9	0.9	1.2	1.0	1.2	1.2	1.5
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]						

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-045	19-045	19-045	19-045	19-046	19-046	19-046
DEPTH (feet)		25.5-26.5	30.5-31.5	35.5-36.5	40.5-41.5	3.5-4.5	5.5-6.0	8.0-8.3
LATITUDE		N64.66072°	N64.66072°	N64.66072°	N64.66072°	N64.66052°	N64.66052°	N64.66052°
LONGITUDE		W148.9558°	W148.9558°	W148.9558°	W148.9558°	W148.95663°	W148.95663°	W148.95663°
LAB NUMBER		**19-4576**	**19-4577**	**19-4578**	**19-4579**	**19-4580**	**19-4581**	**19-4582**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4					99		
	#8					98		
	#10					98	100	
	#16				100	97	99	
	#30	100			99	96	99	
Sand	**#40**	99	100		97	96	99	
	#50	99	99	100	96	95	98	100
	#60	98	99	99	95	95	98	99
	#80	97	98	99	92	95	98	99
	#100	96	97	99	91	95	97	99
Silt/Clay	**#200**	89.2	89.3	95.4	78.1	93.4	95.9	97.4
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si w/Sa	Si	Si	Si
NATURAL MOISTURE		26.9	20.1	23.0	22.2	38.2	23.5	19.6
ORGANICS		6.0	4.9	4.1	5.5	3.5	1.6	1.1
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	sl Org[1]	sl Org[1]	Org[1]	sl Org[1]		

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-046	19-046	19-046	19-046	19-046	19-046	19-046
DEPTH (feet)		10.3-10.5	13.0-13.5	15.5-16.3	18.0-19.0	20.3-21.0	23.0-24.0	25.5-26.5
LATITUDE		N64.66052°	N64.66052°	N64.66052°	N64.66052°	N64.66052°	N64.66052°	N64.66052°
LONGITUDE		W148.95663°	W148.95663°	W148.95663°	W148.95663°	W148.95663°	W148.95663°	W148.95663°
LAB NUMBER		**19-4583**	**19-4584**	**19-4585**	**19-4586**	**19-4587**	**19-4588**	**19-4589**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19	2-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16	100						
	#30	99						
Sand	**#40**	99						
	#50	99						
	#60	99					100	
	#80	99		100		100	99	
	#100	99	100	99	100	99	99	100
Silt/Clay	**#200**	97.9	97.4	93.9	97.7	91.7	96.0	95.7
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	Si
NATURAL MOISTURE		19.8	16.5	17.9	19.4	19.1	28.5	29.3
ORGANICS		1.2	1.0	1.2	1.5	1.9	5.4	4.5
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS							Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-046	19-046	19-046	19-047	19-047	19-047	19-047
DEPTH (feet)		30.5-31.5	35.5-36.5	40.5-41.5	0.5-1.5	2.5-3.0	5.5-6.5	8.0-9.0
LATITUDE		N64.66052°	N64.66052°	N64.66052°	N64.66032°	N64.66032°	N64.66032°	N64.66032°
LONGITUDE		W148.95663°	W148.95663°	W148.95663°	W148.95639°	W148.95639°	W148.95639°	W148.95639°
LAB NUMBER		**19-4590**	**19-4591**	**19-4592**	**19-4594**	**19-4595**	**19-4596**	**19-4597**
DATE SAMPLED		2-Oct-19	2-Oct-19	2-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"					94		
	0.5"					93		
	0.375"					90		
	#4					89	98	
	#8					88	98	
	#10					88	98	
	#16					88	97	
	#30					86	96	
Sand	**#40**		100		100	85	95	100
	#50		99		99	84	94	99
	#60		99		99	84	93	99
	#80	100	98	100	98	83	91	97
	#100	99	98	99	97	82	90	96
Silt/Clay	**#200**	94.7	91.6	94.0	92.2	78.6	83.1	91.1
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si w/Sa	Si w/Sa	Si
NATURAL MOISTURE		29.2	30.0	27.4	34.8	44.9	38.6	21.7
ORGANICS		6.6	5.4	5.4	3.2	5.7	9.0	3.6
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	Org[1]	Org[1]	sl Org[1]	Org[1]	Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-047	19-047	19-047	19-047	19-047	19-047	19-047
DEPTH (feet)		10.5-11.5	13.0-14.0	15.5-16.5	17.8-18.0	18.3-18.8	20.3-21.3	23.0-24.0
LATITUDE		N64.66032°	N64.66032°	N64.66032°	N64.66032°	N64.66032°	N64.66032°	N64.66032°
LONGITUDE		W148.95639°	W148.95639°	W148.95639°	W148.95639°	W148.95639°	W148.95639°	W148.95639°
LAB NUMBER		**19-4598**	**19-4599**	**19-4600**	**19-4601**	**19-4602**	**19-4603**	**19-4604**
DATE SAMPLED		3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							99
	0.75"							99
	0.5"							99
	0.375"							99
	#4							99
	#8							99
	#10							99
	#16							99
	#30							99
Sand	**#40**		100				100	98
	#50		99		100		99	98
	#60		99	100	99	100	99	98
	#80		99	99	97	99	97	96
	#100	100	99	99	96	99	96	96
Silt/Clay	**#200**	97.5	92.0	89.9	86.1	96.7	89.0	90.8
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML	ML	ML	ML	ML	ML	ML
USCS SOIL DESCRIPTION		Si	Si	Si	Si	Si	Si	Si
NATURAL MOISTURE		16.8	14.1	14.3	27.7	31.7	33.2	43.9
ORGANICS		2.4	1.3	1.5	2.8	3.1	5.2	6.1
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]			sl Org[1]	sl Org[1]	Org[1]	Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-047	19-047	19-047				
DEPTH (feet)		25.5-26.5	30.0-31.8	35.5-37.0				
LATITUDE		N64.66032°	N64.66032°	N64.66032°				
LONGITUDE		W148.95639°	W148.95639°	W148.95639°				
LAB NUMBER		**19-4605**	**19-4606**	**19-4607**				
DATE SAMPLED		3-Oct-19	3-Oct-19	3-Oct-19				
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10	100						
	#16	99						
	#30	99	100	100				
Sand	**#40**	98	99	99				
	#50	98	99	99				
	#60	97	98	98				
	#80	96	97	97				
	#100	95	96	97				
Silt/Clay	**#200**	88.3	89.4	91.2				
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV				
PLASTIC LIMIT		NV	NV	NV				
PLASTIC INDEX		NP	NP	NP				
USCS CLASSIFICATION		ML	ML	ML				
USCS SOIL DESCRIPTION		Si	Si	Si				
NATURAL MOISTURE		51.4	51.4	48.7				
ORGANICS		8.3	5.8	5.7				
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	Org[1]	Org[1]				

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-016	20-018	20-019	20-019	20-020	20-022	20-022
DEPTH (feet)		0.5-1.5	5.0-7.0	11.0-12.0	15.0-17.0	0.5-1.5	0.5-1.5	2.5-4.0
LATITUDE		N64.69335°	N64.69615°	N64.69408°	N64.69408°	N64.69249°	N64.69003°	N64.69003°
LONGITUDE		W148.83102°	W148.82353°	W148.82927°	W148.82927°	W148.83331°	W148.84184°	W148.84184°
LAB NUMBER		**20-4041**	**20-4042**	**20-4043**	**20-4044**	**20-4045**	**20-4046**	**20-4047**
DATE SAMPLED		30-Apr-20	1-May-20	1-May-20	1-May-20	1-May-20	2-May-20	2-May-20
% Passing	**3"**							
	2"							
	1.5"	100			100	100	100	
Gravel	**1.0"**	98	100		98	95	95	100
	0.75"	91	99	100	98	88	91	93
	0.5"	80	95	99	97	80	78	89
	0.375"	70	92	97	96	73	70	85
	#4	51	78	96	93	61	53	74
	#8	41	62	94	88	54	45	60
	#10	40	58	93	86	52	44	57
	#16	36	49	87	81	49	40	49
	#30	30	40	80	75	42	34	40
Sand	**#40**	25	36	77	73	36	29	36
	#50	20	33	75	71	28	21	33
	#60	16	31	73	69	21	17	30
	#80	13	28	70	67	15	12	28
	#100	11	26	68	65	12	11	25
Silt/Clay	**#200**	7.5	18.9	59.9	59.0	7.6	7.1	19.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	25	31	28	NV	NV	27
PLASTIC LIMIT		NV	25	23	26	NV	NV	25
PLASTIC INDEX		NP	0	8	2	NP	NP	2
USCS CLASSIFICATION		GP-GM	SM	ML	ML	SP-SM	GP-GM	SM
USCS SOIL DESCRIPTION		PGGr w/Si&Sa	SiSa w/Gr	SaSi	SaSi	PGSa w/Si&Gr	PGGr w/Si&Sa	SiSa w/Gr
NATURAL MOISTURE		1.9	4.9	14.3	17.4	5.3	2.7	8.1
ORGANICS				3.5	4.4			
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS				sl Org[1]	sl Org[1]			

