Appendix F: Revised Geotechnical Report

Revised Geotechnical Report

ANC South Airpark Cargo Terminal

Anchorage, Alaska

July 2022

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Revised Geotechnical Report
ANC South Airpark Cargo Terminal

Submitted To:

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1. Introduction and Project Description

CRW Engineering Group, LLC (CRW) is pleased to present this geotechnical data and design recommendations report to support the site development of a new aviation cargo warehouse facility with plane parking at the Ted Stevens International Airport (ANC) in Anchorage, Alaska.

A geotechnical investigation was conducted by CRW for McCool, Carlson, and Green Architecture and Design (MCG) working through their agreement with Northlink Aviation, Inc.

The scope of work included:

- Performing a geotechnical investigation which included advancing boreholes and test pits over the approximately 108-acre lot.
- Overseeing laboratory testing of recovered soil samples including moisture content, grain size distribution, and Atterberg Limits.
- Analysis of field observations and testing results.
- Preparing the geotechnical report to provide recommendations.

1.1 Revised Geotechnical Report

This geotechnical report is the revised version of CRW's final geotechnical report for this same project dated June 15, 2022. This revised report reflects the addition of extruded polystyrene (EPS) foam and an optimizing aircraft asphalt concrete (Table 6-3) and revision to the ground support rigid pavement section (Table 6-2). In addition, an insulated section for the rigid ground support pavement was added (Table 6-8). No other revisions, aside from the report date, were made.

2. Site Conditions

The project is located on the south side of ANC, along the north side of Raspberry Road and to the west of South Airpark Drive. The north side of the site is bound by the W Perimeter Road and Runway 25L, to the east is Taxiway Z, and additional woods to the west. The site is approximately 108 acres, with overall dimensions of approximately 2,600 feet by 1,800 feet, with the long dimension oriented roughly east to west.

The site currently consists of tree and grass-covered rolling topography that ranges in elevation from approximately 68 to 145 feet (referenced to the Municipality of Anchorage Vertical Datum, 1972 Adjustment [MOA72]). There are no existing structures on the site. Several areas have been filled and/or cleared to create pads for radio towers that formerly existed on the site. Abandoned underground wires associated with these towers are known to exist on the site. There are several chain-link fences on site.

A gravel pad along the eastern side of the site adjacent to Taxiway Z is reported to have been the location of an asphalt batch plant in the past. The northeast corner of the site has been used as a disposal area for soils and organic material from other parts of ANC, and has been recently used as a snow storage area.

Surface water on the site naturally drains to local topographical lows, some of which are classified as wetlands. Meltwater from the snow storage area collects in an adjacent low spot that is intermittently inundated to depths of four feet or more.

The primary onsite utility is an underground fiber optic line that runs from east to west just north of the existing fence line. Active underground communications and electric utilities are present on the southern edge of the site, running east to west along the north side of Raspberry Road. We understand a septic system maybe present near the Federal Communication Center (FCC) building though more information is needed to confirm its presence. Other utilities could be present but are believed to be abandoned.

3. Subsurface Exploration /Field Investigation

A geotechnical investigation was completed between 29 March and 14 April 2022 to assess the project site's existing soil conditions. The investigation drilled and sampled 31 boreholes (BH-01 through BH-32 except BH-07). BH-07 was not drilled due to limited access and permitting restrictions that prevented tree cutting. Borehole logs are presented in Appendix A.

Borehole locations were pre-determined from the conceptual layout plan between CRW and MCG. Field adjustments to some of the borings were made to provide a better access for the drilling equipment and allow for a safer distance between soil borings and utilities.

3.1 Subsurface Investigation

Drilling services were provided by GeoTek Alaska, Inc. (GTA) of Anchorage, Alaska, using a track-mounted Geoprobe 7822DT drill rig. The drill rig was equipped with a nominal 8-inch outer diameter (O.D.) hollow-stem auger and a 3.25-inch inner diameter (I.D.) continuous flight, hollow stem auger, which was used to advance the drilling and reach the target depths for each borehole. Utilities were located prior to any drilling.

CRW engineers supervised the field exploration program, recovered soil samples, and managed field operations. Borings were advanced to depths ranging from 31.5 to 52 feet below ground surface (BGS). Borehole locations are presented in Figure 1. Note that Figure 1 includes locations of CRW's test pits performed for this project. The test pit findings were summarized in a memo by CRW dated December 2, 2021, and is included in this report as Appendix C.

3.2 Sample Collection

Soil samples were obtained from the borings by advancing an oversized split-spoon sampler into the soil beyond the bottom of the auger or by collecting cuttings from the auger. Driven samples were collected using a 3-inch O.D. split-spoon sampler as a modified Standard Penetration Test (SPT). The sampler was driven 18 or 24 inches, counted in 6-inch intervals, using a 340-pound automatic hammer. The number of blows required to drive the sampler each 6-inch interval is reported on the borehole logs. The blow counts shown on the borehole logs are field values that have not been corrected for overburden, sampler size, hammer energy, rod length, or other factors.

At locations BH-08, 09, 12, 13, 19, 21, 25, and 28 select split-spoon samples were collected for per- and polyfluoroalkyl substances (PFAS) by ChemTrack Alaska, Inc. (ChemTrack). For results of the environmental analyses, see ChemTrack Alaska's report.

Recovered samples were visually classified in the field before being individually sealed in double plastic bags and transported for additional testing. Field visual classifications were verified per laboratory testing. Soil characteristics, such as classification, consistency, moisture, and color were noted for each sample recovered. The classification was performed following the Unified Soils Classification System (USCS), according to ASTM D2487/D2488. Frost classifications of the soil are described according to the United States Department of Transportation Federal Aviation Administration's (FAA) Advisory Circular (AC)

Number 150/5320-6G (Airport Pavement Design and Evaluation) and reference to the Municipality of Anchorage (MOA) Design Criteria Manual (DCM) standard.

3.3 Borehole Completion

All boreholes were backfilled with cuttings brought to the ground surface during drilling. Seven piezometers were installed at the site. Piezometer wells (constructed of 1-inch Schedule 80 PVC threaded connections) were installed to varying depths, and were hand-slotted in the lower portions of the wells. All well completions were left with approximately 15 to 52 inches of capped stickup above the ground surface.

All borings were generally restored to original grade while striving to maintain original drainage patterns.

4. Laboratory Testing and Results

4.1 Testing Summary

Soil laboratory tests to evaluate index properties of representative samples were performed by Alaska Testlab at their Anchorage facility. The laboratory tests were performed in accordance with the test methods of ASTM International or laboratory procedures, as summarized in Table 4-1. In total, 380 samples were submitted for testing.

The laboratory testing consisted of soil index tests for water content, grain-size distribution, Atterberg Limits, and Limited Mechanical Analysis (LMA) to determine percentages of gravel, sand, and fines content. LMA consists of washing a sample over the Number 200 mesh sieve. The coarse fraction of the remaining soil is then dried and sieved through the Number 4 sieve to determine the sand and gravel content. The LMA is a means to determine the percentage of coarse and fine soil in a sample without having to perform full gradations. Because LMAs are not full gradations, all classifications of clean granular soils are "poorly graded" even though the soil may, in fact, be well graded. Qualitative observations of grain sizes are included in the soil descriptions on the logs in Appendix A.

Table 4-1 – Laboratory Tests

Analysis	Method
Water Content	ASTM D2216
Grain-size Distribution	ASTM D6913
Atterberg Limits	ASTM D4318
Limited Mechanical Analysis	Laboratory procedure

4.2 Results

All samples were tested for their water content. In granular soils the water content varied between 2 and 32 percent. For silts and silty soils, water contents up to 42 percent were recorded. Higher water contents were observed when organics were present or when surface conditions, such as snow, affected water content results. Several samples with peat were analyzed, and water contents found to vary between 131 and 528 percent.

Native soils are comprised of silts, sandy silts, silty sands, and occasional lenses of sand and, less frequently, clay. Isolated gravel from fine up to 2.5 inches in diameter was observed across the site in native soils.

Twenty four samples were selected for grain-size distribution testing and 131 samples were analyzed by LMA. Fines contents ranged from 2 to 99 percent, and most were above 70 percent.

Thirty five samples were tested for their Atterberg Limits. The results of these tests determined the plasticity indices between 1 and 10, with twenty two testing as non-plastic. Most soils tested were classified as silts, though six were classified as silty clay, one was a lean clay, and one was clayey silt.

Results of the laboratory testing are presented in Appendix B.

5. Site Conditions

5.1 Geology

The surficial geology in Anchorage was determined from the Simplified Geologic Map of Central and East Anchorage, Alaska, as mapped by R.A. Combellick with the Alaska Division of Geologic and Geophysical Surveys (DGGS) in 1999 in addition to the 1972 map by Schmoll and Dobrovolny. Ted Stevens International Airport (ANC) is located in the western portion of the Municipality of Anchorage (MOA); the surficial geology in this area is characterized by glacially-derived sediment. Soils in the area are typically 1) well stratified and sorted silts and clays of aeolian, fluvial, or lacustrine origin; 2) well sorted sands and gravels of glacial outwash origin; or 3) silts and clays underlying coarser sediments of lacustrine origin (Schmoll, et al. 1999). Peat bogs are common in the general area.

5.2 Soil Lithology

The project area consists of predominantly brown/tan/gray silt, silt with sand, and sandy silt. In many of the borings, these silts extend from the surface to the maximum depth of drilling (52 feet BGS). Layers of silty sand and sand of variable thickness within the silts were observed in several of the borings in addition to cobbles inferred from drilling action. Multiple borings along the south and to the southwest (BH-01, 02, 06, 09, 15, and 22) encountered granular soils consisting of relatively clean sand and gravel below the silts with the granular soils starting at variable depths. Charcoal pieces or fine charcoal laminations were also frequently observed. The variations in water content, fines content, and other lithological features were too diverse to succinctly summarize. Borehole logs are included in Appendix A with soils laboratory data in Appendix B for further information.