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-023	20-023	20-023	20-023	20-024	20-025	20-025
DEPTH (feet)		0.5-1.5	3.0-5.0	8.0-10.0	10.0-12.0	0.3-0.8	5.5-7.0	10.0-11.0
LATITUDE		N64.68595°	N64.68595°	N64.68595°	N64.68595°	N64.68362°	N64.68063°	N64.68063°
LONGITUDE		W148.8535°	W148.8535°	W148.8535°	W148.8535°	W148.86028°	W148.86871°	W148.86871°
LAB NUMBER		**20-4048**	**20-4049**	**20-4050**	**20-4051**	**20-4052**	**20-4053**	**20-4054**
DATE SAMPLED		2-May-20	2-May-20	2-May-20	2-May-20	2-May-20	2-May-20	2-May-20
% Passing	**3"**							
	2"							
	1.5"	100	100					
Gravel	**1.0"**	99	98			100		
	0.75"	97	97			92		
	0.5"	86	94			73		
	0.375"	76	92		100	63		
	#4	56	85		99	44		100
	#8	43	75		94	36		99
	#10	41	72		92	35	100	98
	#16	35	64		88	32	99	97
	#30	28	52		82	26	99	95
Sand	**#40**	24	46		79	22	98	94
	#50	18	42		75	17	97	93
	#60	16	39		74	14	97	92
	#80	12	35		70	11	96	91
	#100	11	32		68	9	95	90
Silt/Clay	**#200**	7.2	24.8		61.0	5.8	93.0	86.0
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV	25		29	NV	25	NV
PLASTIC LIMIT		NV	43		18	NV	22	NV
PLASTIC INDEX		NP	-18		11	NP	3	NP
USCS CLASSIFICATION		SP-SM	SM		CL	GP-GM	ML	ML
USCS SOIL DESCRIPTION		PGSa w/Si&Gr	SiSa w/Gr		SaLCl	PGGr w/Si&Sa	Si	Si
NATURAL MOISTURE		1.4	5.9	6.7	11.3	1.1	14.5	23.1
ORGANICS							2.6	3.3
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS							sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-025	20-026	20-026	20-027	20-027	20-027	20-027
DEPTH (feet)		15.0-16.0	20.5-22.0	25.0-26.0	0.5-1.0	1.5-2.5	5.0-7.0	13.0-14.0
LATITUDE		N64.68063°	N64.684°	N64.684°	N64.67768°	N64.67768°	N64.67768°	N64.67768°
LONGITUDE		W148.86871°	W148.85942°	W148.85942°	W148.87856°	W148.87856°	W148.87856°	W148.87856°
LAB NUMBER		**20-4055**	**20-4056**	**20-4057**	**20-4058**	**20-4059**	**20-4060**	**20-4061**
DATE SAMPLED		2-May-20	3-May-20	3-May-20	3-May-20	3-May-20	3-May-20	3-May-20
% Passing	**3"**							
	2"							
	1.5"				100			
Gravel	**1.0"**				99	100		100
	0.75"				92	97		99
	0.5"				75	88		96
	0.375"				63	83		92
	#4				44	71		77
	#8				35	60		60
	#10			100	33	58		57
	#16		100	99	30	52		50
	#30		99	99	25	45		42
Sand	**#40**		99	99	20	42		39
	#50		98	99	16	37		36
	#60		97	98	9	35		33
	#80		96	98	8	31		30
	#100		96	98	6	27		28
Silt/Clay	**#200**		94.0	94.0	3.5	18.9		21.0
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT			24	25	NV			NV
PLASTIC LIMIT			23	22	NV			NV
PLASTIC INDEX			1	3	NP			NP
USCS CLASSIFICATION			ML	ML	GP			SM
USCS SOIL DESCRIPTION			Si	Si	PGGr w/Sa	SiSa w/Gr		SiSa w/Gr
NATURAL MOISTURE		15.2	12.9	17.9	1.4	5.0	2.3	6.5
ORGANICS		3.3	2.5	2.2				2.8
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]				sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-028	20-028	20-029	20-030	20-030	20-030	20-030
DEPTH (feet)		0.5-1.0	1.5-3.0	0.5-2.5	0.5-1.5	2.5-4.5	7.5-9.5	10.0-12.0
LATITUDE		N64.67601°	N64.67601°	N64.67622°	N64.67398°	N64.67398°	N64.67398°	N64.67398°
LONGITUDE		W148.89238°	W148.89238°	W148.90199°	W148.90799°	W148.90799°	W148.90799°	W148.90799°
LAB NUMBER		**20-4062**	**20-4063**	**20-4064**	**20-4065**	**20-4066**	**20-4067**	**20-4068**
DATE SAMPLED		3-May-20	3-May-20	3-May-20	4-May-20	4-May-20	4-May-20	4-May-20
% Passing	**3"**							
	2"							
	1.5"		100	100				
Gravel	**1.0"**	100	97	99	100	100		
	0.75"	94	97	93	99	95		
	0.5"	79	90	80	84	86		
	0.375"	68	86	73	74	80		
	#4	49	76	59	54	65		
	#8	40	66	51	45	53		
	#10	39	64	49	43	51		
	#16	35	59	46	39	43		
	#30	30	52	40	32	35	100	100
Sand	**#40**	25	48	32	26	31	99	99
	#50	19	44	25	19	29	99	99
	#60	17	42	18	16	26	99	98
	#80	13	37	13	12	23	98	98
	#100	11	34	10	11	21	98	97
Silt/Clay	**#200**	7.1	25.0	6.6	7.0	14.0	95.0	93.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT			27	NV	NV	25	NV	NV
PLASTIC LIMIT			24	NV	NV	25	NV	NV
PLASTIC INDEX			3	NP	NP	0	NP	NP
USCS CLASSIFICATION			SM	SP-SM	SP-SM	SM	ML	ML
USCS SOIL DESCRIPTION		PGGr w/Si&Sa	SiSa w/Gr	(PGSa w/Si&Gr)	WGSa w/Si&Gr	SiSa w/Gr	Si	Si
NATURAL MOISTURE		1.8	6.1	5.5	2.1	3.1	12.9	9.3
ORGANICS							2.4	2.4
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS							sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-030	20-030	20-030	20-030	20-031	20-031	20-031
DEPTH (feet)		15.0-17.0	20.0-22.0	25.0-27.0	35.0-37.0	10.0-12.0	14.0-18.0	20.0-21.0
LATITUDE		N64.67398°	N64.67398°	N64.67398°	N64.67398°	N64.67284°	N64.67284°	N64.67284°
LONGITUDE		W148.90799°	W148.90799°	W148.90799°	W148.90799°	W148.91139°	W148.91139°	W148.91139°
LAB NUMBER		**20-4069**	**20-4070**	**20-4071**	**20-4072**	**20-4073**	**20-4074**	**20-4075**
DATE SAMPLED		4-May-20	4-May-20	4-May-20	4-May-20	4-May-20	4-May-20	4-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4						100	
	#8						99	
	#10						99	
	#16						99	
	#30					100	98	100
Sand	**#40**		100			99	97	99
	#50		99			99	97	99
	#60		99		100	99	96	98
	#80		99		99	98	95	98
	#100		98		99	98	95	97
Silt/Clay	**#200**		94.5		93.0	94.0	90.0	93.5
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT			NV		NV	28	NV	
PLASTIC LIMIT			NV		NV	25	NV	
PLASTIC INDEX			NP		NP	3	NP	
USCS CLASSIFICATION			ML		ML	ML	ML	
USCS SOIL DESCRIPTION			Si		Si	Si	Si	Si
NATURAL MOISTURE		9.7	9.8	11.2	10.3	22.4	21.2	22.1
ORGANICS		2.4	2.4	2.4	2.4	3.7	5.3	5.6
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	Org[1]	Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-031	20-031	20-031	20-032	20-033	20-033	20-033
DEPTH (feet)		24.0-24.5	26.0-27.0	30.0-32.0	1.0-2.0	0.5-1.5	3.5-4.5	5.0-7.0
LATITUDE		N64.67284°	N64.67284°	N64.67284°	N64.68596°	N64.67101°	N64.67101°	N64.67101°
LONGITUDE		W148.91139°	W148.91139°	W148.91139°	W148.85368°	W148.91934°	W148.91934°	W148.91934°
LAB NUMBER		**20-4076**	**20-4077**	**20-4078**	**20-4079**	**20-4080**	**20-4081**	**20-4082**
DATE SAMPLED		4-May-20	4-May-20	4-May-20	4-May-20	5-May-20	5-May-20	5-May-20
% Passing	**3"**							
	2"							
	1.5"				100	100		
Gravel	**1.0"**				98	98		
	0.75"				91	92		
	0.5"				80	83		
	0.375"				75	76		
	#4				60	61	100	
	#8				53	53	99	
	#10				51	52	99	
	#16				48	48	98	
	#30				42	43	96	100
Sand	**#40**	100			36	36	95	99
	#50	99			26	28	94	99
	#60	99			21	19	94	99
	#80	98		100	15	13	93	98
	#100	98		99	13	10	92	98
Silt/Clay	**#200**	92.6		98.3	8.3	5.6	86.0	93.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		29		NV	NV	NV	NV	NV
PLASTIC LIMIT		27		NV	NV	NV	NV	NV
PLASTIC INDEX		2		NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML		ML	SP-SM	SP-SM	ML	ML
USCS SOIL DESCRIPTION		Si		Si	PGSa w/Si&Gr	PGSa w/Si&Gr	Si	Si
NATURAL MOISTURE		14.2	12.5	12.7	4.7	12.1	13.9	13.6
ORGANICS		4.0	2.8	2.1			2.4	2.3
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]			sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-033	20-033	20-033	20-033	20-033	20-033	20-033
DEPTH (feet)		8.0-9.5	10.0-12.0	15.0-16.0	20.0-21.0	25.0-26.0	30.0-31.5	35.0-36.5
LATITUDE		N64.67101°	N64.67101°	N64.67101°	N64.67101°	N64.67101°	N64.67101°	N64.67101°
LONGITUDE		W148.91934°	W148.91934°	W148.91934°	W148.91934°	W148.91934°	W148.91934°	W148.91934°
LAB NUMBER		**20-4083**	**20-4084**	**20-4085**	**20-4086**	**20-4087**	**20-4088**	**20-4089**
DATE SAMPLED		5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							100
	0.5"							99
	0.375"							99
	#4	100						99
	#8	99						98
	#10	99						98
	#16	99						98
	#30	99						97
Sand	**#40**	98					100	97
	#50	98		100			99	96
	#60	98		99		100	99	96
	#80	97		99		99	98	96
	#100	97		99		99	98	95
Silt/Clay	**#200**	93.0		92.7		95.9	94.1	91.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV		NV		25		24
PLASTIC LIMIT		NV		NV		24		23
PLASTIC INDEX		NP		NP		1		1
USCS CLASSIFICATION		ML		ML		ML		ML
USCS SOIL DESCRIPTION		Si		Si		Si		Si
NATURAL MOISTURE		15.1	24.7	12.8	9.3	9.9	16.7	12.6
ORGANICS		2.3	3.9	2.8	2.2	1.8	3.5	2.8
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]		sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
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PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-033	20-034	20-034	20-034	20-034	20-034	20-034
DEPTH (feet)		40.0-41.5	0.5-1.0	2.5-4.5	5.8-7.0	7.5-9.5	10.0-11.0	15.0-16.0
LATITUDE		N64.67101°	N64.66978°	N64.66978°	N64.66978°	N64.66978°	N64.66978°	N64.66978°
LONGITUDE		W148.91934°	W148.92496°	W148.92496°	W148.92496°	W148.92496°	W148.92496°	W148.92496°
LAB NUMBER		**20-4090**	**20-4091**	**20-4092**	**20-4093**	**20-4094**	**20-4095**	**20-4096**
DATE SAMPLED		5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**		100	100				
	0.75"		95	97				
	0.5"		76	90				
	0.375"		64	85				
	#4		48	74				
	#8		40	61				
	#10		38	59				
	#16		35	51				
	#30		29	43	100	100		
Sand	**#40**		25	39	99	99		100
	#50		19	35	99	99		99
	#60		17	34	99	99		99
	#80		13	30	98	99		99
	#100		11	27	98	98		98
Silt/Clay	**#200**		7.4	19.0	93.4	94.0		93.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT			NV	NV	NV	NV		NV
PLASTIC LIMIT			NV	NV	NV	NV		NV
PLASTIC INDEX			NP	NP	NP	NP		NP
USCS CLASSIFICATION			GP-GM	SM	ML	ML		ML
USCS SOIL DESCRIPTION			PGGr w/Si&Sa	SiSa w/Gr	Si	Si		Si
NATURAL MOISTURE		10.3	1.3	0.5	11.0	10.5	10.6	13.0
ORGANICS		3.6			2.4	2.5	3.5	4.3
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]			sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-034	20-034	20-034	20-035	20-035	20-035	20-036
DEPTH (feet)		20.0-21.0	25.0-26.0	30.0-31.5	6.5-8.5	10.0-12.0	15.0-17.0	0.5-1.5
LATITUDE		N64.66978°	N64.66978°	N64.66978°	N64.6694°	N64.6694°	N64.6694°	N64.66885°
LONGITUDE		W148.92496°	W148.92496°	W148.92496°	W148.92656°	W148.92656°	W148.92656°	W148.9308°
LAB NUMBER		**20-4097**	**20-4098**	**20-4099**	**20-4100**	**20-4101**	**20-4102**	**20-4103**
DATE SAMPLED		5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**						100	100
	0.75"						95	98
	0.5"					100	95	85
	0.375"					99	95	74
	#4				100	98	93	57
	#8				98	97	92	47
	#10				98	96	92	45
	#16				96	95	91	41
	#30				95	94	90	35
Sand	**#40**				94	94	90	29
	#50		100		92	93	90	24
	#60	100	99		92	93	89	19
	#80	99	99		91	92	89	16
	#100	99	99		90	91	88	13
Silt/Clay	**#200**	94.0	95.0		85.0	87.0	82.0	8.6
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		29	NV		25	NV	NV	NV
PLASTIC LIMIT		27	NV		22	NV	NV	NV
PLASTIC INDEX		2	NP		3	NP	NP	NP
USCS CLASSIFICATION		ML	ML		ML	ML	ML	SP-SM
USCS SOIL DESCRIPTION		Si	Si		Si w/Sa	Si	Si w/Sa	PGSa w/Si&Gr
NATURAL MOISTURE		8.9	10.7	9.2	14.7	13.9	8.4	1.5
ORGANICS		4.7	3.4	2.8	3.9	3.4	2.5	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-036	20-036	20-036	20-036	20-036	20-036	20-037
DEPTH (feet)		2.5-4.5	5.0-7.0	7.5-9.5	10.0-12.0	15.0-17.0	20.0-22.0	1.0-2.0
LATITUDE		N64.66885°	N64.66885°	N64.66885°	N64.66885°	N64.66885°	N64.66885°	N64.67314°
LONGITUDE		W148.9308°	W148.9308°	W148.9308°	W148.9308°	W148.9308°	W148.9308°	W148.91032°
LAB NUMBER		**20-4104**	**20-4105**	**20-4106**	**20-4107**	**20-4108**	**20-4109**	**20-4110**
DATE SAMPLED		5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	6-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**	100						100
	0.75"	99						98
	0.5"	90						90
	0.375"	85						84
	#4	72						65
	#8	60						51
	#10	58	100					49
	#16	52	99			100		39
	#30	45	99	100		99		28
Sand	**#40**	41	99	99		99		22
	#50	38	98	99		99		16
	#60	35	98	98		98		14
	#80	32	97	98		98		11
	#100	26	97	97		98		9
Silt/Clay	**#200**	19.8	94.0	93.4		96.0		6.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	NV		27		NV
PLASTIC LIMIT		NV	NV	NV		25		NV
PLASTIC INDEX		NP	NP	NP		2		NP
USCS CLASSIFICATION		SM	ML	ML		ML		SP-SM
USCS SOIL DESCRIPTION		SiSa w/Gr	Si	Si		Si		PGSa w/Si&Gr
NATURAL MOISTURE		5.1	20.1	23.9	18.2	15.0	24.0	1.0
ORGANICS			3.0	2.8	2.9	2.5	3.3	
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS			sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
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PROJECT NAME: Parks MP 305-325 Reconstruction
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AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-037	20-037	20-037	20-037	20-037	20-037	20-037
DEPTH (feet)		3.0-4.5	6.3-7.0	7.5-9.5	10.0-10.5	12.5-13.5	15.0-16.0	17.8-18.5
LATITUDE		N64.67314°	N64.67314°	N64.67314°	N64.67314°	N64.67314°	N64.67314°	N64.67314°
LONGITUDE		W148.91032°	W148.91032°	W148.91032°	W148.91032°	W148.91032°	W148.91032°	W148.91032°
LAB NUMBER		**20-4111**	**20-4112**	**20-4113**	**20-4114**	**20-4115**	**20-4116**	**20-4117**
DATE SAMPLED		6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20
% Passing	**3"**							
	2"							
	1.5"	100						
Gravel	**1.0"**	97						
	0.75"	94	100	100				
	0.5"	86	99	99				
	0.375"	81	99	98				
	#4	66	99	97				
	#8	51	99	95				
	#10	48	99	95			100	
	#16	43	97	94	100		99	
	#30	37	96	92	99		98	100
Sand	**#40**	34	96	91	99		97	99
	#50	32	95	90	99		97	99
	#60	29	94	89	98		96	98
	#80	26	93	88	98		96	98
	#100	24	92	87	97		95	97
Silt/Clay	**#200**	17.0	89.0	82.0	95.0		91.0	93.0
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT			NV	24	24		NV	36
PLASTIC LIMIT			NV	23	22		NV	33
PLASTIC INDEX			NP	1	2		NP	3
USCS CLASSIFICATION			ML	ML	ML		ML	ML
USCS SOIL DESCRIPTION		SiSa w/Gr	Si	Si w/Sa	Si		Si	Si
NATURAL MOISTURE		4.2	10.8	11.2	10.9	10.0	15.2	20.5
ORGANICS			2.6	2.7	3.0	2.8	4.0	6.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS			sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-037	20-037	20-038	20-038	20-038	20-038	20-038
DEPTH (feet)		20.0-21.0	22.5-23.5	1.0-1.5	2.0-2.5	5.5-7.0	7.5-9.5	10.0-12.0
LATITUDE		N64.67314°	N64.67314°	N64.67288°	N64.67288°	N64.67288°	N64.67288°	N64.67288°
LONGITUDE		W148.91032°	W148.91032°	W148.91072°	W148.91072°	W148.91072°	W148.91072°	W148.91072°
LAB NUMBER		**20-4118**	**20-4119**	**20-4120**	**20-4121**	**20-4122**	**20-4123**	**20-4124**
DATE SAMPLED		6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20
% Passing	**3"**							
	2"							
	1.5"			100				
Gravel	**1.0"**			99	100			
	0.75"			94	97			
	0.5"			85	84			
	0.375"			75	79			
	#4			57	68			100
	#8			47	57			99
	#10			46	54		100	99
	#16	100		43	49	100	99	99
	#30	99		37	43	99	99	98
Sand	**#40**	98		32	40	99	99	98
	#50	98		22	35	98	98	97
	#60	97		17	33	98	98	97
	#80	97		11	28	98	97	96
	#100	96		9	26	97	97	96
Silt/Clay	**#200**	94.0		4.9	16.9	94.0	93.0	91.0
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT		NV		NV	NV	NV	NV	NV
PLASTIC LIMIT		NV		NV	NV	NV	NV	NV
PLASTIC INDEX		NP		NP	NP	NP	NP	NP
USCS CLASSIFICATION		ML		SP	SM	ML	ML	ML
USCS SOIL DESCRIPTION		Si		PGSa w/Gr	SiSa w/Gr	Si	Si	Si
NATURAL MOISTURE		21.6	23.0	1.8	4.6	13.9	8.5	13.6
ORGANICS		7.0	7.1			2.2	2.3	2.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		Org[1]	Org[1]			sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