Peat was encountered in four boreholes: BH-02, 03, 08, and 18. The observed peat ranged in thickness from less than 6 inches to 7.5 feet.

We observed buried wood in BH-26 from approximately 15 feet to 25 feet BGS in an area used in the past for soil disposal, and more recently used for snow storage.

5.3 Groundwater Conditions

Groundwater, if observed during drilling, is recorded on the borehole logs. Table 5-1 provides a summary of the boreholes with piezometers including screened intervals and the groundwater levels at the time of drilling and several days after the completion of drilling. All depths are relative to the existing ground surface at the time of drilling.

Table 5-1 – Summary of Groundwater Levels

Boring Name	Piezometer Total Depth (feet BGS)	Screened Interval (feet BGS)	Depth to Groundwater at Time of Drilling (feet BGS)	Depth to Groundwater More Than 24 Hours After Drilling (feet BGS)
BH-02	50.6	5.6 - 50.6	Not Observed	44.1
BH-12	37.4	22.4 - 37.4	Not Observed	No Water
BH-15	42.9	7.9 - 42.9	Not Observed	No Water
BH-19	45.5	5.5 - 45.5	Not Observed	42.0
BH-21	50.4	5.4 - 50.4	Not Observed	45.9
BH-25	38.0	1.0 - 38.0	Not Observed	No Water
BH-31	37.1	2.4 - 37.1	Not Observed	No Water

5.4 Seismic Considerations

The project site lies in a region of moderate to high seismicity, and is subjected to relatively large earthquakes and strong ground motion. The Alaska Earthquake Center (AEC) has documented several moment magnitude earthquakes larger than 7.0, including the November 2018 Anchorage earthquake. The general Anchorage area is bounded by the Denali Fault to the north and east, the Castle Mountain fault to the west-southwest, and the Alaska-Aleutian Megathrust Subduction zone to the south. The project site has three dominant seismic sources that present hazards. All information below comes from the AEC, the Alaska Department of Natural Resources Division of Geological and Geophysical Surveys, and the United States Geological Survey (USGS) website (retrieved July/August 2020).

- The Denali Fault is a thrust and right-lateral strike-slip surface fault extending over 1,000 miles, located approximately 130 miles away from the project site at the nearest approach. The Denali Fault has a variable slip rate of greater than 0.2 inches/year on some segments. The central portion generated a moment magnitude earthquake of 7.9 on November 3, 2002.
- The Castle Mountain fault is a northeast-striking, active fault system located an estimated 25 miles from the project site. The fault is approximately 120 miles long and the western segment is considered active with Holocene fault scarps identified along this portion of the fault. The Castle Mountain fault has a maximum slip rate of 0.2 inches/year and an estimated maximum moment magnitude earthquake of 7.1.
- The toe of the Alaska-Aleutian Megathrust Subduction zone is approximately 200 miles from the project site. This plate boundary fault is the source of the 1964 Great Alaska Earthquake. A fault in the subducted Pacific slab was the source of the 2018 Anchorage Earthquake. The convergence and slip along the megathrust is estimated to be between 2.2 and 2.9 inches/year in a north-northwest direction.

Seismic design parameters were determined from the MOA Building Safety Design parameters, the Applied Technology Council's (ATC) online Hazards by Location tool (https://hazards.atcouncil.org/), and the United States Geological Survey (USGS) online Unified Hazard Tool (https://earthquake.usgs.gov/hazards/interactive/) in addition to considerations from the American

Society of Civil Engineers (ASCE) 7-16 (2016) and the International Building Code (IBC, International Code Council, 2018). We note that ASCE 7-16 has two maximum considered earthquakes (MCE): one for geometric mean (MCE_G) and one for risk-targeted (MCE_R). See ASCE 7-16 for detailed discussion of the differences in the two MCE ground motions.

Table 5-2 provides the seismic design parameters for the 2,475-year return period (2 percent in 50 years) consistent with the IBC and ASCE 7-16. The seismic parameters below assume a Risk Category II structure. If the building has a different risk category, the parameters should be adjusted.

The borings depths were not sufficient to fully evaluate the project site class based on ASCE 7 however based on our borings, experience, and judgment, we estimate the project site class to be site class D.

The MOA has identified and mapped areas of the city where there are increased potential for ground failure during a seismic event (MOA, 2006). The map was developed based on observations of ground failure from the 1964 M9.2 earthquake and attempts to identify sites that may experience ground failure. There are five seismic hazard zones, Zones 1 through 5, that range from low to high potential for ground failure, respectively. The project site is located primarily in Zone 3 with a portion of the site close to Raspberry Road being in Zone 2.

Table 5-2 – Seismic Design Parameters (2,475-year return period)

Description	Value (Site Class D)
Moment Magnitude, M_w	9.2
Peak Ground Acceleration, PGA_M	0.60g
S_S (0.2 second period acceleration, MOA value)	1.50g
S_1 (1 second period acceleration, MOA value)	0.55g
S_{DS} (0.2 second period acceleration)	1.00g
S_{D1} (1 second period acceleration)	0.623g

5.5 Contaminated Soils

No evidence of contaminated soils was observed during the geotechnical investigation based on olfactory screen during sample recovery. No petroleum odor or sheen was observed on any sample during the investigation. Environmental sampling for PFAS was conducted by ChemTrack. Results of the environmental analyses are discussed in ChemTrack's report and are not included in the geotechnical report.

6. Geotechnical Engineering Recommendations

Based on our findings and results of our laboratory testing, we have developed recommendations for the project site development including site development, pavements, utilities, building foundations, slopes, excavations, and fill and compaction. We note that these recommendations supersede the recommendations provided in CRW's Test Pit Investigations Findings and Preliminary Geotechnical Recommendations (Appendix C).

6.1 Frost Depth and Permafrost

Seasonal frost was not observed at the time of drilling. Recommendations are based on one-dimensional freeze/thaw estimates for Anchorage which typically results in design frost depths of 8 to 12 feet BGS. It should be noted that seasonal fluctuations of snow cover, temperatures, infiltration/evaporation, groundwater table, and other climatic effects will have an impact on the design frost depth. Deeper frost penetrations are possible, though are not common.

Permafrost was not encountered in the exploration and is not expected at the project site.

6.2 Stability Evaluation

6.2.1 Slope Instability

The site is relatively flat, therefore, by inspection, global instability is deemed of no concern.

6.2.2 Loss of Bearing Capacity

Assuming the footings are not bearing on deleterious material, an inspection of blow counts and soil type suggest that the risk of loss of bearing capacity during a seismic event is low.

6.2.3 Liquefaction and Lateral Spreading

We performed an inspection of blow counts and evaluation of the soil types, including fines content, which leads to our conclusion that there is a low potential for soil liquefaction at the project site. The unsaturated nature of the onsite soils are difficult to assess for liquefaction potential as typical procedures use empirical approaches which assume saturated soil conditions. Our experience at ANC from the November 2018 earthquake demonstrated that liquefaction generally occurred in saturated soils which further supports our conclusion that liquefaction potential is low for the project site. Based on this, we estimate the potential for earthquake-induced lateral spreading and pressure ridges is also low.

6.3 Shallow Foundation Recommendations

Foundations are used to transfer building loads to the underlying soil. The soil type, consistency/density, compressibility, frost classification, heave/swell/collapse potential, groundwater table, and depth to and type of bedrock are all considered in the type of foundation recommended for the proposed infrastructure.

The soils encountered at the project site are conducive to shallow foundations, including spread footings, continuous footings, and mat foundations. We recommend the use of isolated or continuous footings to

carry the expected building loads. All values and recommendations presented below are based on our understanding at the time of this report and should be assessed and refined in the design phase.

6.3.1 Bearing Capacity and Settlement

The design of shallow foundations must consider the bearing capacity of the underlying soil, as well as the potential for settlement and the effects of seasonal frost action. In general, foundation designs should be consistent with the current editions of the IBC and with any local amendments or requirements.

Perimeter continuous footings and interior spread footings should bear on a minimum of 12 inches of compacted, classified fill consistent with Alaska Department of Transportation and Public Facilities (ADOT&PF) Standard Specification Selected Material Type A placed and compacted in accordance with our recommendations. If our recommendations are followed, the footings maybe designed according to the following criteria.

- Maximum Allowable Bearing Pressure (includes a factor of safety of 3)
    - Perimeter Square Footings, (Dead and Normal Live): 2,500 psf
    - Perimeter Continuous Footings (Dead and Normal Live): 2,000 psf
    - Interior Square Footings, (Dead and Normal Live): 2,000 psf
    - Interior Continuous Footings (Dead and Normal Live): 1,500 psf
    - Transient Loads (Wind and Seismic): Increase static by 33 percent
- Depth of Embedment
    - Perimeter Footings: 42 inches, minimum
    - Interior Footings: 12 inches, minimum

    Perimeter and interior footings are assumed to be warm footings. The depth should be measured from adjacent grade or slab to bottom of footing.
- Settlement (Elastic)
    - Total Settlement: 1.0 inch
    - Differential Settlement: 0.5 inch

These recommendations apply to footings that are isolated from adjacent footings, not eccentrically loaded, and with a minimum width of 1.5 feet and a maximum width of 10.0 feet. The effective bearing area of eccentrically loaded footings will be less than the actual footing dimensions, and may vary depending on anticipated design loads and eccentricity. These values do not apply to footings on a slope. Additional values for footings on slopes can be provided upon request. If additional refinement of the footing design is required, a bearing chart for varying footing sizes can be provided upon request.

6.3.2 Lateral Load Resistance

Lateral loads on footings will be resisted by passive earth pressures developed against the footing block and frictional resistance against the base of the footing. We recommend a passive resistance (equivalent

fluid pressure) of 180 psf/foot (pcf). This equivalent fluid pressure includes a factor of safety of 2.0. A friction coefficient of 0.30 is recommended to be used for resistance of footings to lateral sliding.

6.3.3 Uplift Resistance

Uplift loads may occur in some foundation elements due to overturning moments resulting from wind and seismic forces. Uplift loads may be resisted by the weight of the footing and soil within the limits of a truncated pyramid above the top of the footing. The shape of the truncated pyramid will vary with material type and density. For the native silty soils near the surface at the site, the pyramid should be defined by a 15-degree angle from a vertical line extending upward and away from the top edge of the footing. For compacted, classified fill, the pyramid should be defined by a 20-degree angle from the vertical oriented upward and away from the top edge of the footing.

6.4 Slab Foundations

For any slab foundations, we recommend the use of a subgrade reaction modulus for design. The modulus of subgrade reaction is not an intrinsic property of the soil, but depends on the dimension and the stiffness of the slab. Assuming our recommendations are followed, a coefficient of subgrade reaction, K1, for a 1-foot diameter plate of 75 pounds per cubic inch (pci) can be used for design if no classified (i.e. granular) fill is placed below the slab. If our recommendations in the next paragraph for fill placement are followed, the slab can be designed for a subgrade reaction of 150 pci. This subgrade reaction can then be used to adjust to a subgrade reaction for the mat foundation per the designer's procedure.

Thickened edge slabs (i.e. perimeter slab footings) should extend a minimum of 12 inches below finished exterior grade to achieve the recommended allowable soil bearing capacity and help resist any lateral forces. We recommend the slab foundation be designed to tolerate a 1-foot cantilever and 2-foot internal span.

In addition, we recommend 12 inches of fill be placed beneath the slab to serve as a capillary break to help maintain a dry slab. We recommend this material be consistent with ADOT&PF Selected Material Type A. A capillary break will help reduce the potential for moisture moving upwards toward the slab, and can also serve as a leveling course.

6.5 Light Pole Foundations

We understand several high-mast lights will be installed as part of the project. We recommend driven pile foundations to transmit the high-mast light loads to the soil with the pile size (diameter and wall thickness) determined based on loads from the lights. The pile foundation design is expected to be primarily based on lateral and frost heaving forces. Due to the diversity of the site, lateral soil profiles should be developed on a case-by-case basis once light locations are selected.

We recommend the pile foundations be installed a minimum depth of 45 feet to resist frost heave unless more rigorous axial pile calculations are performed. We recommend piles be installed via an impact hammer to aid in verification of axial pile capacity during installation. The hammer should be sized such that pile advancement can be achieved without damage. If a different pile installation method is planned, we should be retained to review the pile design and proposed construction methodology.

Pile should be driven with an outside cutting shoe and driven within 1 inch horizontal over 48 inches vertical of plumb, unless otherwise specified by the design team.

6.6 Retaining Walls and Lateral Earth Pressures

We understand retaining walls are not anticipated for this project; however, we recognize many times the site development changes such that they become necessary. We have provided the following general recommendations which can be refined if retaining walls are ultimately incorporated into the site design.

Retaining walls, including those used for basements or crawl spaces, must be designed to resist lateral earth pressures plus lateral pressure due to surcharge loads applied at the ground surface behind the wall. The magnitude of the earth pressure varies depending on permissible wall movement, type of backfill used, compaction, and drainage.

We recommend a minimum of 5 feet thick, clean, free-draining, and properly-compacted (per our recommendations) coarse-grained soil for backfill, with drainage provisions to prevent the buildup of hydrostatic pressure on the wall. All retaining wall recommendations in this report assume no hydrostatic pressures exist. Alternate recommendations can be provided, should differing materials or drainage exist. Additional lateral loads due to surface loads are not included in the equivalent fluid densities below.

The active earth pressure condition for static loading should be designed to resist the lateral earth pressure exerted by a fluid (i.e. equivalent fluid pressure) with a density of 40 pcf if the retaining wall is allowed to deflect or rotate a minimum of 0.001 times the wall height.

The at-rest pressure condition will occur if the wall is restrained at the top and cannot move sufficiently to permit the active earth pressure condition to exist. Under this condition, retaining walls should be designed to resist the lateral earth pressure exerted by a fluid with a density of 60 pcf.

The passive earth pressure condition for static loading should be designed following the values discussed in Section 6.3.2 above.

For seismic lateral earth pressures, we recommend a fluid density of 30 pcf be added to the active or at-rest condition, depending on the wall type.

We recommend any foundation stem walls be backfilled on both sides simultaneously to prevent differential lateral loading of the foundation wall.

We note equivalent fluid pressures are not applicable to braced excavation shoring or tie-back retaining walls. CRW can provide alternate recommendations should these kinds of retaining structures be used.

6.7 Embankment Settlement

We understand portions of the site will be built up with native soils as embankment fill to increase the site's elevation in select areas. We understand the embankment fill will range in thickness from 10 to near 40 feet. The placement and compaction of embankment fill will result in settlement of the existing subgrade below the fill.

The general low- to non-plastic nature of the silts suggests low potential for consolidation behavior, and therefore we expect the majority of settlement to occur during and just after construction. We estimate

that for every 10 feet of fill, settlements will range between 0.5 and 1.0 inch, depending on the actual soil conditions below the embankment. This assumes all organic and deleterious materials below the embankment fill are completely removed prior to fill placement. Additional settlement will occur if organics or deleterious material remain in place.

We note that if positive excess pore pressures develop in the embankment fill during placement, additional time-dependent settlement will occur. The magnitude and time frame of settlement resulting from the dissipation of these excess pore pressures is difficult to assess and can only be evaluated during construction by settlement monitoring.

6.8 Slope Stability

We understand the site grading will require both cut and fill slopes. We recommend cut and fill slopes be no steeper than 3H:1V (horizontal to vertical) for native silty soils and classified fill slopes be no steeper than 2H:1V unless rigorous slope stability analyses are performed. These slope recommendations are based on satisfactory past performance of slopes constructed of similar materials, but not on any other basis. We recommend the designers perform rigorous slope stability analyses to verify adequate factors of safety against slope instability for static, seismic, and construction cases as appropriate. Slopes constructed to a lower standard will need to be flatter. Specific analysis and recommendations can be provided upon request if steeper angles for cut or fill slopes are desired or other materials are used for fill slopes.

Cut and fill slopes at these recommended angles will perform well, though some minor sloughing and rills will likely occur over time due to water runoff/infiltration under static conditions. Based on performance of slopes during the November 2018 earthquake and our experience with past slope stability analyses using similar material, we recommend native silty soil slopes have a minimum of 20 foot horizontal bench approximately every 15 feet of vertical height of slope to improve the seismic performance during strong ground motions. The bench should be graded to provide drainage off the embankment and not allow water to pond.

More detailed seismic slope stability analyses can be performed upon request. Both cut and fill slopes consisting of native silty soils should be protected from erosion via vegetation, rock armoring, or other appropriate means.

6.9 Pavement Recommendations

The following pavement recommendations were developed based on several sources. Flexible pavements intended only for vehicular traffic were designed using the Federal Highway Administration's NHI-05-037, *Geotechnical Aspects of Pavements* (2006) and the American Association of State Highway and Transportation Officials (AASHTO) *Guide for Design of Pavement Structures* (1993). Rigid pavements intended only for vehicular traffic were designed using the United States Department of Defense Unified Facilities Criteria (UFC) 3-250-01, *Pavement Design for Roads and Parking Areas* (2016). All recommendations for pavements intended to support aircraft and ground support vehicles were developed using the United States Department of Transportation Federal Aviation Administration's (FAA) Advisory Circular (AC) Number 150/5320-6G *Airport Pavement Design and Evaluation* (2021).

Vehicle types, maximum gross weights, frequency of passage or departures, and gear/wheel configurations were assumed based on limited knowledge of the operations of the proposed facility. Planes selected include Boeing B-747, 777, 767, 757, 737, 777-8F, and MD-11. The departures were based on approximately three aircraft per hardstand per day 365 days per year, assuming a two percent growth. As designers refine the operating capacity of the proposed facility, these assumptions should be refined to accurately reflect intended capacity. The pavement analysis was completed using the commercially available program FAARFIELD (version 2.0.7).

Aircraft gross weights in excess of 800,000 pounds are expected for this facility. According to Section 3.5.1 of AC 150/5320-6G, use of a stabilized base or crushed aggregates with a remolded soaked CBR of 100 or greater is required when aircraft gross loads exceed 100,000 pounds. Compacted granular fill has historically performed acceptably under similar use at ANC and is recommended at this site.

We recommend the following asphalt and concrete pavement sections (Tables 6-1 through 6-4); however, further modifications may be required as traffic loading and aircraft weights could vary. Based on knowledge of the local geology and experience with one-dimensional frost penetration modeling, frost penetration depths for the proposed structural sections and existing subgrade are around 10 feet below grade. The pavement sections were evaluated, in addition to traffic loading, considering the Limited Subgrade Frost Penetration approach per AC 150/5320-6G such that the thickness of the NFS pavement is greater than 65 percent of the frost penetration.

The sections below do not consider the use of geogrid or other stabilization to decrease thickness. We are aware the designers may consider using other methods to decrease the pavement thickness as the design advances. CRW's geotechnical engineers will work closely with the designers if other methods are selected.

The designers will need to evaluate separately the transitions from these pavement sections to the existing taxiway pavement sections in addition to the transition from the flexible asphalt pavement sections for the aircraft to the hardstands.

Table 6-1 – Flexible Asphalt Pavement Section (Ground Support Vehicles Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
6	Top/Wearing Course	Asphalt Concrete	-
6	Crushed Aggregate Base	D-1	95
72	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-2 – Rigid Pavement Section (Ground Support Vehicles Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
10	Top/Wearing Course	Portland Cement Concrete	-
6	Crushed Aggregate Base	D-1	95
60	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-3 – Flexible Asphalt Pavement Section (Apron – Aircraft Taxiways)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
9	Top/Wearing Course	Asphalt Concrete	-
6	Crushed Aggregate Base	D-1	100
72	Subbase	Selected Material Type A	100 (upper 24 inches), 95
--	Geotextile Separation Fabric	Separation per ADOT	-

Table 6-4 – Rigid Pavement Section (Hardstands)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
21	Top/Wearing Course	Portland Cement Concrete	-
8	Crushed Aggregate Base	D-1	100
48	Subbase	Selected Material Type A	100 (upper 24 inches), 95
--	Geotextile Separation Fabric	Separation per ADOT	-

We performed additional analyses for pavement sections incorporating rigid foam insulation to reduce the frost penetration, and potentially the thickness of the pavement section. Including rigid foam insulation in the FAARFIELD analysis resulted in pavement sections for the hardstand and apron aircraft taxiways would need to be thicker than pavement sections without foam. Based on our analyses, rigid foam is not recommended as a thicker pavement section does not result in cost savings.