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SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-038	20-038	20-038	20-038	20-038	20-039	20-039
DEPTH (feet)		12.5-13.5	15.0-16.0	17.5-19.0	20.0-21.5	22.5-23.5	2.5-3.5	4.0-4.5
LATITUDE		N64.67288°	N64.67288°	N64.67288°	N64.67288°	N64.67288°	N64.6729°	N64.6729°
LONGITUDE		W148.91072°	W148.91072°	W148.91072°	W148.91072°	W148.91072°	W148.91103°	W148.91103°
LAB NUMBER		**20-4125**	**20-4126**	**20-4127**	**20-4128**	**20-4129**	**20-4130**	**20-4131**
DATE SAMPLED		6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20
% Passing	**3"**							
	2"							
	1.5"							100
Gravel	**1.0"**							94
	0.75"						100	92
	0.5"						93	82
	0.375"						87	78
	#4						69	62
	#8						55	48
	#10						53	45
	#16						44	39
	#30						34	32
Sand	**#40**		100	100			29	29
	#50		99	99			24	27
	#60		99	99			22	25
	#80		99	99			20	22
	#100		98	99			19	20
Silt/Clay	**#200**		96.0	96.0			16.0	14.9
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT			28	28			NV	
PLASTIC LIMIT			26	26			NV	
PLASTIC INDEX			2	2			NP	
USCS CLASSIFICATION			ML	ML			SM	
USCS SOIL DESCRIPTION			Si	Si			SiSa w/Gr	SiSa w/Gr
NATURAL MOISTURE		9.9	16.2	19.4	22.8	19.6	1.0	4.9
ORGANICS		2.6	3.3	3.6	4.9	4.2		
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]		

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
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PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-039	20-039	20-039	20-039	20-039	20-039	20-039
DEPTH (feet)		6.5-7.0	7.5-9.0	10.0-11.0	12.5-13.5	15.0-16.0	17.5-18.5	20.0-21.0
LATITUDE		N64.6729°	N64.6729°	N64.6729°	N64.6729°	N64.6729°	N64.6729°	N64.6729°
LONGITUDE		W148.91103°	W148.91103°	W148.91103°	W148.91103°	W148.91103°	W148.91103°	W148.91103°
LAB NUMBER		**20-4132**	**20-4133**	**20-4134**	**20-4135**	**20-4136**	**20-4137**	**20-4138**
DATE SAMPLED		6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20	6-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"		100					
	#4		99					
	#8		99					
	#10		99		100			
	#16		98		99			
	#30	100	97		99			
Sand	**#40**	99	96		99		100	100
	#50	99	96		99		99	99
	#60	99	96		99		99	99
	#80	98	95		99		98	99
	#100	98	95		98		98	98
Silt/Clay	**#200**	93.1	90.0		94.0		95.4	94.9
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		25	24		NV		28	NV
PLASTIC LIMIT		22	23		NV		25	NV
PLASTIC INDEX		3	1		NP		3	NP
USCS CLASSIFICATION		ML	ML		ML		ML	ML
USCS SOIL DESCRIPTION		Si	Si		Si		Si	Si
NATURAL MOISTURE		11.2	7.1	9.2	8.8	13.8	17.0	18.9
ORGANICS		2.4	2.1	2.8	2.5	3.2	3.8	3.4
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-039	20-040	20-040	20-040	20-040	20-040	20-040
DEPTH (feet)		22.0-23.5	1.0-2.0	3.0-4.5	5.5-7.0	8.0-9.0	10.0-10.8	12.5-13.5
LATITUDE		N64.6729°	N64.67268°	N64.67268°	N64.67268°	N64.67268°	N64.67268°	N64.67268°
LONGITUDE		W148.91103°	W148.912°	W148.912°	W148.912°	W148.912°	W148.912°	W148.912°
LAB NUMBER		**20-4139**	**20-4140**	**20-4141**	**20-4142**	**20-4143**	**20-4144**	**20-4145**
DATE SAMPLED		6-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**		100	100				
	0.75"		96	96				
	0.5"		83	90				
	0.375"		74	85				
	#4		54	70				
	#8		44	56				
	#10		43	53	100	100		
	#16		38	48	99	99		
	#30	100	32	41	99	99		100
Sand	**#40**	99	27	38	98	99		99
	#50	99	22	34	98	98		99
	#60	98	18	32	97	98		99
	#80	98	14	27	97	97		99
	#100	98	12	25	96	97		98
Silt/Clay	**#200**	95.2	7.6	15.9	92.0	92.0		95.0
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		31	NV	NV	NV	NV		26
PLASTIC LIMIT		28	NV	NV	NV	NV		25
PLASTIC INDEX		3	NP	NP	NP	NP		1
USCS CLASSIFICATION		ML	SP-SM	SM	ML	ML		ML
USCS SOIL DESCRIPTION		Si	PGSa w/Si&Gr	SiSa w/Gr	Si	Si		Si
NATURAL MOISTURE		33.7	8.0	3.5	11.6	11.4	5.5	14.1
ORGANICS		4.8			2.4	3.0	3.0	3.0
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]			sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-040	20-040	20-040	20-040	20-041	20-041	20-041
DEPTH (feet)		15.0-16.0	17.5-18.5	20.0-21.5	22.5-24.0	2.0-3.5	4.0-4.5	5.0-6.5
LATITUDE		N64.67268°	N64.67268°	N64.67268°	N64.67268°	N64.6722°	N64.6722°	N64.6722°
LONGITUDE		W148.912°	W148.912°	W148.912°	W148.912°	W148.91409°	W148.91409°	W148.91409°
LAB NUMBER		**20-4146**	**20-4147**	**20-4148**	**20-4149**	**20-4150**	**20-4151**	**20-4152**
DATE SAMPLED		7-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**					100		100
	0.75"					98		97
	0.5"					89		93
	0.375"					77		89
	#4					54		76
	#8					42		60
	#10					39		56
	#16					33		50
	#30			100		24		42
Sand	**#40**			99		19		39
	#50	100		98		14		35
	#60	99		98		12		33
	#80	99		97		9		29
	#100	99		96		8		26
Silt/Clay	**#200**	96.2		93.0		5.1		17.9
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV		28		NV		NV
PLASTIC LIMIT		NV		26		NV		NV
PLASTIC INDEX		NP		2		NP		NP
USCS CLASSIFICATION		ML		ML		SP-SM		SM
USCS SOIL DESCRIPTION		Si		Si		PGSa w/Si&Gr		SiSa w/Gr
NATURAL MOISTURE		12.7	16.9	18.2	12.6	1.1	3.3	4.6
ORGANICS		3.2	3.1	3.8	2.9			
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	sl Org[1]			

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-041	20-041	20-041	20-041	20-041	20-041	20-041
DEPTH (feet)		7.5-9.5	10.0-11.5	12.5-13.3	15.0-15.3	17.5-17.8	20.0-21.5	22.5-23.0
LATITUDE		N64.6722°	N64.6722°	N64.6722°	N64.6722°	N64.6722°	N64.6722°	N64.6722°
LONGITUDE		W148.91409°	W148.91409°	W148.91409°	W148.91409°	W148.91409°	W148.91409°	W148.91409°
LAB NUMBER		**20-4153**	**20-4154**	**20-4155**	**20-4156**	**20-4157**	**20-4158**	**20-4159**
DATE SAMPLED		7-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20	7-May-20
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**	100						
	0.75"	99						
	0.5"	97						
	0.375"	95						
	#4	89						
	#8	83	100					
	#10	82	99	100				
	#16	78	99	99				
	#30	74	98	98		100	100	100
Sand	**#40**	72	98	97		99	99	99
	#50	70	97	96		99	99	98
	#60	69	97	96		99	99	98
	#80	66	96	95		98	98	97
	#100	64	96	94		98	98	97
Silt/Clay	**#200**	56.0	92.0	85.9		94.6	95.5	94.2
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT		NV	NV	27			33	NV
PLASTIC LIMIT		NV	NV	26			31	NV
PLASTIC INDEX		NP	NP	1			2	NP
USCS CLASSIFICATION		ML	ML	ML			ML	ML
USCS SOIL DESCRIPTION		SaSi	Si	Si		Si	Si	Si
NATURAL MOISTURE		8.9	20.8	13.3	9.8	16.1	24.9	18.3
ORGANICS		3.5	4.2	4.5	6.5	5.4	5.6	4.7
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]	sl Org[1]	Org[1]	Org[1]	Org[1]	sl Org[1]

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks MP 305-325 Reconstruction
PROJECT NUMBER: Z606570000
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		20-041	20-041	20-041				
DEPTH (feet)		27.5-28.5	30.0-32.0	32.5-34.5				
LATITUDE		N64.6722°	N64.6722°	N64.6722°				
LONGITUDE		W148.91409°	W148.91409°	W148.91409°				
LAB NUMBER		**20-4160**	**20-4161**	**20-4162**				
DATE SAMPLED		7-May-20	7-May-20	7-May-20				
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16							
	#30							
Sand	**#40**	100						
	#50	99						
	#60	99						
	#80	99						
	#100	99	100					
Silt/Clay	**#200**	95.6	98.9					
Hydro	**0.02**							
	0.005							
	0.002							
	0.001							
LIQUID LIMIT			NV					
PLASTIC LIMIT			NV					
PLASTIC INDEX			NP					
USCS CLASSIFICATION			ML					
USCS SOIL DESCRIPTION			Si					
NATURAL MOISTURE		13.6	36.5	38.2				
ORGANICS		3.7	2.1	2.0				
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRAD. VALUE								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		sl Org[1]	sl Org[1]					