For the parking lot we developed insulated and uninsulated sections, see Tables 6-5 and 6-6, and insulated sections for ground support vehicles, see Tables 6-7 and 6-8.

Table 6-5 – Flexible Asphalt Pavement Section (Parking Lot Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
2	Top/Wearing Course	Asphalt Concrete	-
2	Crushed Aggregate Base	D-1	95
36	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-6 – Flexible Insulated Asphalt Pavement Section (Parking Lot Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
2	Top/Wearing Course	Asphalt Concrete	-
2	Crushed Aggregate Base	D-1	95
20	Subbase	Selected Material Type A	95
4	Rigid Insulation	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-7 – Flexible Insulated Asphalt Pavement Section (Ground Support Vehicles Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
6	Top/Wearing Course	Asphalt Concrete	-
6	Crushed Aggregate Base	D-1	95
12	Subbase	Selected Material Type A	95
4	Rigid Insulation	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-8 – Rigid Insulated Pavement Section (Ground Support Vehicles Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
10	Top/Wearing Course	Portland Cement Concrete	-
6	Crushed Aggregate Base	D-1	95
12	Subbase	Selected Material Type A	95
4	Rigid Insulation	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

The designers will need consider transitions carefully as the insulated sections allow minimal frost penetration into the subgrade, whereas uninsulated sections allow considerably more frost penetration into the subgrade. We recommend decreasing from two layers to a single layer of insulation where pavement sections transitions from insulated to uninsulated. We recommend the single layer of insulation extend a minimum of 8 feet beyond the edge of the above insulated pavement sections. We recommend the transitions occur where planes will not traverse. We should be consulted to provide additional recommendations and analyses should planes need to traverse in transition areas.

We note that issues arising from the transition to insulated from uninsulated sections cannot always be prevented, even by using best-practice methods for tapering insulation thickness. These issues may include extreme differential movement at the interface between concrete and pavement or within asphalt pavement sections across the transition. Repeated cycles of freeze-thaw within seasons or between seasons can cause severe pavement distress including cracking. If cracks in the asphalt allow water to infiltrate, subgrade softening can exacerbate pavement distresses. In addition, thaw weakening in the form of water on frozen layers or even on insulation can lead to further degradation of the pavement.

6.10 Rigid Foam Insulation

We recommend rigid foam insulation consist of at least two layers of extruded polystyrene (XPS) or expanded polystyrene (EPS) with a minimum compressive strength of 40 pounds per square inch (PSI) at no more than 10 percent strain and a maximum water absorption of 0.3 percent by volume. We recommend a minimum cover of 18 inches over insulation prior to paving and that insulation be sloped within the pavement section to permit drainage to appropriate drainage structures.

Insulation should be transported, handled, and placed with care to ensure it is not damaged prior to fill placement. The boards should be placed flat, on a smooth, level surface. The use of bedding sand is recommended to achieve a suitable surface. The adjoining ends should be butted closely together and any vertical joints should be staggered during placement.

6.11 Subgrade Drainage and Subdrains

The near-surface soils encountered in our borings were silts or sandy silts that have an estimated frost classification ranging from FG-2 to FG-4 (FAA Frost Group per AC 150/5320-6G, corresponds to MOA frost classification F-2 to F-4). These soils will comprise the subgrade across the majority of the project site. In accordance with Section 3.7 of AC 150/5320-6G, subgrades with a frost classification of FG-4 require the installation of a drainage layer to allow water to drain freely from beneath the structural pavement section.

We recommend that sufficient drainage be achieved by careful grading of the soils beneath the pavement section to create flat, sloping surfaces directing water toward planned drainage features. Undulations created in the silt subgrade surface during construction may result in difficulty compacting classified fill to the specified degree of compaction if the subgrade becomes wet. In the long term, local low spots in the subgrade surface can allow water to be trapped in the base and subbase, weakening the pavement section, and resulting in poor performance.

Due to the dimensions of the site, subdrains may be required to limit subgrade slopes and allow water to efficiently reach storm drains.

6.12 Geotextiles

We recommend that a separation geotextile be used at the base of the pavement sections. The use of a geotextile reduces the effects of thaw weakening, prevents fines migration, and increases lateral drainage at the base of the structural section.

A woven geotextile may provide better stabilization for soil when compared to a non-woven geotextile, however, a non-woven geotextile will provide better separation, preventing the migration of fines, which is important for this site. If a woven geotextile is used, it should meet project specifications and be designed to limit migration of fines into the pavement section. We recommend a non-woven geotextile consistent with ADOT&PF Standard Specifications be used for this project.

Joints should be overlapped or sewed in accordance with the manufacturer's recommendations. If no manufacturer's recommendations are provided, the geotextile should be placed in accordance with the guidance provided in the Federal Highway Administration (FHWA), Geosynthetic Design and Construction Guidelines, Publication No. FHWA-HI-95-038 (FHWA, 1998), as applicable.

The first lift above the separator fabric should be compacted by tracking with equipment or non-vibratory rollers to minimize disturbance of the sensitive subgrade soils. Subgrade soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill. Equipment should not track over or result in pumping the bottom of the excavation prior to fill placement.

6.13 Reuse of Material

The native silts, sandy silts, and silty sands contain approximately 55 to 99 percent fines, and most were above 70 percent and are moisture sensitive. This material meets only the gradation criteria for ADOT&PF Standard Specification for Selected Material Type C. The native soils have an estimated FAA frost classification ranging from FG-2 to FG-4 (MOA frost classification F-2 to F-4) indicating a medium to high frost susceptible soil. These soils may be salvaged and reused for non-classified fill applications onsite. Any re-used soil should be protected from additional moisture input through the use of plastic tarps or other means. In particular, the native silty soils will become difficult to work with or to drive over should they become wet. We recommend the contractor be diligent during construction to ensure the silty soils remain dry or are permitted to dry prior to traversing over and placing new fill on the native silty soils.

When reusing material, consideration should be given to the ability to excavate, sort, and store reusable materials. This effort may be less efficient and less cost effective than complete removal and replacement with imported materials. Cobbles may be present. If cobbles exceeding 6 inches in any one direction they should be removed, if encountered.

6.14 Utility Recommendations

The satisfactory performance of piped utilities is highly dependent upon the quality of soil below and along the sides of the pipe. All utilities should be bedded and compacted per the utility owner's requirements or manufacturer's recommendations, whichever is more stringent. Backfill over the bedding should be non-frost susceptible (NFS) sand and gravel classified fill or native material as appropriate to match the existing soils outside the trench to maintain consistent surface behavior. We recommend a separation fabric be used to line all utility trenches to mitigate the potential for fines migration into the trench.

Buried utilities which are susceptible to damage from freezing need to be frost-protected by sufficient amounts of burial depth, insulation, or active freeze protection like heat tape or a combination of these methods.

We recommend maintaining adequate burial depth to protect from freezing. Insulation recommendations can be provided if burial depths cannot be achieved.

7. Construction Recommendations

7.1 Site Preparation

All earthwork should be performed in accordance with project specifications and with local, state, and federal laws and regulations. Trees, small brush, and surface organics should be removed prior to starting any earthwork.

7.2 Excavations

All excavations should follow proper local, state, and federal requirements including those in 29 Code of Federal Regulations (CFR) Part 1926 Occupational Safety and Health Standards Subpart P – Excavations (Occupational Safety and Health Administration [OSHA], 2020). The contractor is responsible for trench stability, worker safety, and regulation compliance as he will be present on a day-to-day basis and can adjust efforts to obtain the needed stability.

Excavations above the water table may stand relatively steeply initially but fail suddenly without warning. As the in-situ silty soils dry they will tend to ravel and slough to their natural angle of repose, which we estimate to range between 1.6 to 2.1H:1V (horizontal to vertical). Below the water table, or if surface water is allowed to enter the trench, silty soils may soften, squeeze, slump over time or due to disturbance, to slopes of 3.0 to 4.0H:1V or flatter.

Permanent excavations into soil should either be retained or sloped to meet long-term stability requirements. Excavation and backfilling operations should be closely coordinated so that potential seepage and surface runoff is not allowed to collect and stand in open trenches for long periods.

All peat (particularly in the vicinity of BH-02, 03, and 18), organic soil, debris, or frozen soil must be removed from areas beneath the building, aircraft apron, sidewalks, retaining walls, and parking area and replaced with material as recommended in this report and following all project specifications. We note that if the peat remains, settlements below embankments on the order of 2 to 4 feet are expected to occur. If the peats remain, we should be informed and engaged to evaluate settlement magnitudes and rates relative to construction schedules and infrastructure to ensure settlements do not impact the long-term performance of the pavement or other facilities.

We recommend the buried wood encountered in BH-26 be overexcavated and removed prior to site development and taxiway construction. The limits of the excavation are unknown due to the fact that the surrounding borings (BH-19, 20, and 25) did not encounter the buried wood and therefore the extent of the buried wood is unknown. If desired, additional field studies could be performed to try to delineate the limits of the buried wood; however, we understand that the project timeline may not permit this. As such, we recommend the contractor plan to start excavation in the vicinity of BH-26 and proceed to excavate down until mineral soil below the buried wood is exposed. The contractor can then continue excavation of the buried wood to the required limits. The required limits are expected to be dictated by the area to which buried wood deteriorating would no longer influence the apron access to Taxiway Z. We recommend the excavation extend down and away from the toe of the apron access embankment downward at a slope of 1H:2V to the bottom of the buried wood.