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

North Nenana Quarry

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER:
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER *DEPTH (feet)* *LATITUDE* *LONGITUDE* *LAB NUMBER* *DATE SAMPLED*	GS-1 0.0- N64.58146° W149.10527° **19-4608** 14-Oct-19	GS-2 0.0- N64.58143° W149.10489° **19-4609** 14-Oct-19	GS-3 0.0- N64.58107° W149.10442° **19-4610** 14-Oct-19	GS-4 0.0- N64.58054° W149.10643° **19-4611** 14-Oct-19	GS-5 0.0- N64.58023° W149.10695° **19-4612** 14-Oct-19	19-048 7.0-34.0 N64.58129° W149.10533° **19-4617** 5-Oct-19	19-049 15.0-35.0 N65.58097° W149.10681° **19-4618** 5-Oct-19
% Passing **3"**							
2"							
Gravel **1.5"**							
1.0"							
0.75"							
0.5"							
0.375"							
#4							
#8							
#10							
#16							
#30							
Sand **#40**							
#50							
#60							
#80							
#100							
Silt/Clay **#200**							
0.02							
Hydro **0.005**							
0.002							
0.001							
LIQUID LIMIT							
PLASTIC LIMIT							
PLASTIC INDEX							
USCS CLASSIFICATION							
USCS SOIL DESCRIPTION							
NATURAL MOISTURE							
ORGANICS							
SP. GR. (FINE)							
SP. GR. (COARSE)							
MAX. DRY DENSITY							
OPTIMUM MOISTURE							
L.A. ABRASION	21	20	24	23	27	21	24
DEGRAD. VALUE	33	47	23	25	17	28	6
SODIUM SULF. (CRSE)	7	7	17	8	10	5	
SODIUM SULF. (FINE)							
NORDIC ABRASION							
REMARKS							insufficient material for sodium

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION
NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: Parks Hwy 305-325 Reconstruction
PROJECT NUMBER:
AKSAS NUMBER:
SAMPLED BY: J. SIMPSON
MATERIAL SOURCE: CENTERLINE

TEST HOLE NUMBER		19-050	19-053	19-051	19-052	19-054	19-054	
DEPTH (feet)		10.0-24.0	10.0-45.0	25.0-60.0	22.5-45.0	9.0-29.0	29.0-44.0	
LATITUDE		N64.58147°	N64.58155°	N64.58113°	N64.58085°	N64.58092°	N64.58092°	
LONGITUDE		W149.10448°	W149.10194°	W149.10385°	W149.10251°	W149.10522°	W149.10522°	
LAB NUMBER		**19-4619**	**19-4620**	**19-4621**	**19-4622**	**19-4623**	**19-4624**	
DATE SAMPLED		6-Oct-19	10-Oct-19	7-Oct-19	8-Oct-19	11-Oct-19	11-Oct-19	
% Passing	**3"**							
	2"							
	1.5"							
Gravel	**1.0"**							
	0.75"							
	0.5"							
	0.375"							
	#4							
	#8							
	#10							
	#16							
	#30							
Sand	**#40**							
	#50							
	#60							
	#80							
	#100							
Silt/Clay	**#200**							
	0.02							
Hydro	**0.005**							
	0.002							
	0.001							
LIQUID LIMIT								
PLASTIC LIMIT								
PLASTIC INDEX								
USCS CLASSIFICATION								
USCS SOIL DESCRIPTION								
NATURAL MOISTURE								
ORGANICS								
SP. GR. (FINE)								
SP. GR. (COARSE)								
MAX. DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION		35	22	22	34	24	22	
DEGRAD. VALUE		3	12	10	4	13	57	
SODIUM SULF. (CRSE)			10	9	30	5	6	
SODIUM SULF. (FINE)								
NORDIC ABRASION								
REMARKS		insufficient material for Sodium						

GENERAL COMMENTS

Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

[1] Organic content determination is based on the results of the ATM T-6 test method.

(Soil descriptions shown in parentheses are based on field determinations.)

USCS Soil Description Abbreviations: WG = Well-graded; PG = Poorly-graded; E = Elastic; L = Lean; F = Fat

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041934732
Customer ID: ALDT34
Customer PO:
Project ID:

Attention: Jocelyn Simpson
Alaska Department of Transportation
2301 Peger Road
Fairbanks, AK 99709

Phone: (907) 458-6883
Fax: (907) 451-2353
Received: 12/04/2019 11:20 AM
Analysis Date: 12/17/2019
Collected: 11/22/2019

Project: Parks Highway 305-325/Nenana Quarry

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
19-4617a *041934732-0001*	Schist	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
19-4618a *041934732-0002*	Schist	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
19-4619a *041934732-0003*	Schist	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
19-4620a *041934732-0004*	Schist	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**<0.25% Tremolite**
19-4621a *041934732-0005*	Schist	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
19-4622a *041934732-0006*	Schist	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**
19-4623a *041934732-0007*	Schist	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**

Analyst(s)

Juli Patel (7)

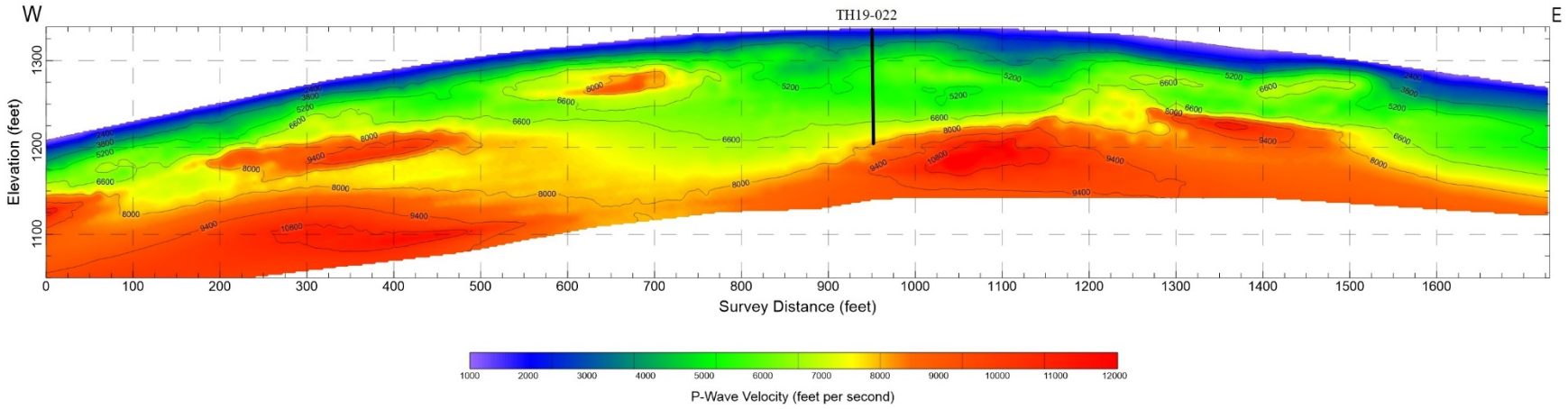
Samantha Rundstrom, Laboratory Manager
or other approved signatory

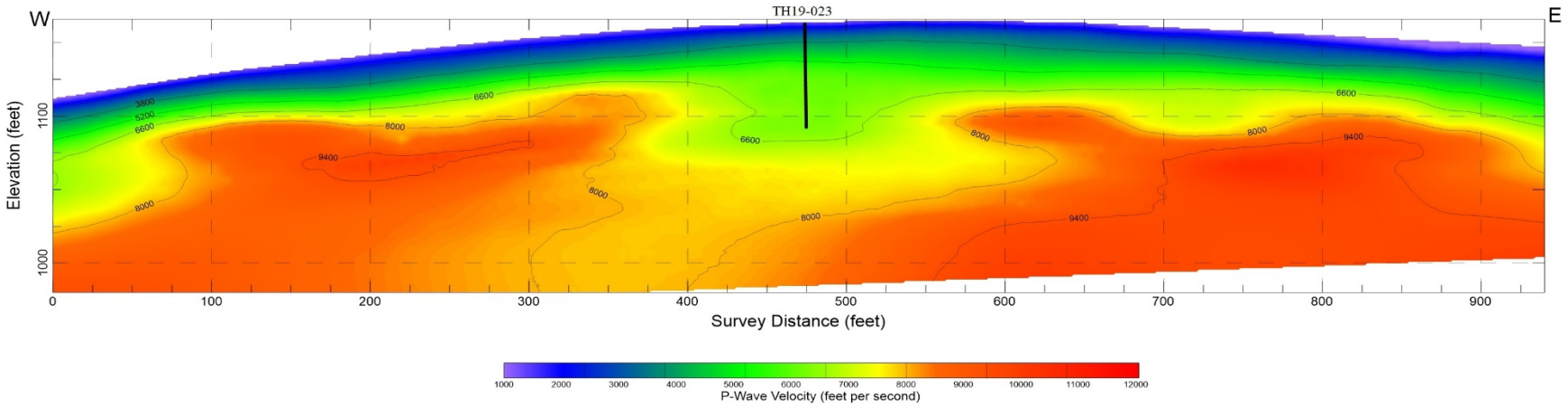
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 12/17/2019 15:11:43

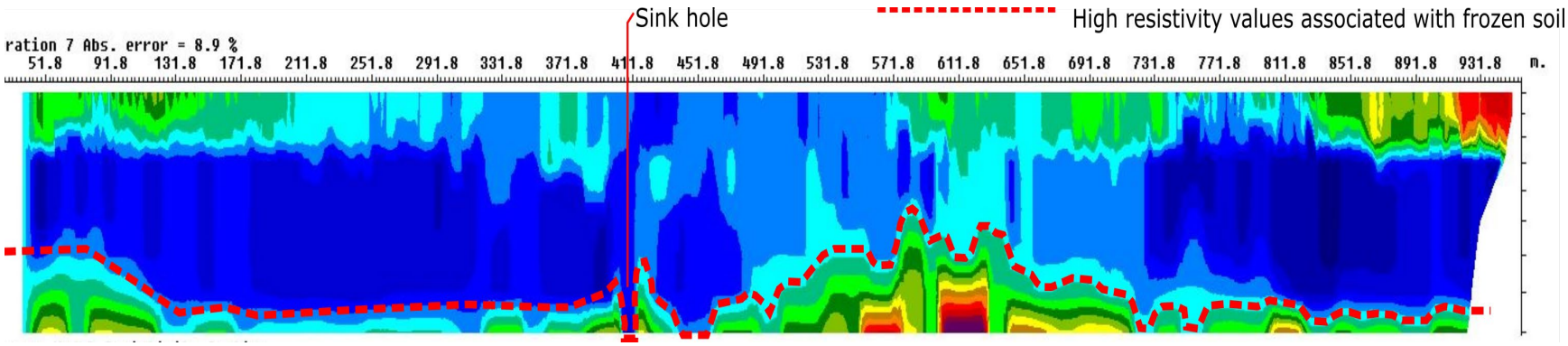
APPENDIX C-GEOPHYSICS

Seismic: Realignment/Cut

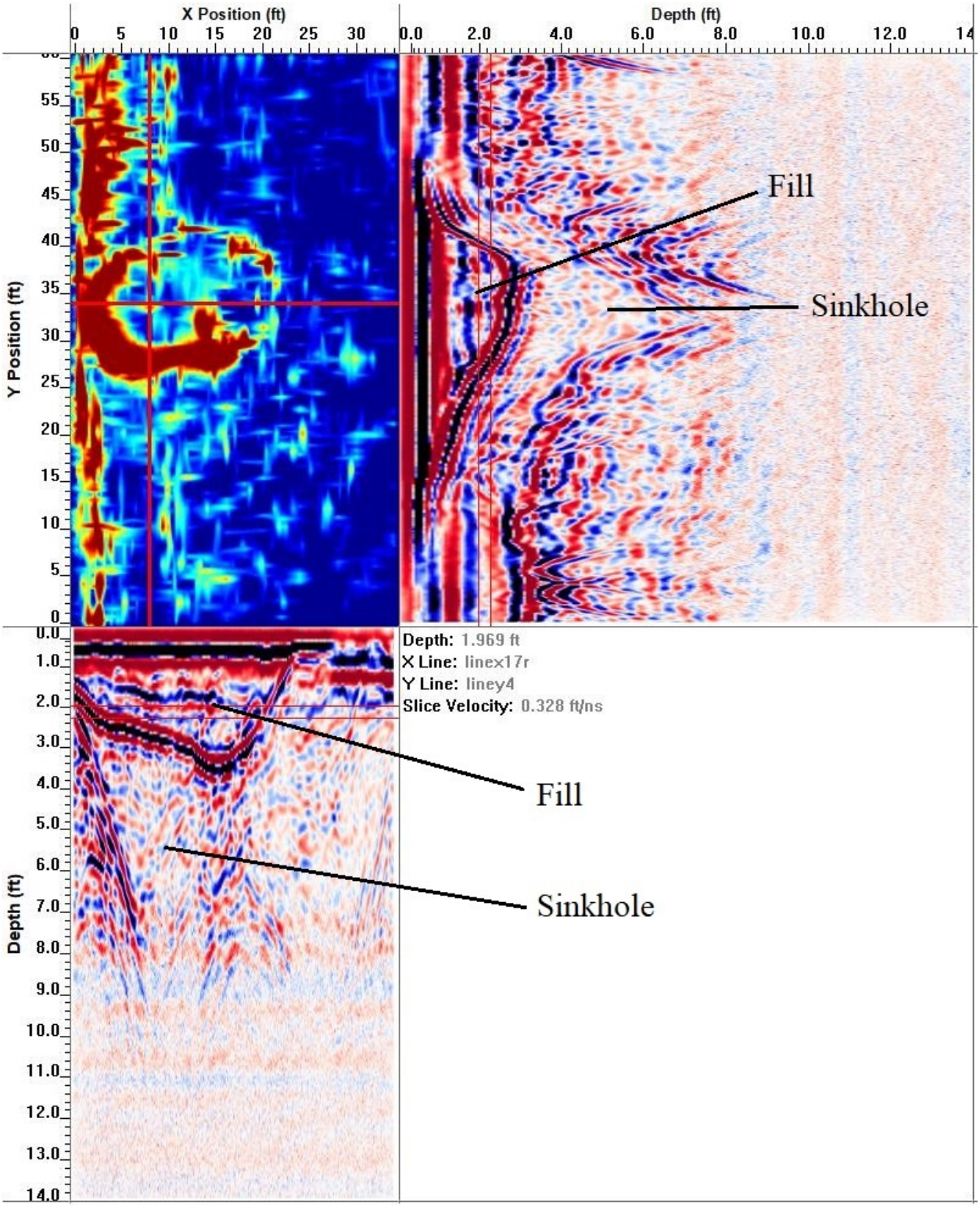




CCR: Sinkhole



GPR: Sinkhole



APPENDIX D- SLOPE STABILITY ANALYSIS DATA AND STEREONETS

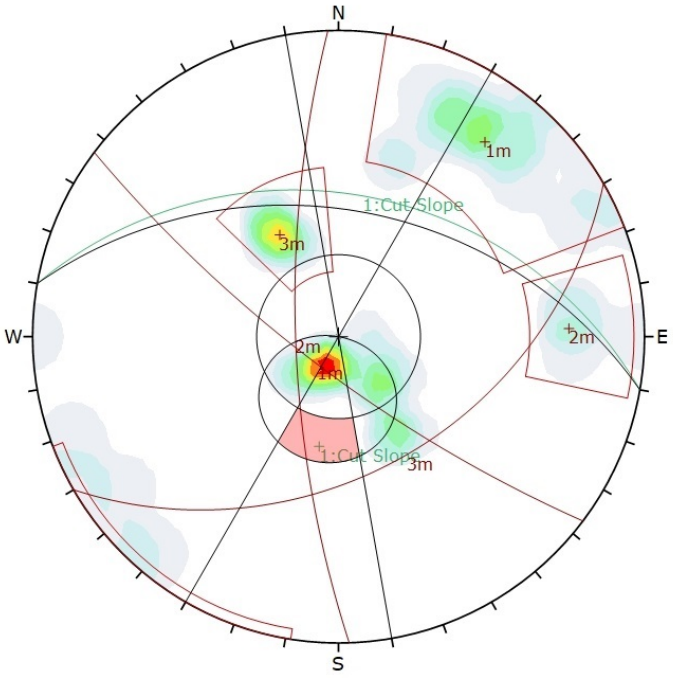
Outcrop 1

Strike	Dip	Type	Persist	Filling	Lith
256	10N	foliation plane	primary foliation	none	Musc-schist
166	16W	foliation plane	primary foliation	none	Musc-schist
260	14N	foliation plane	primary foliation	none	Musc-schist
260	13N	foliation plane	primary foliation	none	Musc-schist
295	11N	foliation plane	primary foliation	none	Musc-schist
155	74S	primary fracture plane	dominant fracture	none	Musc-schist
144	75S	primary fracture plane	dominant fracture	none	Musc-schist
145	74S	primary fracture plane	dominant fracture	none	Musc-schist
150	vertical	primary fracture plane	dominant fracture	none	Musc-schist
280	21N	foliation	primary foliation	none	2
180	22W	foliation	primary foliation	none	Musc-schist
290	21N	foliation	primary foliation	none	Musc-schist
295	23N	foliation	primary foliation	none	Musc-schist
260	16N	foliation	primary foliation	none	1
076	60S	fracture	primary fracture	none	1
090	80S	fracture	primary fracture	none	1
130	11NW	foliation	primary foliation	none	1
80	80S	fracture	primary fracture	none	1
210	20W	foliation	primary foliation	none	1
090	75S	fracture	primary fracture	none	1
080	65S	fracture	primary fracture	none	1
260	10N	foliation	primary foliation	none	1
100	78S	fracture	primary fracture	none	3
100	80S	fracture	primary fracture	none	3
110	75S	fracture	primary fracture	none	3
90	78S	fracture	primary fracture	none	3
205	25W	primary foliation	major	SiO2	3
200	20W	primary foliation			3
180	30W	primary foliation			3
310	85N	primary fracture	major	none	4
030	45E	secondary fracture	minor	none	4
040	35E	secondary fracture			4
035	38E	secondary fracture			4
245	08N	primary foliation	minor	SiO2	4
235	10N	primary foliation			4
300	90	primary fracture	major	none	4

105	89S	primary fracture			4
280	85N	primary fracture			4
295	80N	primary fracture			4
030	50E	secondary fracture	moderate	none	4
020	40E	secondary fracture	moderate	none	4
026	45E	secondary fracture			4
200	45W	primary foliation	minor	SiO2	4
215	40W	primary foliation			4
211	42W	primary foliation			4
203	29W	primary foliation			4
208	38W	primary foliation			4
030	45E	secondary fracture	moderate	none	4
029	38E	secondary fracture			4
125	81W	major fracture	major	none	4

1. Weak to strong muscovite Schist with quartz boudins, moderate to highly weathered with closely fractured, fine foliation, gray to gray brown
2. Completely weathered, friable muscovite Schist with fine foliation spacing and very close fracture spacing, gray to gray brown, friable
3. Moderate to strong muscovite biotite quartz garnet Schist 6Y BN fresh + weathered. Was in scale foliations with folded quartz separated by each other by fine foliated mica layers. Close to moderate fracture spacing moderate weathered. Quartz rich layers don't like to break on foliation like mica layers do. So order of importance: foliation 7, major fracture 7, minor fracture
4. moderate strong to weak 6Y BN hornfels with foliation spacing up to 6" separated by 1-2" thick foliations of muscovite schist that is soft. Close to moderate fracture spacing.
- This outcrop is mostly unit 1 which rarely can be seen in place unless you dig for it.

Outcrop 1: Planar 45 degree slope, north dip



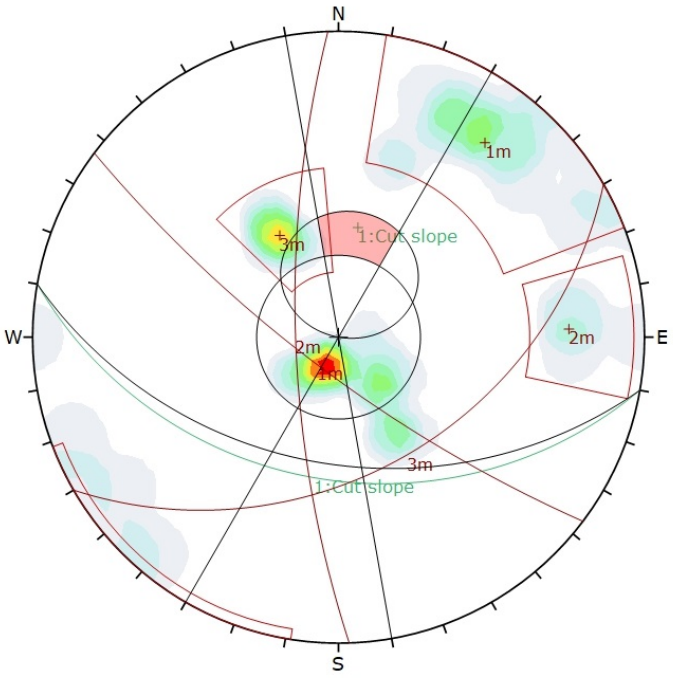
Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	45
Slope Dip Direction	10
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	0	50	0.00%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 1: Planar 45 degree slope, south dip



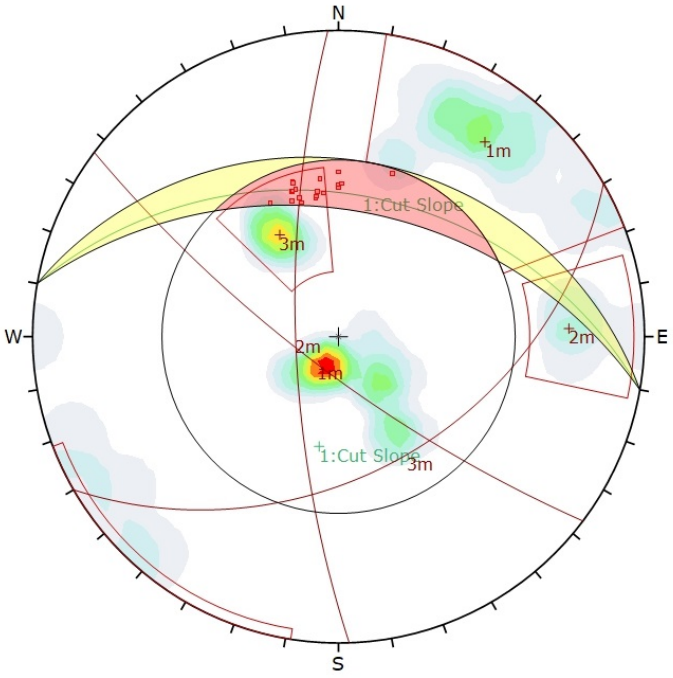
Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	45
Slope Dip Direction	190
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	0	50	0.00%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 1: Wedge 45 degree slope, north dip



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00

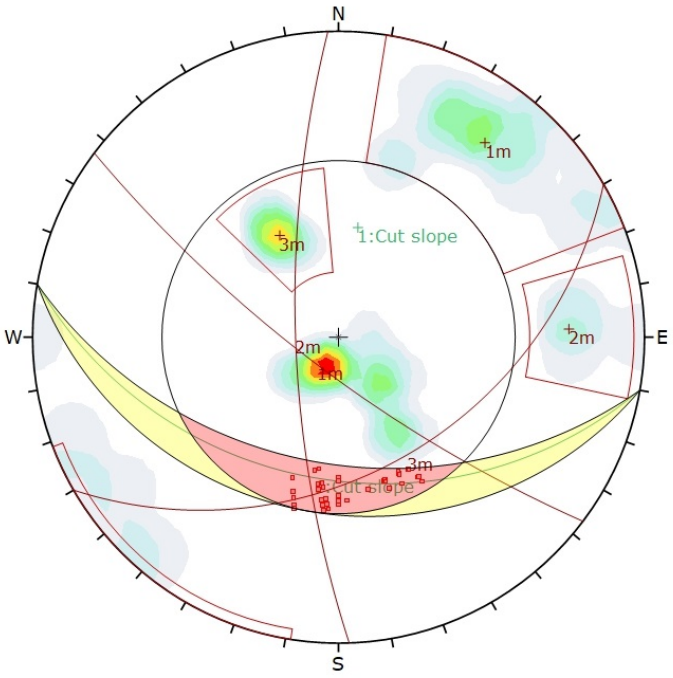
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	45
Slope Dip Direction	10
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	21	1224	1.72%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	1224
Hemisphere	Lower
Projection	Equal Angle