We also recommend that excavation bottoms be evaluated by a qualified geotechnical engineer or trained inspector to identify unsuitable soils. Unsuitable soils are defined as organics, organic soils, or soft, saturated silts. If unsuitable soils are encountered, they should be overexcavated and replaced with either NFS classified fill if within 6 feet of final grade or footing bottoms. In other cases, native silty soils with appropriate moisture levels can be used.

We recommend that the excavations be performed with equipment that minimizes disturbance of the in-situ soils. Excavations should be performed by a backhoe with a smooth-bladed bucket from outside the excavation to minimize disturbance of the subgrade soils. Soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill.

We recommend foundation excavations extend laterally a minimum of 5 feet beyond the perimeter of the proposed building in every direction and be backfilled and compacted with classified fill following the recommendations of this report.

7.3 Drainage, Control of Water, and Dewatering

Excavations may experience seepage due to potential perched water, surface runoff, or rain infiltration, and should be monitored during construction. The ground around open excavations should be contoured to direct surface water away from the excavations. Parking areas should have positive gradients toward drainage structures and away from buildings. Site grading should be established to provide drainage of surface water and roof drainage away from proposed buildings. Grading should be designed to prevent ponding of surface water except where retention ponds or similar devices are intended.

The native soils may present difficulties for compaction and construction equipment if exposed to excess water from rain or surface runoff.

Groundwater was observed between 42 and 45.9 feet BGS, and was not observed in the majority of the boreholes. No conventional water table was observed at this site. Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as existing swales.

Dewatering of the silty soils is not anticipated to be required; however, surficial infiltration could occur during rain events. We expect dewatering of open excavations with sumps and pumps to be sufficient to remove surficial infiltration.

7.4 Fill and Compaction

7.4.1 Classified Fill and Compaction General Requirements

All classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound. A vibratory steel drum roller should be used to compact classified fill. Lightweight or hand-operated compactors should be used near existing structures, utilities, or other infrastructure to prevent damage.

No hauling or grading equipment should be used in lieu of appropriate compaction equipment. Any loosening of fill material by hauling or other equipment should be repaired and re-compacted. The

number of passes required to meet the compaction requirement will depend on the size of compaction equipment used. Each layer should be compacted as recommended in the report and field verification of compaction requirements is recommended.

Foundation soils should be protected from freezing during construction. No frozen soil should be used as fill, nor should any fill be placed over frozen soil. Any frozen soil should be removed and replaced with appropriate fill prior to construction.

7.4.2 Classified Fill and Compaction

We recommend the classified fill be clean, well-graded sand and gravel with a frost classification of NFS. The gradation of the classified fill be consistent with ADOF&PF or with FAA requirements as designated in this report.

Classified fill should be placed in loose lifts not exceeding 12 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Each lift of classified fill should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density, determined per ASTM D1557, unless otherwise recommended in this report.

7.4.3 Unclassified Fill, Subgrade, and Compaction

The existing soils, consisting primarily of the silts, sandy silts, silty sands, and sands, are expected throughout the site, and are expected to be used as unclassified fill. The existing soils will also be subgrade soils below footings and pavement structural sections.

The natural water content of the near surface silts ranged from 12 to 38 percent which we estimate to be in near to excess of optimum water content for compaction. We expect the silts to have optimum water contents from 13 to 19 percent, though actual compaction testing is required to confirm these values. We note that the natural water content of the existing soils generally exceeded the estimated optimum water content where compared. We expect mechanical mixing or windrowing will be required to reduce the natural water content to achieve compaction. Additional methods, such as chemical stabilization, can be considered upon request.

We recommend all unclassified fill be placed in loose lifts not exceeding 6 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Typical equipment recommended for compacting low plasticity soils includes sheepsfoot or pad foot rollers, in addition to control of water content. Each lift of unclassified fill should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density determined per ASTM D1557 for areas where buildings are constructed and heavy aircraft will traverse. Areas where light vehicular traffic or landscaping occurs, the compaction can be decreased to a minimum of 85 percent. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

We recommend all subgrade soils be moisture conditioned and roller compacted such that the upper 2 feet achieve a minimum of 85 percent Modified Proctor Maximum Density determined per ASTM D1557.

All native silty soils and classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound.

The number of passes required to meet the compaction requirement will depend on the size of compaction equipment used. Each layer should be compacted as recommended in the report and field verification of compaction requirements is recommended. No hauling or grading equipment should be used in lieu of standard compaction equipment. Any loosening of compacted material should be replaced and or re-compacted.

7.5 Pile Foundation Construction

Pile installations should be observed by a qualified person to determine they are installed in accordance with our recommendations and the project plans and specifications. An accurate as-built record of each installed pile is recommended as part of the permanent project record. At a minimum, the as-built record should include:

- Pile installation contractor means and methods
- Site and weather conditions for each pile
- Pile embedment depth and cutoff height
- Blow per foot and hammer stroke of pile installation
- Survey as-built of the pile relative to plan location and plumbness
- Record and notes of any changes in subsurface conditions inferred during pile installation
- Notes of any observed or inferred damage to the piles during installation

We recommend a wave equation analysis be performed to evaluate the pile/hammer performance to achieve required pile embedment without damage to the pile. We recommend the pile driving stresses not exceed 90 percent of the yield strength of the pile and that pile penetration rate not exceed 100 blows per foot. We recommend the wave equation analysis be performed by a qualified geotechnical engineer as part of the submittal process and be submitted prior to mobilization of equipment to the site.

8. Limitations and Closure

The information submitted in this report is based on our interpretation of data from a field geotechnical exploration performed for this project. The conclusions contained in this report are based on site conditions as they were observed on the drilling dates indicated. It is presumed that the exploratory borings are representative of the subsurface conditions throughout the site. Effort was made to obtain information representative of existing conditions at the site. If, however, subsurface conditions are found to differ, we should be notified immediately to review these recommendations in light of additional information.

If there is substantial lapse of time between the submittal of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions considering the changed conditions and time lapse. Unanticipated soil conditions are commonly encountered and cannot fully be determined by collecting discrete samples or advancing borings. The client and contractor should be aware of this risk and account for contingency accordingly.

Samples will be retained by CRW for six months following the date on which the final report is issued. Other arrangements may be made at the client's request.

This report was prepared by CRW for use on this project only and may not be used in any manner that would constitute a detriment to CRW. CRW is not responsible for conclusions, opinions, or recommendations made by others based on data presented in this report.

9. References

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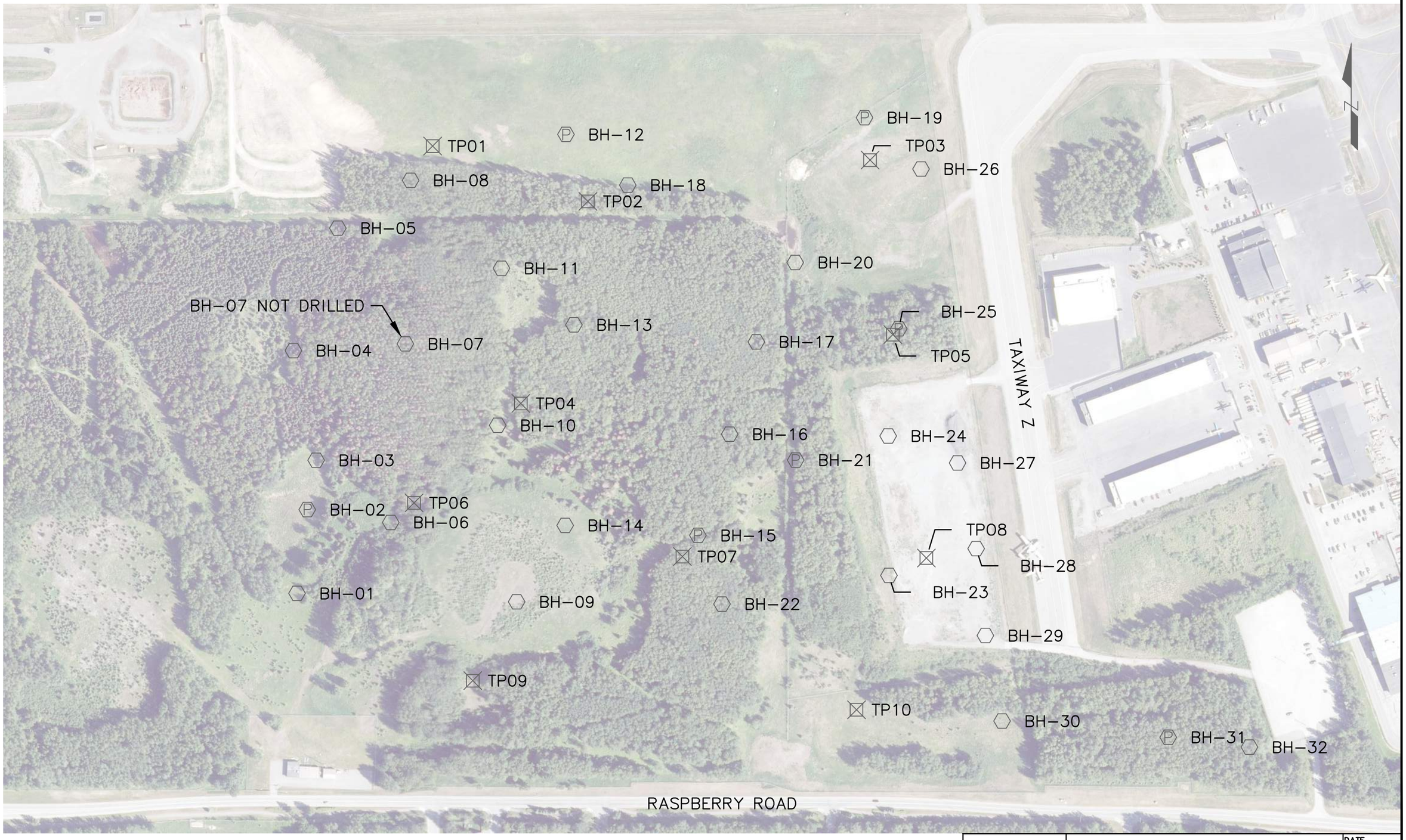
Figure



LEGEND

◯ APPROXIMATE BOREHOLE LOCATION, "P" DENOTES PIEZOMETER COMPLETION
⊠ APPROXIMATE TEST PIT LOCATION

PROJECT: 73130.00	
STATUS: FINAL	

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
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#AECL0852-AK

GEOTECHNICAL INVESTIGATION
ANC SOUTH AIRPARK
INVESTIGATION LOCATIONS

DATE	JUNE 2022
SCALE	NTS
FIGURE	1

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Appendix A

Borehole Logs

Included in this section:

1) Borehole Log Legends
2) Borehole Logs

UNIFIED SOIL CLASSIFICATION (ASTM D 2487)

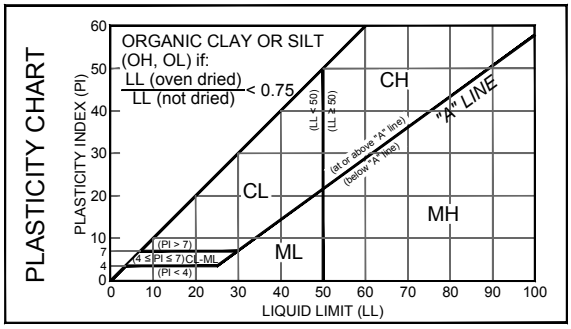
GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
GW	WELL-GRADED GRAVEL	if soil contains ≥ 15% sand, add "with sand"
GP	POORLY GRADED GRAVEL	
GM	SILTY GRAVEL	
GC	CLAYEY GRAVEL	
SW	WELL-GRADED SAND	if soil contains ≥ 15% gravel, add "with gravel"
SP	POORLY GRADED SAND	
SM	SILTY SAND	
SC	CLAYEY SAND	
CL	LEAN CLAY	if soil contains coarse-grained soil from 15% to 29%, add "with sand" or "with gravel" for whichever type is prominent, or for ≥ 30%, add "sandy" or "gravelly"
ML	SILT	
OL	ORGANIC CLAY OR SILT	
CH	FAT CLAY	
MH	ELASTIC SILT	
OH	ORGANIC CLAY OR SILT	
PT	PEAT	

Gravels or sands with 5% to 12 % fines require dual symbols (GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC) and add "with clay or "with silt" to group name. If fines classify as CL-ML for GM or SM, use dual symbol GC-GM or SC-SM.

Optional Abbreviations: Lower case "s" after USCS group symbol denotes either "sandy or "with sand" and "g" denotes either "gravelly" or "with gravel."

COMPONENT DEFINITIONS BY GRADATION

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 IN.
COBBLES	3 IN. TO 12 IN.
GRAVEL	3 IN. TO NO. 4 (4.76 mm)
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 (4.76 mm)
SAND	NO. 4 (4.76 mm) TO NO. 200 (0.074 mm)
COARSE SAND	NO. 4 (4.76 mm) TO NO. 10 (2.0 mm)
MEDIUM SAND	NO 10 (2.0 mm) TO NO. 40 (0.42 mm)
FINE SAND	NO. 40 (0.42 mm) TO NO. 200 (0.074 mm)
SILT AND CLAY	SMALLER THAN NO. 200 (0.074 mm)
SILT	0.074 mm TO 0.005 mm
CLAY	LESS THAN 0.005 mm



OTHER SYMBOLS

SYMBOL	NAMES & LEGEND	
BLDR	COBBLES AND BOULDERS	overlay
FILL	GRANULAR FILL	man-made or placed
WD	WOODY DEBRIS	
RAP	RECLAIMED ASPHALT PAVEMENT	

RELATIVE DENSITY / CONSISTENCY ESTIMATE USING STANDARD PENETRATION TEST (SPT) VALUES (FROM TERZAGHI & PECK 1996)

COHESIONLESS SOILS[a]		COHESIVE SOILS[b]		
RELATIVE DENSITY	N_{60} (BLOWS/FOOT)[c]	CONSISTENCY	N_{60} (BLOWS/FOOT)[c]	UNCONFINED COMPRESSIVE STRENGTH (TSF)[d]
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MED DENSE	10 - 30	MEDIUM	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

(a) Soils consisting of gravel, sand and silt, either separately or in combination possessing no characteristics of plasticity, and exhibiting drained behavior.
(b) Soils possessing the characteristics of plasticity, and exhibiting undrained behavior.
(c) Refer to ASTM D 1586-99 for a definition of N.
(d) Undrained shear strength, s_u = 1/2 unconfined compression strength, U_c. Note that Torvane measures s_u and Pocket Penetrometer measures U_c.

CRITERIA FOR DESCRIBING MOISTURE CONDITION (ASTM D 2488)

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE

SAMPLER ABBREVIATIONS

SS	SPT Sampler (2 in. OD, 140 lb hammer)	C	Core (Rock)
SSO	Oversize Spit Spoon (2.5 in. OD, 140 lb typ.)	TW	Thin Wall (Shelby Tube)
HD	Heavy Duty Split Spoon (3 in. OD, 300/340 lb typ.)	MS	Modified Shelby
BD	Bulk Drive (4 in. OD, 300/340 lb hammer typ.)	GP	Geoprobe
CA	Continuous Core (Soil in Hollow-Stem Auger)	AR	Air Rotary Cuttings
G	Grab Sample from surface / testpit	AG	Auger Cuttings

DESCRIPTIVE TERMINOLOGY FOR PERCENTAGES (ASTM D 2488)

DESCRIPTIVE TERMS	RANGE OF PROPORTION
TRACE	0 - 5%
FEW	5 - 10%
LITTLE	10 - 25%
SOME	30 - 45%
MOSTLY	50 - 100%

LABORATORY TEST ABBREVIATIONS

AL	Atterberg Limit	PI	Plastic Index	TS	Thaw Consolidation
Consol	Consolidation	PID	Photoionization Detector	TV	Torvane
LMA	Limited Mechanical Analysis	Proc	Proctor	TXCD	Consolidated Drained Triaxial
MA	Sieve and Hydrometer Analysis	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial
MC	Moisture Content	P200	Percent Fines (Silt & Clay)	TXUU	Unconsolidated Undrained Triaxial
NP	Non-plastic	SA	Sieve Analysis	VS	Vane Shear
OLI	Organic Loss on Ignition	SpG	Specific Gravity	Ω	Soil Resistivity

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LEGEND: FIELD AND LABORATORY TEST ABBREVIATIONS

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FROZEN SOIL CLASSIFICATION (ASTM D 4083)

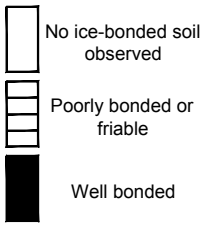
1. DESCRIBE SOIL INDEPENDENT OF FROZEN STATE	CLASSIFY SOIL BY THE UNIFIED SOIL CLASSIFICATION SYSTEM				
	MAJOR GROUP		SUBGROUP		
	DESCRIPTION	DESIGNATION	DESCRIPTION		DESIGNATION
2. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF FROZEN SOIL	Segregated ice not visible by eye	N	Poorly bonded of friable		N_f
			Well bonded	No excess ice	Nbn
				Excess ice	Nbe
	Segregated ice visible by eye (ice less than 25 mm thick)	V	Individual ice crystals or inclusions		V_x
			Ice coatings on particles		V_c
			Random or irregularly oriented ice formations		V_r
			Stratified or distinctly oriented ice formations		V_s
			Uniformly distributed ice		V_u
3. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF SUBSTANTIAL ICE STRATA	Ice greater than 25 mm thick	ICE	Ice with soil inclusions		ICE+soil type
			Ice without soil inclusions		ICE

FROST DESIGN SOIL CLASSIFICATION[1]

FROST GROUP[2]	GENERAL SOIL TYPE	% FINER THAN 0.02 mm BY WEIGHT	TYPICAL USCS SOIL CLASS
NFS[3]	(a) Gravels Crushed stone Crushed rock	0 - 1.5	GW, GP
	(b) Sands	0 - 3	SW, SP
PFS[4] [MOA NFS] [FAA NFS]	(a) Gravels Crushed stone Crushed rock	1.5 - 3	GW, GP
[MOA F2] [FAA FG-2]	(b) Sands	3 - 10	SW, SP
S1 [MOA F1] [FAA FG-1]	Gravelly soils	3 - 6	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
S1 [MOA F2] [FAA FG-2]	Sandy soils	3 - 6	SW, SP, SW-SM, SP-SM, SW-SC, SP-SC
F1[5] [FAA FG-1]	Gravelly soils	6 - 10	GM, GC, GM-GC, GW-GM, GP-GM, GW-GC, GP-GC
F2[5] [FAA FG-2]	(a) Gravelly soils	10 - 20	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
	(b) Sands	6 - 15	SM, SW-SM, SP-SM, SC, SW-SC, SP-SC, SM-SC
F3[5] [FAA FG-2] [For Clays, FAA FG-3]	(a) Gravelly soils	10 -20	GM, GC, GM-GC
	(b) Sands, except very fine silty sands	6 - 15	SM, SC, SM-SC
	(c) Clays, PI>12	--	CL, CH
F4[5] [FAA FG-4]	(a) Silts	--	ML, MH, ML-CL
	(b) Very fine silty sands	Over 15	SM, SC, SM-SC
	(c) Clays, PI<12	--	CL, ML-CL
	(d) Varved clays or other fine-grained banded sediments	--	CL or CH layered with ML, MH, ML-CL, SM, SC, or SM-SC

(1) From the U.S. Army Corps of Engineers (USACE), EM 1110-3-138, "Pavement Criteria for Seasonal Frost Conditions", April 1984
(2) USACE frost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM). Federal Aviation Administration (FAA) frost groups come from Table 2-2 in Section 2.7 of Advisory Circular (AC) 150/5320-6F, Airport Pavement Design and Evaluation.
(3) Non-frost susceptible
(4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.
(5) Consistent with MOA Definition.