Outcrop 1: Wedge 45 degree slope, south dip



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00

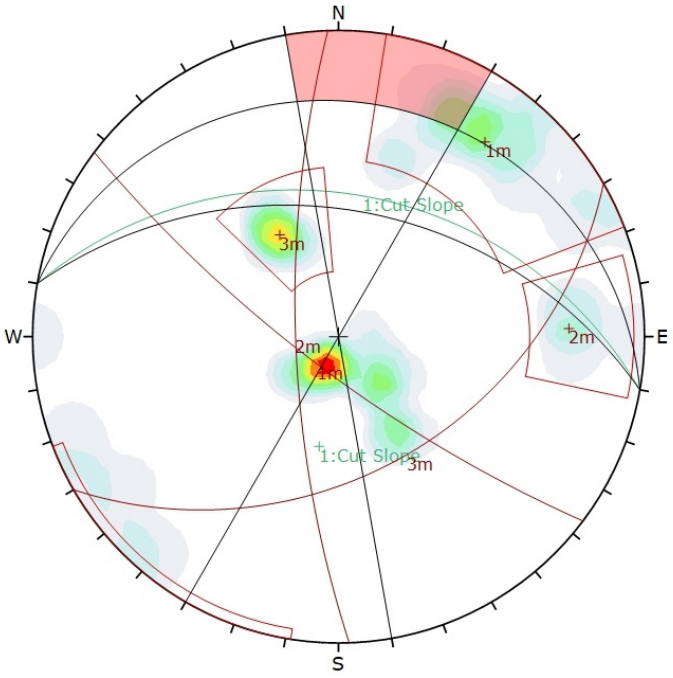
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	45
Slope Dip Direction	190
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	47	1224	3.84%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	1224
Hemisphere	Lower
Projection	Equal Angle

Outcrop 1: Topple 45 degree slope, north dip



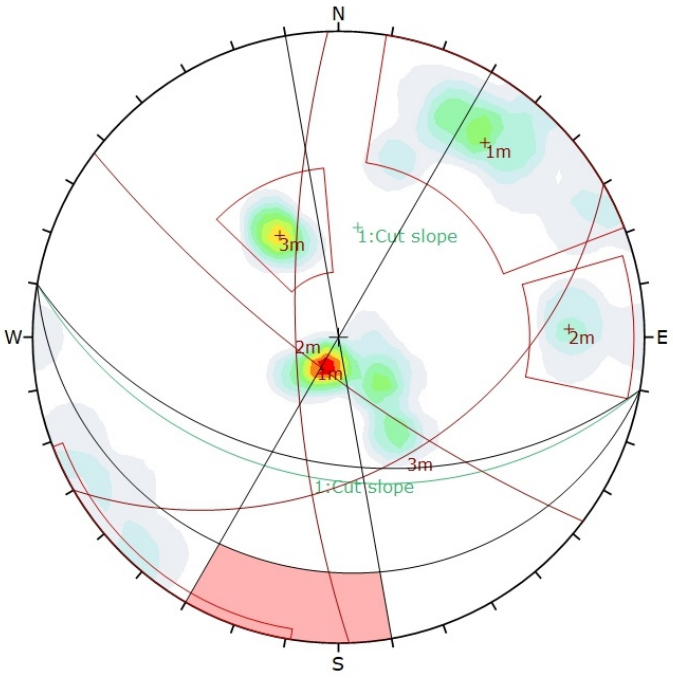
Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	45
Slope Dip Direction	10
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	3	50	6.00%
Flexural Toppling (Set 1)	3	12	25.00%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 1: Topple 45 degree slope, south dip



Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00
Maximum Density	14.89%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	45
Slope Dip Direction	190
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	0	50	0.00%

Plot Mode	Pole Vectors
Vector Count	50 (50 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2

Strike	Dip	Type	Persist	Filling	Lith
180	38W	foliation	primary	none	5
170	32W	foliation			5
195	25W	foliation			5
220	20NW	foliation			5
035	30NW	foliation			5
033	28NW	foliation			5
020	19NW	foliation			5
175	30W	foliation			5
125	35W	foliation			5
210	05W	foliation			3
090	84S	major fracture	primary	none	3
250	88N	major fracture	primary	none	3
085	85S	major fracture			3
050	70S	major fracture			3
060	80S	major fracture			3
055	75S	major fracture			3
250	10N	foliation	major	mica	3
255	10N	foliation	major	mica	3
210	05NW	foliation			3
040	72S	fracture	major	none	3
045	70S	fracture			3
120	28S	foliation	major	mica	3
115	23S	foliation			3
118	25S	foliation			3
125	25S	foliation			3
122	15S	foliation			3
050	74S	fracture	major	none	3
090	76S	fracture	major	none	3
055	89S	fracture			3
049	80S	fracture			3
085	77S	fracture			3
250	23N	foliation	major	none	3
245	35N	foliation			3
248	28NW	foliation			3
250	30NW	foliation			3
240	25N	foliation			3
030	25S	major fracture	major	none	3
80	80S	major fracture			3

070	60S	major fracture			3
090	65S	major fracture			3
055	88S	fracture	major	none	3
065	80S	fracture			3
080	89S	fracture			3
240	08N	foliation primary	major	mica	3
350	10E	foliation primary			3
030	10S	foliation primary			3
235	45N	foliation primary	major	mica	3
025	10S	foliation primary			3
035	11S	foliation primary			3
040	8S	foliation primary			3
035	05S	foliation primary			3
090	25S	foliation primary			3
090	21S	foliation primary			3
080	10S	foliation primary			3
083	15S	foliation primary			3
084	17S	foliation primary			3
088	13S	foliation primary			3
070	70S	fracture	major	none	3
055	70S	fracture			3
060	65S	fracture			3
066	65S	fracture			3
075	80S	fracture			3
050	70S	fracture			3
059	72S	fracture			3
040	75S	fracture	major	none	3
050	70S	fracture			3
060	70S	fracture			3
047	73S	fracture			3
053	70S	fracture			3
043	68S	fracture			3
180	30W	major fracture	major	mica	3
165	20W	major fracture			3
169	22W	major fracture			3
175	19W	major fracture			3
170	25W	major fracture			3
160	19W	major fracture			3
180	15W	major fracture			3
164	18W	major fracture			3
050	90	major fracture	major	none	3

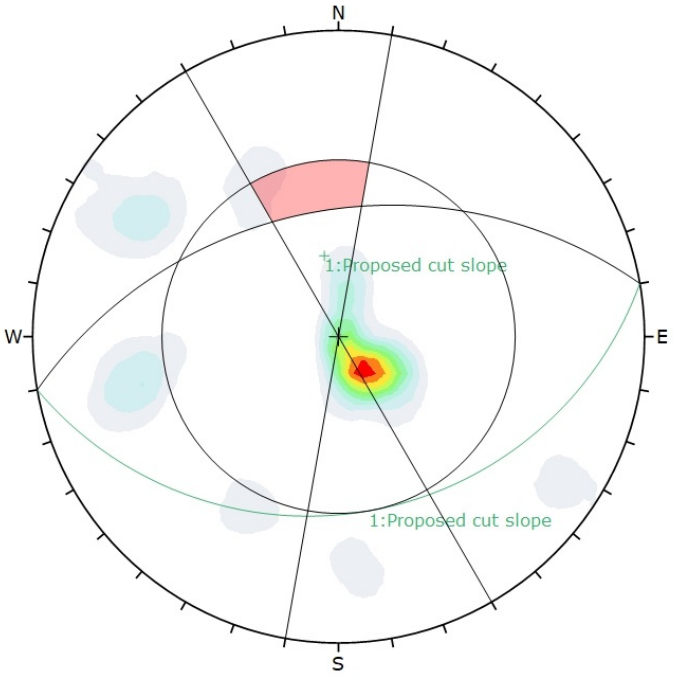
060	75S	major fracture			3
090	68S	minor fracture	moderate	none	3
300	89N	minor fracture			3
350	70E	minor fracture			3
000	85E	minor fracture			3
355	75E	minor fracture			3
360	80E	minor fracture			3
095	60S	minor fracture			3
080	70S	minor fracture			3
165	08W	primary foliation	major	mica	3
170	30W	primary foliation			3
169	20W	primary foliation			3
160	10W	primary foliation			3
168	22W	primary foliation			3
161	25W	primary foliation			3
163	18W	primary foliation			3
055	74S	primary fracture	major	none	3
060	70S	primary fracture			3
058	61S	primary fracture			3
020	65E	primary fracture	major	none	3
025	70E	primary fracture			3
027	68E	primary fracture			3
095	80W	primary fracture	major	none	3
081	81W	primary fracture			3
021	77E	primary fracture			3
030	60S	major fracture	major	none	3
025	65S	major fracture	major	none	3
040	60S	major fracture			3
030	71S	major fracture			3
033	61S	major fracture			3
205	11NW	major foliation	major	mica	3
220	15NW	major foliation			3
211	16NW	major foliation			3
213	20NW	major foliation			3
206	14NW	major foliation			3
208	18NW	major foliation			3
110	25NW	major foliation			3
211	20NW	major foliation			3
235	35N	major foliation			3
230	40N	major foliation			3
240	30NW	major foliation			3

234	35N	major foliation			3
080	72S	major fracture	major	none	3
085	70S	major fracture			3
075	80S	major fracture			3
285	72N	minor fracture	minor	SS	3
280	80N	minor fracture	minor	none	3
280	80N	minor fracture	minor	none	3
290	75N	minor fracture			3
280	70N	minor fracture	minor	none	3
285	65N	minor fracture			3
290	80N	minor fracture			3
275	75N	minor fracture			3
270	70N	minor fracture			3
285	88N	minor fracture			3
283	68N	minor fracture			3
278	64N	minor fracture			3
268	61N	minor fracture			3
277	71N	minor fracture			3
265	65N	minor fracture			3
020	65E	minor fracture			3
015	66E	minor fracture			3
035	70E	minor fracture			3
030	66E	minor fracture			3
031	70E	minor fracture			3
045	55E	minor fracture			3
047	60E	minor fracture			3
033	59E	minor fracture			3
038	39E	minor fracture			3
041	61E	minor fracture			3
039	71E	minor fracture			3
285	56N	minor fracture			3
261	50N	minor fracture			3
230	11N	foliation primary	primary	mica	3
270	10N	foliation primary			3
265	15N	foliation primary			3
240	10N	foliation primary			3
055	75N	major fracture	major	none	3
045	76N	major fracture			3
220	06NW	foliation	major	mica	3
269	42W	fracture	major	none	3
270	40W	fracture	major	none	3

200	08N	foliation	major	mica	3
090	90	fracture	major	none	3
310	70N	fracture			3
010	90	fracture			3
320	85N	fracture			3
045	80SE	fracture			3
040	79S	fracture			3
180	60W	fracture			3
232	22N	foliation	major	mica	3
210	18NW	foliation			3
052	50S	fracture	major	none	3
060	49S	fracture			3
108	30W	foliation	major	mica	3
215	20W	foliation	major	mica	3
280	80N	fracture	major	none	3
185	50W	fracture			3

1. Weak to strong muscovite Schist with quartz boudins, moderate to highly weathered with closely fractured, fine foliation, gray to gray brown
2. Completely weathered, friable muscovite Schist with fine foliation spacing and very close fracture spacing, gray to gray brown, friable
3. Moderate to strong muscovite biotite quartz garnet Schist 6Y BN fresh + weathered. Was in scale foliations with folded quartz separated by each other by fine foliated mica layers. Close to moderate fracture spacing moderate weathered. Quartz rich layers don't like to break on foliation like mica layers do. So order of importance: foliation 7, major fracture 7, minor fracture
4. moderate strong to weak 6Y BN hornfels with foliation spacing up to 6" separated by 1-2" thick foliations of muscovite schist that is soft. Close to moderate fracture spacing.
- This outcrop is mostly unit 1 which rarely can be seen in place unless you dig for it.