ICE BONDING SYMBOLS



DEFINITIONS

Candled Ice is ice which has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

Clear Ice is transparent and contains only a moderate number of air bubbles.

Cloudy Ice is translucent, but essentially sound and non-pervious.

Friable denotes a condition in which material is easily broken up under light to moderate pressure.

Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.

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.

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.

Massive Ice is a large mass of ice, typically nearly pure and relatively homogeneous.

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.

Porous Ice contains numerous void, 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.

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.

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.

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LEGEND: FROZEN SOIL CLASSIFICATION

FILE NAME: M:\Engineering References\Tech Geotechnical\CRW Geotechnical Report Template\Borehole Log Legend\Geotech_RAP_debris_added.dwg

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BOREHOLE BH-01

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/11/22 **COMPLETED** 4/11/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY SMH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	GM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 30% sand, 20% fines Brown, moist to wet, subangular gravel up to 1" with organics. Coarse to fine grain sand.	G S1							
	ML		SILT WITH GRAVEL, (ML) 20% gravel, 0% sand, 80% fines Brown, moist, fine gravel. Nonplastic.	HD S2	75	1-3-3-3 (6)				AL	
5	SM		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, moist.	HD S3	67	2-3-4-3 (7)					
	SM		SILTY SAND, (SM) 11% gravel, 56% sand, 33% fines Brown, moist, 1" coal seam.	HD S4	75	3-3-3-6 (6)				LMA	
10	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 48% gravel, 47% sand, 5% fines Brown, moist, subrounded gravel up to 1.5". Medium to fine grain sand.	HD S5	75	4-5-4-5 (9)				SA	
15	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 7% gravel, 87% sand, 6% fines Brown, moist. Medium to fine grain sand. Color change at 17 feet to sandy black soil.	HD S6	67	4-6-7-8 (13)				SA	
20											

(Continued Next Page)

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BOREHOLE BH-01

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	SM		SILTY SAND, (SM) 8% gravel, 48% sand, 44% fines Brown, moist. Fine grain sand.	HD S7	67	5-7-6-13 (13)				SA	
25	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 55% gravel, 42% sand, 3% fines Brown, moist, subrounded gravel up to 2.5". Coarse to fine grain sand.	HD S8	67	6-20-24-53 (44)				SA	
30			46% gravel, 44% sand, 10% fines	HD S9	92	11-18-19-26 (37)				SA	
35	SM		SILTY SAND, (SM) 5% gravel, 50% sand, 45% fines Brown, moist.	HD S10	100	16-18-11-10 (29)				LMA	
40	SM		SILTY SAND WITH GRAVEL, (SM) 17% gravel, 66% sand, 17% fines Brown, moist.	HD S11	100	8-15-17-43 (32)				LMA	

Bottom of borehole at 42.0 feet.

Notes:
Backfilled with cuttings.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ

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BOREHOLE BH-02

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/9/22 **COMPLETED** 4/9/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY MCH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 44.10 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS
0	PT		PEAT, (PT) 0% gravel, 30% sand, 70% fines Brown, moist, organics. Percentages are for mineral soil component within the peat.	G S1						
			Woody, fibrous.	HD S2	100	1-1-0-0 (1)				
5			Woody, fibrous.	HD S3	100	1-0-0-0 (0)				
			SANDY SILT, (ML) 8% gravel, 26% sand, 66% fines Gray, one to two sand lenses about 1/4" thick.	HD S4	100	1-0-2-1 (2)	2.0 2.0 2.5			LMA
10	ML		Nonplastic.	HD S5	100	3-3-5-13 (8)	3.0 3.0 3.5			AL
15	GM		SILTY GRAVEL WITH SAND, (GM) 45% gravel, 39% sand, 16% fines Gray, subangular gravel up to 2".	HD S6	67	1-6-6-10 (12)				SA
20										

▲ SPT N VALUE ▲
10 20 30 40
PL MC LL
10 20 30 40

300
528
442

(Continued Next Page)

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BOREHOLE BH-02

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium to coarse grain sand.	HD S7A	83	5-9-22-31 (31)					
	GP		POORLY GRADED GRAVEL WITH SAND, (GP) 60% gravel, 35% sand, 5% fines	HD S7B							
25	GW-GM		WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 59% gravel, 36% sand, 5% fines Gray, subrounded gravel up to 1.5".	HD S8	100	7-12-11-13 (23)				SA	
30	SM		SILTY SAND WITH GRAVEL, (SM) 19% gravel, 53% sand, 28% fines Brown, one silt lens near top of sample 1.5" thick.	HD S9	100	6-15-13-25 (28)				LMA	
35	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 31% gravel, 62% sand, 7% fines Silty at top of sample. One large gravel in spoon.	HD S10	75	11-16-25-63 (41)				LMA	
40			40% gravel, 52% sand, 8% fines Brown, one silt lense 1/2" from bottom of spoon.	HD S11	100	16-18-29-31 (47)				LMA	

(Continued Next Page)

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BOREHOLE BH-02

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 31% gravel, 62% sand, 7% fines Silty at top of sample. One large gravel in spoon. *(continued)*								
45	SM		SILTY SAND WITH GRAVEL, (SM) 33% gravel, 48% sand, 19% fines Brown, gravel content increasing with depth. Some sand lenses.	HD S12	95	5-11-42-50/3"				LMA	>>▲
50	ML		SILT WITH SAND, (ML) 0% gravel, 23% sand, 77% fines Gray.	HD S13	92	7-13-14-17 (27)	2.75 3.0 3.25			LMA	○ ▲

Bottom of borehole at 52.0 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 5 to 50 feet. Stickup 19 inches.

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BOREHOLE BH-03

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/11/22 **COMPLETED** 4/11/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY SMH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	PT		PEAT, (PT) Brown, moist, organics, with some black silt from 0 to 1 feet. Ice crystals.	G S1							240
5	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, nonplastic. Layer transition inferred from drilling action.	HD S2	83	2-2-3-3 (5)	1.0 1.25 1.5				
10	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist, brown. Fine grain sand.	HD S3	88	2-5-5-6 (10)					
15	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist, nonplastic.	HD S4	75	2-3-4-10 (7)	1.5 1.5 2.0			AL	
20											

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BOREHOLE BH-03

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S5	88	5-6-9-8 (15)				LMA	
25				HD S6	83	4-8-10-10 (18)	2.0 2.5 3.0			LMA	
30	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S7	75	10-15-24-39 (39)	>4.5 >4.5 >4.5			AL	
35	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Fine grain sand. Nonplastic fines.	HD S8	89	7-20-32 (52)					>>
40	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Fine grain sand.	HD S9	100	11-21-28 (49)					

Bottom of borehole at 41.5 feet.

Notes:
Backfilled with cuttings.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/25/22 09:33 - 73130_TESTHOLES.GPJ

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BOREHOLE BH-04

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY MCH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	OL		ORGANIC SOIL, (OL) 0% gravel, 20% sand, 80% fines Dark brown, moist, organics.	G S1							106
5	SM		SILTY SAND, (SM) 0% gravel, 57% sand, 43% fines Brown, moist. Fine grain sand.	HD S2	83	2-2-2-4 (4)				LMA	▲ ○
			Nonplastic.	HD S3	100	3-3-3-4 (6)				AL	▲ ○
10	ML		SANDY SILT, (ML) 0% gravel, 30% sand, 70% fines Brown moist, silt content increasing with depth.	HD S4	100	1-2-3-3 (5)	3.75 3.5 3.5				▲ ○
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines	HD S5	100	1-2-4-6 (6)	3.75 3.75 3.75			LMA	▲ ○
15	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown, moist, softer than Sample S5.	HD S6	100	4-3-3-6 (6)	2.5 2.5 2.5				▲ ○
20											

(Continued Next Page)

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BOREHOLE BH-04

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, one sand lens 1.5" thick.	HD S7	75	5-9-12-13 (21)	3.5 35 3.5			LMA	
25			0% gravel, 10% sand, 90% fines Nonplastic.	HD S8	83	3-5-6-8 (11)	3.5 >4.0 >4.0				
30	ML		0% gravel, 9% sand, 91% fines Three sand lenses 1/4" thick.	HD S9	100	6-5-9-21 (14)	3.75 4.25 3.75			LMA	
35			Three sand lenses in sample up to 1/2" thick.	HD S10	100	8-14-25 (39)	>4.5 >4.5 4.0				
40			0% gravel, 10% sand, 90% fines	HD S11A	100	3-5-18 (23)	3.5 4.5 2.75				
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Medium grain sand.	HD S11B							

(Continued Next Page)

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BOREHOLE BH-04

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Medium grain sand. *(continued)*								
45	SM		SILTY SAND, (SM) 1% gravel, 66% sand, 33% fines Brown, moist. Fine grain sand.	HD S12A	100	7-18-36 (54)	>4.5			LMA	>>▲
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.	HD S12B							
50	ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist, multiple sand lenses.	HD S13	100	7-33-50 (83)	>4.5 >4.5 >4.5			LMA	>>▲

Bottom of borehole at 51.5 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-05

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/14/22 **COMPLETED** 4/14/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, wet, organics. Frozen.	G S1							319
5	ML		SILT WITH SAND, (ML) 0% gravel, 19% sand, 81% fines Brown/tan, moist, few roots 1/8" diameter. Outside of sample wet likely from thawing ice.	HD S2	88	1-3-2-3 (5)				LMA	
			Top 6 inches of sample wet. Nonplastic.	HD S3	75	2-4-3-4 (7)				AL	
10	ML		SILT, (ML) 0% gravel, 13% sand, 87% fines Brown/tan, moist, top 6" of sample wet. Crumbles easily under hand pressure. Medium grain sand.	HD S4	88	4-5-5-4 (10)				LMA	
			Medium grain sand.	HD S5	88	3-4-6-7 (10)					
15	ML		0% gravel, 10% sand, 90% fines Less sand than above. Crumbles easily under hand pressure. Nonplastic.	HD S6	75	4-6-6-7 (12)				AL	
20											

(Continued Next Page)