Outcrop 2: Planar 45 degree slope, north dip



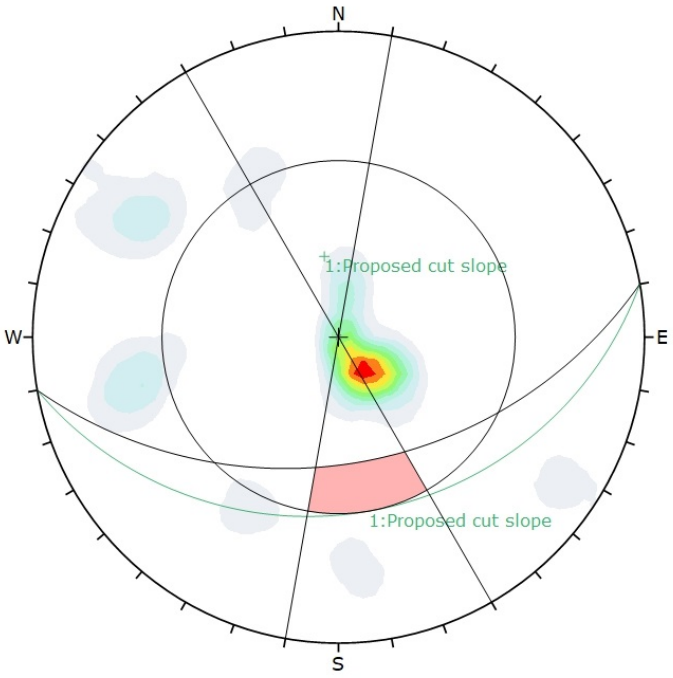
Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00
Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	45
Slope Dip Direction	350
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	177	2.82%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2: Planar 45 degree slope, south dip



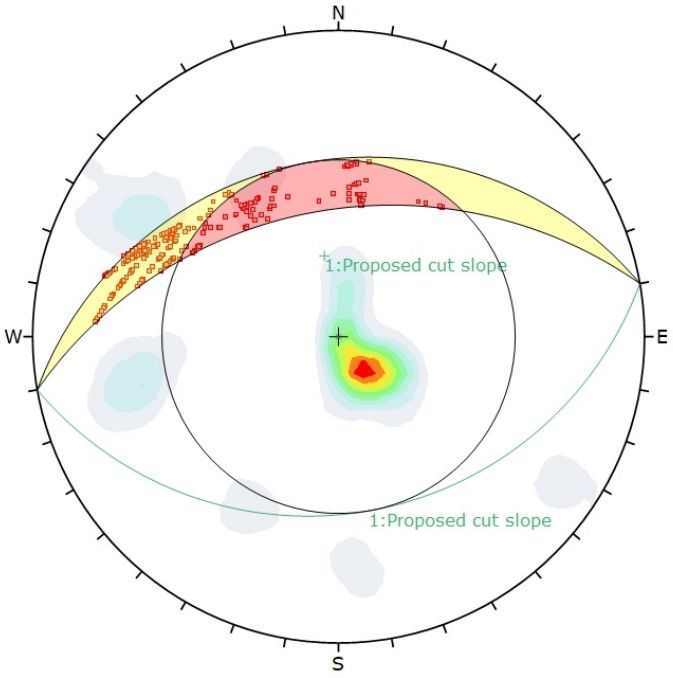
Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00
Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	45
Slope Dip Direction	170
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	0	177	0.00%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2: Wedge 45 degree slope, north dip



Symbol	Feature
▫	Critical Intersection

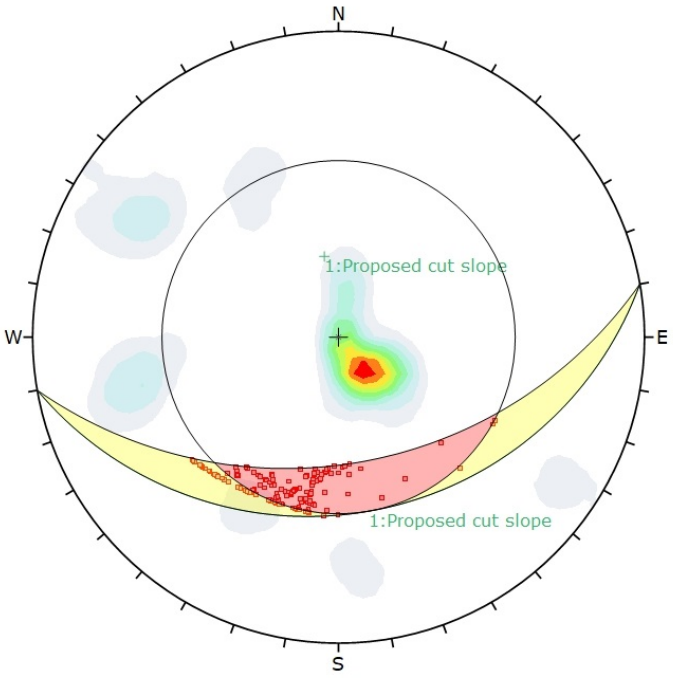
Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00
Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	45
Slope Dip Direction	350
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	254	15565	1.63%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	15565
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2: Wedge 45 degree slope, south dip



Symbol	Feature
▫	Critical Intersection

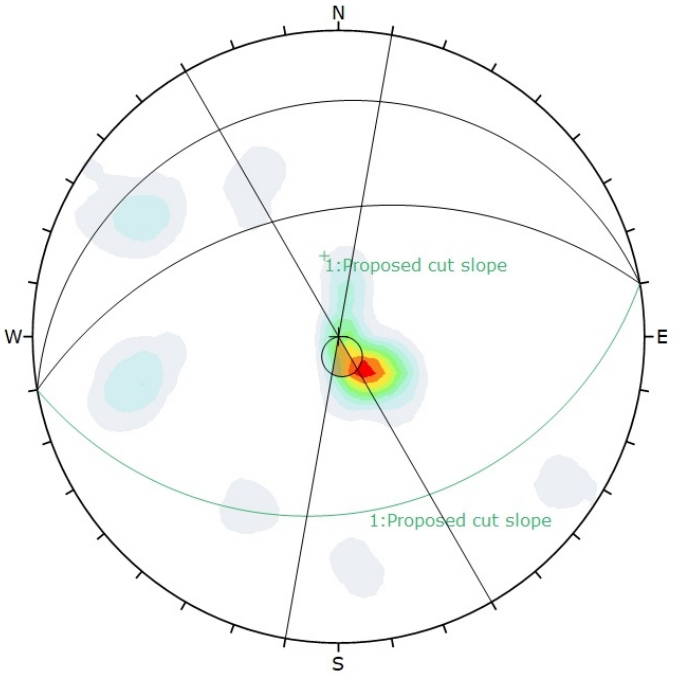
Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00
Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	45
Slope Dip Direction	170
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	180	15565	1.16%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	15565
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2: Topple 45 degree slope, north dip



Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00

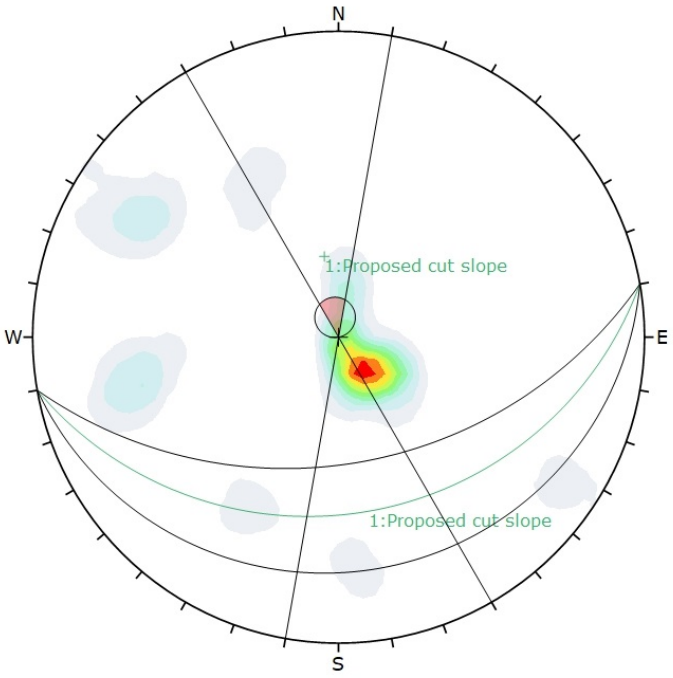
Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	45
Slope Dip Direction	350
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	13	177	7.34%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Hemisphere	Lower
Projection	Equal Angle

Outcrop 2: Topple 45 degree slope, south dip



Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00

Maximum Density	16.70%
Contour Data	Dip Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	45
Slope Dip Direction	170
Friction Angle	30°
Lateral Limits	20°

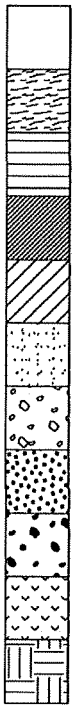
	Critical	Total	%
Flexural Toppling (All)	4	177	2.26%

Plot Mode	Dip Vectors
Vector Count	177 (177 Entries)
Hemisphere	Lower
Projection	Equal Angle

APPENDIX E- SYMBOLS AND DEFINITIONS

SYMBOLS AND DEFINITIONS

BASIC MATERIAL SYMBOLS



ASPHALT

PEAT

CLAY (Cl)

ICE

SILT (Si)

POORLY GRADED SAND (Sa)

POORLY GRADED GRAVEL (Gr)

WELL GRADED SAND

WELL GRADED GRAVEL

BEDROCK (Bx), soft(Type)

BEDROCK (Bx), hard(Type)

SOFT OR HARD BEDROCK BASED ON DRILLING RATE

NOTE

MAIN COMPONENT (UPPER CASE ... SOLID LINES)
MINOR COMPONENT (Title Case ... DASHED LINES OR SPARSER PATTERN)

USCS SIZE DEFINITIONS

BOULDERS (Boulders)	12"+
COBBLES (Cobbles)	3" TO 12"
GRAVEL	#4 TO 3"
ANGULAR FRAGMENTS	#10 +
SAND	#200 TO #4
SILT	#200 TO 0.005 mm
CLAY	MINUS 0.005 mm

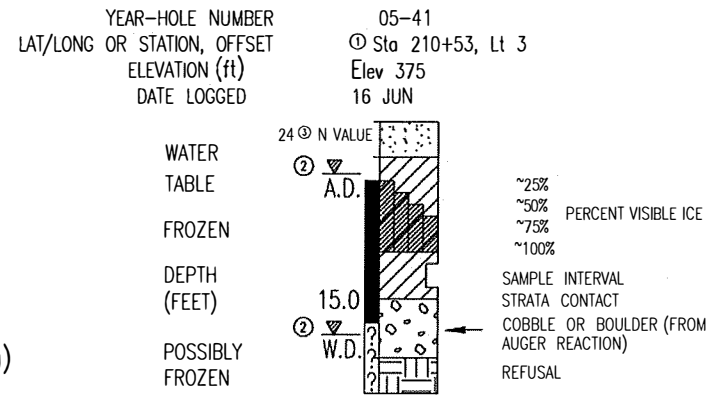
TEST RESULTS

_._%-200	= % PASSING #200 SIEVE
NM _._%	= NATURAL MOISTURE
ORG _._%	= ORGANIC CONTENT
SSc _	= SODIUM SULFATE LOSS(coarse)
SSf _	= SODIUM SULFATE LOSS(fine)
LA _	= LOS ANGELES ABRASION
DEG _	= DEGRADATION
LL _	= LIQUID LIMIT (NV = no value)
PI _	= PLASTIC INDEX (NP = non-plastic)

MISC.

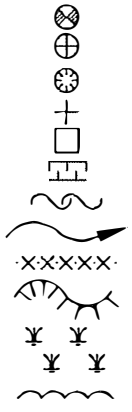
Tr	= TRACE
sl	= SLIGHTLY
hi	= HIGHLY
w/_	= WITH UNSPECIFIED AMOUNT
X'tls	= CRYSTALS
TH	= TEST HOLE
TT	= TEST TRENCH
TP	= TEST PIT

TYPICAL LOG



① Station value may also be on centerline e.g. Sta 210+53, CL or lat-long format e.g. N64.56789°, W145.67890°
② W.D.= WHILE DRILLING, A.D.= AFTER DRILLING
③ "N VALUE" INDICATES STANDARD PENETRATION TEST (1.4" I.D., 2.0" O.D. SAMPLER DRIVEN WITH 140 LB. HAMMER, 30" FREE FALL) AND IS SUM OF 2nd AND 3rd 6" OF PENETRATION.

PLAN VIEW SYMBOLS



POWER AUGER TEST HOLE (TH)
HAND AUGER TEST HOLE (TH)
EXPOSED MATERIAL
PROBE
HAND DUG TEST PIT (TP)
DOZER/BACKHOE TEST TRENCH (TT)
BODY OF WATER
FLOW DIRECTION
WASTE BERM
BANK
SWAMP
TREELINE

SOIL DENSITY/CONSISTENCY DESCRIPTORS

NON-COHESIVE		COHESIVE	
RELATIVE DENSITY	BLOWS/FOOT (N) VALUE	CONSISTENCY	BLOWS/FOOT (N) VALUE
VERY LOOSE	< 4	VERY SOFT	< 2
LOOSE	5-10	SOFT	2-4
MEDIUM DENSE	11-30	FIRM	5-8
DENSE	31-50	STIFF	9-15
VERY DENSE	> 50	VERY STIFF	16-30
		HARD	> 30

COLOR

Bk = BLACK	Gy = GRAY	Tn = TAN
Bl = BLUE	Or = ORANGE	Wh = WHITE
Bn = BROWN	Rd = RED	Yw = YELLOW
Gn = GREEN		

MOISTURE

dry	= < OPTIMUM*	DUSTY, DRY TO THE TOUCH
moist	~ OPTIMUM*	DAMP, NO VISIBLE WATER
wet	= > OPTIMUM*	VISIBLE FREE WATER

* OPTIMUM MOISTURE FOR MAXIMUM DENSITY

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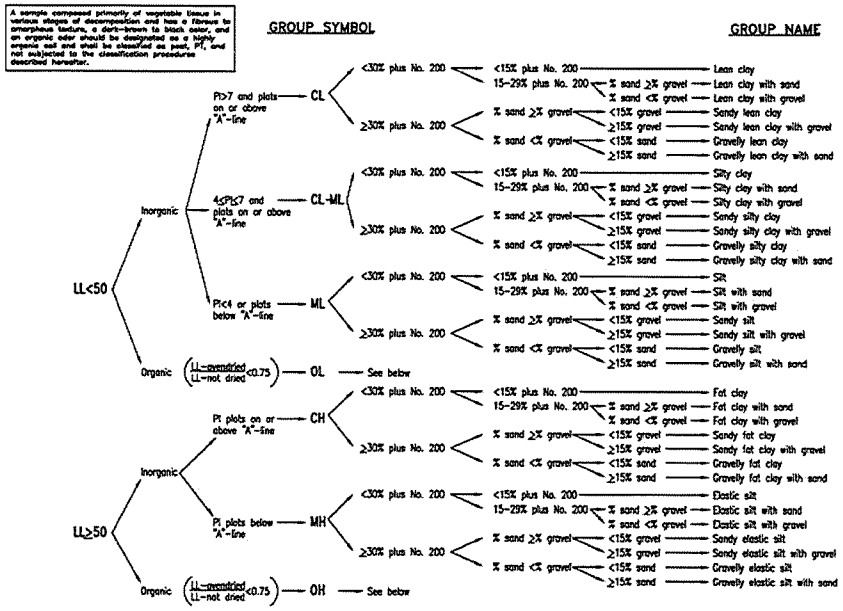
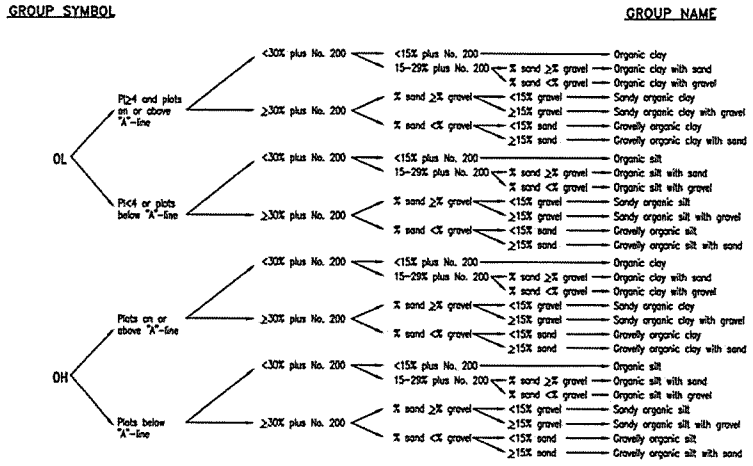
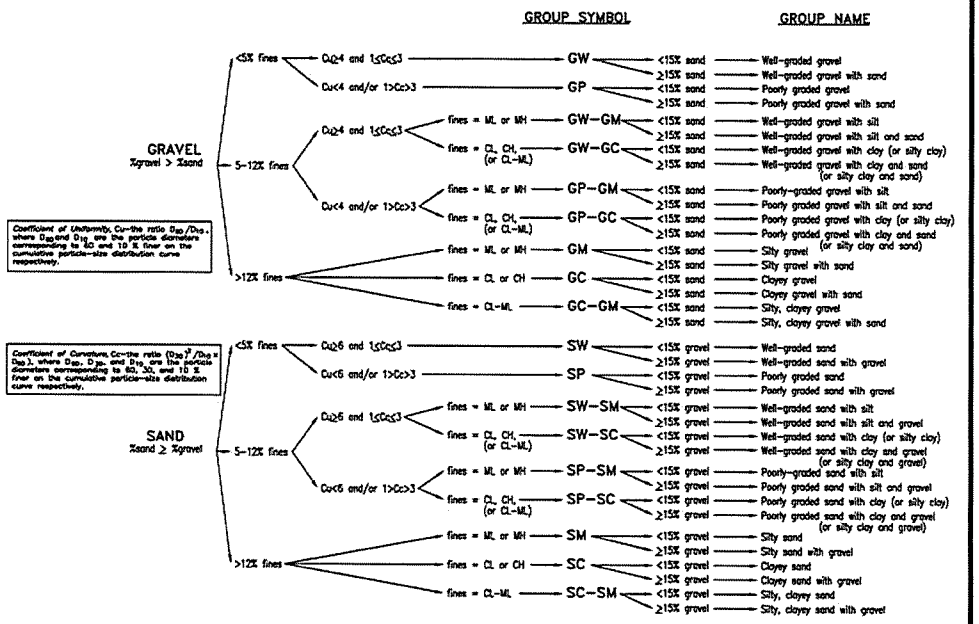
Classification of Soils for Engineering Purposes (Unified Soil Classification System)



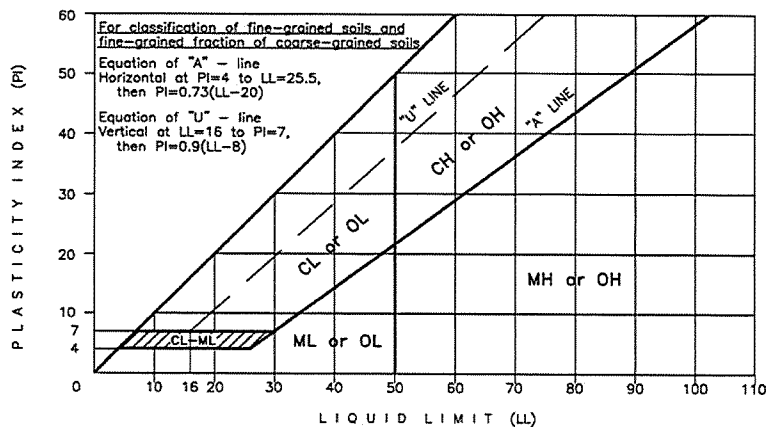
Flow Chart for Classifying Fine-Grained Soil (50% or More Passes No. 200 Sieve)



Flow Chart for Classifying Organic Fine-Grained Soil (50% or More Passes No. 200 Sieve)



Flow Chart for Classifying Coarse-Grained Soil (More Than 50% Retained on No. 200 Sieve)



Plasticity Chart

DESCRIPTION AND CLASSIFICATION OF FROZEN SOILS

Part I Description of Soil Phase (a) (Independent of Frozen State)	Major Group		Sub-Group		Field Identification (6)	Pertinent Properties of Frozen Materials which may be measured by physical tests to supplement field identification. (7)	Guide for Construction on Soils Subject to Freezing and Thawing	
	Description (2)	Designation (3)	Description (4)	Designation (5)			Thaw Characteristics (8)	Criteria (9)
Part II Description of Frozen Soil	Segregated ice is not visible by eye **(b)**	**N**	Poorly Bonded or Friable	**Nf**	Identify by visual examination. To determine presence of excess ice, use procedure under note **(c)** below and hand magnifying lens as necessary. For soils not fully saturated, estimate degree of ice saturation: Medium, Low. Note presence of crystals, or of ice coatings around larger particles.	In-Place Temperature Density and Void Ratio a) In Frozen State b) After Thawing in Place Water Content (Total H_2O, including ice) a) Average b) Distribution Strength a) Compressive b) Tensile c) Shear d) Adfreeze Elastic Properties Plastic Properties Thermal Properties	Usually Thaw-Stable	The potential intensity of ice segregation in a soil is dependent to a large degree on its void sizes and may be expressed as an empirical function of grain size as follows: Most inorganic soils containing 3 percent or more of grains finer than 0.02 mm in diameter by weight are frost-susceptible. Gravels, well-graded sands and silty sands, especially those approaching the theoretical maximum density curve, which contain 1.5 to 3 percent finer than 0.02 mm by weight without being frost-susceptible. However, their tendency to occur interbedded with other soils usually makes it impractical to consider them separately. Soils classed as frost-susceptible under the above criteria are likely to develop significant ice segregation and frost heave if frozen at normal rates with free water readily available. Soils so frozen will fall into the thaw-unstable category. However, they ma also be classed as thaw-stable if frozen with insufficient water to permit ice segregation. Soils classed as non-frost-susceptible (*NFS) under the above criteria usually occur without significant ice segregation and are not exact and may be inadequate for some structure applications; exceptions may also result from minor soil variations. In permafrost areas, ice wedges, pockets, veins, or other ice bodies may be found whose mode of origin is different from that described above. Such ice may be the result of long-time surface expansion and contraction phenomena or may be glacial or other ice which has been buried under a protective earth cover.
			No excess ice Well Bonded Excess ice	**Nb** **n** **e**				
	Segregated ice is visible by eye. (Ice 1 inch or less in thickness) **(b)**	**V**	Individual ice crystals or inclusions	**Vx**	For ice phase, record the following as applicable: Location Size Orientation Shape Thickness Spacing Pattern of arrangement Length Hardness } Structure } per part III Below Color } Estimate volume of visible segregated ice present as percent of total sample volume	Ice Crystal Structure (using optional instruments.) a) Orientation of Axes b) Crystal size c) Crystal shape d) Pattern of Arrangement	Usually Thaw-Unstable	
			Ice coatings on particles	**Vc**				
			Random or irregularly oriented ice formations	**Vr**				
			Stratified or distinctly oriented ice formations	**Vs**				
Part III Description of Substantial Ice Strata	Ice (Greater than 1 inch in thickness)	**Ice**	Ice with soil inclusions	**Ice + Soil Type**	Designate material as ICE **(d)** and use descriptive terms as follows, usually one item from each group, as applicable: Hardness: Hard; Soft (mass, not indi- crystals) Structure: Clear; Cloudy; Porous; Candled; Granular; Stratified Color: e.g.: Color- less; Gray; Blue Admixtures: e.g.: Contains Thin Silt Inclus- ions	Same as Part II above, as applicable, with special emphasis on Ice Crystal Structure.		
			Ice without soil inclusions	**Ice**				

DEFINITIONS:

Ice Coatings on Particles are discernible layers of ice found on or below the larger soil particles in a frozen soil mass. They are sometimes associated with hoarfrost crystals, which have grown into voids produced by the freezing action.

Ice Crystal is a very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in a combination with other ice formations.

Clear ice is transparent and contains only a moderate number of air bubbles.**(e)**

Cloudy Ice is translucent, but essentially sound and non-pervious

Porous Ice contains numerous voids, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.

Candled ice is ice which has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.

Ice Lenses are lenticular ice formations in soil occurring essentially parallel to each other, generally normal to the direction of heat loss and commonly in repeated layers.

Ice Segregation is the growth of ice as distinct lenses, layers, veins and masses in soils, commonly but not always oriented normal to direction of heat loss.

Well-bonded signifies that the soil particles are strongly held together by the ice and that the frozen soil possesses relatively high resistance to chipping or breaking.

Poorly-bonded signifies that the soil particles are weakly held together by the ice and that the frozen soil consequently has poor resistance to chipping or breaking.

Friable denotes a condition in which material is easily broken up under light to moderate pressure.

Thaw-Stable frozen soils do not, on thawing, show loss of strength below normal, long-time thawed values nor produce detrimental settlement.

Thaw-Unstable frozen soils show on thawing, significant loss of strength below normal, long-time thawed values and/or significant settlement, as a direct result of the melting of the excess ice in the soil.

Modified from: Linell, K. A. and Kaplar, C. W., 1966, *Description and Classification of Frozen Soils*, Proc. International Conference on Permafrost (1963), Lafayette, IN, U.S. National Academy of Sciences, Publ. 1287, pp 481-487.

NOTES:

(a) When rock is encountered, standard rock classification terminology should be used.

(b) Frozen soils in the N group may on close examination indicate presence of ice within the voids of the material by crystalline reflections or by a sheen on fractured or trimmed surfaces. However, the impression to the unaided eye is that none of the frozen water occupies space in excess of the original voids in the soil. The opposite is true of frozen soils in the V group.

(c) When visual methods may be inadequate, a simple field test to aid evaluation of volume of excess ice can be made by placing some frozen soil in a small jar, allowing it to melt and observing the quantity of supernatant water as a percent of total volume.

(d) Where special forms of ice, such as hoarfrost, can be distinguished, more explicit description should be given.

(e) Observer should be careful to avoid being misled by surface scratches or frost coating on the ice.