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BOREHOLE BH-05

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) 0% gravel, 10% sand, 90% fines Brown/tan, moist. Fine grain sand.	HD S7	88	3-8-13-13 (21)					
25			0% gravel, 5% sand, 95% fines Brown. Crumbles easily under hand pressure.	HD S8	100	6-11-12-15 (23)					
30	ML		0% gravel, 9% sand, 91% fines	HD S9	75	8-15-50 (65)				LMA	>>
35			0% gravel, 5% sand, 95% fines	HD S10	141	14-41-50/5"					>>
40			0% gravel, 6% sand, 94% fines	HD S11	100	6-7-8-15 (15)				LMA	

Bottom of borehole at 42.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-06

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/8/22 **COMPLETED** 4/8/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist with organics. Possibly frozen and thawed during augering.	G S1							
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, trace organics.	HD S2	88	1-1-1-1 (2)	1.5 1.5 2.0			AL	
5	ML		SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown, moist.	HD S3	88	1-3-3-3 (6)	3.0 1.75 1.25			LMA	
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown/black/white, moist. Medium grain sand.	HD S4A HD S4B	100	3-2-3-2 (5)	1.0 0.5 1.5				
10			SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist. Nonplastic.	HD S5	100	2-2-2-3 (4)	1.5 1.75 2.5			AL	
	ML										
15				HD S6	100	2-2-4-4 (6)	2.5 2.5 2.75				
20											

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BOREHOLE BH-06

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist. *(continued)*	HD S7A	100	4-4-5-6 (9)					
			SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist. 1" black organic/coal layer at 21.5 feet.	HD S7B							
	SM										
25											
	GP		POORLY GRADED GRAVEL WITH SAND, (GP) 55% gravel, 41% sand, 4% fines Light gray/gray, moist, subrounded and subangular grave broken to angular up to 2". Medium grain sand.	HD S8	88	9-15-29-42 (44)				LMA	
30											
	SP		POORLY GRADED SAND WITH GRAVEL, (SP) 44% gravel, 52% sand, 4% fines Light gray/gray, moist, subrounded/subangular gravel up to 1.5". Medium grain sand.	HD S9	75	7-12-14-28 (26)				LMA	

Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-08

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/13/22 **COMPLETED** 4/13/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY SMH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	PT		PEAT, (PT) Organic mat.	G S1							127
			SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist to wet, organics.								
	ML										
5			Environmental sample collected by ChemTrack.	HD S2	88	2-2-2-5 (4)				AL	
			SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Brown, moist. Fine grain sand.								
10	SM			HD S3	67	3-7-10-10 (17)				SA	
15			SANDY SILT, (ML) 0% gravel, 40% sand, 60% fines Brown, moist. Fine grain sand.	HD S4	75	3-5-12-16 (17)				LMA	
	ML										
20											

(Continued Next Page)

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BOREHOLE BH-08

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	SM		SILTY SAND, (SM) 0% gravel, 67% sand, 33% fines Brown, moist. Fine grain sand.	HD S5	100	7-19-20-29 (39)				LMA	
25											
	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist.	HD S6	100	10-24-30 (54)	>4.5 x 3			AL	>>▲
30											
				HD S7	100	5-12-16 (28)	3.0 3.5 4.0				

Bottom of borehole at 31.5 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-09

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/7/22 **COMPLETED** 4/7/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, few small roots and organics.	G S1							
	ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist, trace roots. Medium grain sand.	HD S2	75	1-0-2-2 (2)					
5	ML		SILT, (ML) 0% gravel, 7% sand, 93% fines Brown, moist, trace roots. <1% subrounded gravel up to 0.18"	HD S3	75	2-3-4-3 (7)				SA	
			Wet spoon likley from melting snow at surface. No gravel.	HD S4	75	3-3-4-3 (7)					
10	ML		0% gravel, 4% sand, 96% fines Wet spoon likley from melting snow at surface. No gravel. Environmental sample collected by ChemTrack.	HD S5	100	1-3-4-4 (7)	1.5 2.0 1.0			LMA	
15	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 20% gravel, 74% sand, 6% fines Brown/gray, moist, subrounded gravel up to 3/4". Medium grain sand.	HD S6	100	7-7-6-8 (13)				SA	
20											

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BOREHOLE BH-09

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) Brown/gray, moist, subrounded and subangular gravel up to 2.5" in Sample S7, broken to angular. Likely cobble insitu.	HD S7	88	5-6-11-10 (17)					○ ▲
25	SP-SM		43% gravel, 51% sand, 6% fines	HD S8	100	6-6-7-9 (13)				SA	◐
30	ML		GRAVELLY SILT, (ML) 20% gravel, 10% sand, 70% fines Brown, moist, subrounded gravel up to 2".	HD S9A	100	10-10-10-12 (20)					○ ▲
	SP		POORLY GRADED SAND WITH GRAVEL, (SP) 30% gravel, 70% sand, 0% fines Gray/white/black, moist, subrounded gravel up to 2.5", broken to angular. Medium grain sand. 1" black coal layer.	HD S9B							
35	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 62% gravel, 33% sand, 5% fines Brown/black/gray, moist, subrounded gravel up to 2.5" with few broken to angular. Medium grain sand.	HD S10	109	18-42-47-50/4"				LMA	○ >>▲
40	SW-SM		WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 28% gravel, 64% sand, 8% fines Brown/gray, moist, subrounded gravel up to 1.5" broken to angular. Medium grain sand.	HD S11	100	16-15-21-32 (36)				SA	○ ▲

(Continued Next Page)

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BOREHOLE BH-09

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
45	SW-SM		WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 28% gravel, 64% sand, 8% fines Brown/gray, moist, subrounded gravel up to 1.5" broken to angular. Medium grain sand. *(continued)*	HD S12A			1.5 1.5 2.75				○
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. Fine grain sand.	HD S12B	100	4-4-5-5 (9)					▲ ○
50	ML		SANDY SILT, (ML) 2% gravel, 30% sand, 68% fines Brown, moist. Fine and medium grain sand.	HD S13	100	8-12-18-25 (30)				LMA	○ ▲

Bottom of borehole at 52.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-10

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/8/22 **COMPLETED** 4/8/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown/light brown, moist, roots, twigs, grass.	G S1							53
			SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, crumbles under hand pressure.	HD S2	75	2-2-3-4 (5)					
5			Firmer than above sample. Nonplastic.	HD S3	100	2-3-3-3 (6)	1.25 1.0 1.5			AL	
	ML		0% gravel, 4% sand, 96% fines	HD S4	100	2-3-2-4 (5)	0.5 0.5 1.75 1.5			LMA	
10			Wet in middle of sample.	HD S5	100	2-5-4-6 (9)	0.5 1.75 3.5				
15	ML		SANDY SILT, (ML) 0% gravel, 43% sand, 57% fines Brown, moist. Fine to medium grain sand.	HD S6A	100	3-6-8-11 (14)				LMA	
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S6B			1.5 1.5				
20											

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BOREHOLE BH-10

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown/gray, moist. Medium grain sand. Black silt.	HD S7A	100	5-7-9-13 (16)	3.0 3.0 4.0 2.75				
			POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Gray/tan, moist. Medium grain sand.	HD S7B							
	SP										
25											
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S8	100	5-5-7-11 (12)				LMA	
	ML										
30											
				HD S9A	100	4-5-8-11 (13)					
	ML		SANDY SILT, (ML) 0% gravel, 45% sand, 55% fines Brown, moist. Fine grain sand.	HD S9B						LMA	

Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-11

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY MCH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, some organics.	G S1							56
	ML		SILT WITH SAND, (ML) 0% gravel, 24% sand, 76% fines Brown, moist.	HD S2	100	2-2-3-3 (5)	2.0 2.0 1.75			LMA	
5	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist.	HD S3	100	1-3-2-3 (5)	2.0 2.5 2.0 2.5			AL	
	ML			HD S4	100	4-6-8-8 (14)					
10	ML		SANDY SILT, (ML) 0% gravel, 50% sand, 50% fines Brown, moist.	HD S5	100	3-8-8-10 (16)					
15	SM		SILTY SAND, (SM) 0% gravel, 62% sand, 38% fines Brown, moist. Fine grain sand.	HD S6	83	3-10-10-10 (20)				LMA	
20											

(Continued Next Page)

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BOREHOLE BH-11

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist.	HD S7	100	5-8-13-17 (21)					
25				HD S8	100	5-8-9 (17)					
30											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S9	100	6-20-23 (43)				LMA	

Bottom of borehole at 31.5 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-12

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/13/22 **COMPLETED** 4/13/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY SMH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Not Observed

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ORG		ORGANIC MAT, (ORG)	G S1							
	ML		SANDY SILT, (ML) 0% gravel, 30% sand, 70% fines Brown, wet, low plasticity from 0 to 1 feet.								
5			SILT, (ML) 0% gravel, 4% sand, 96% fines Brown/gray, moist. Low plasticity.	HD S2	100	1-1-1-2 (2)				LMA	
10			0% gravel, 1% sand, 99% fines Brown, moist. Environmental sampling collected by ChemTrack.	HD S3	100	2-3-3-3 (6)				LMA	
	ML										
15			0% gravel, 5% sand, 95% fines Nonplastic.	HD S4	100	1-1-0-0 (1)	0.75 1.0 0.5			AL	
20											

(Continued Next Page)

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BOREHOLE BH-12

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) 0% gravel, 3% sand, 97% fines Brown, moist, low plasticity.	HD S5	100	3-4-4-5 (8)	1.5 2.5 1.5			LMA	
	ML										
25				HD S6A	100	3-3-7 (10)					
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Fine grain sand.	HD S6B							
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.								
	ML										
30											
	SM		SILTY SAND, (SM) 0% gravel, 67% sand, 33% fines Brown, moist.		100	5-10-14 (24)					
				HD S7						LMA	
			SILT, (ML) Brown, moist.								
	ML										
35				HD S8	100	6-7-9 (16)					

Bottom of borehole at 36.5 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 20 to 35 feet. Stickup 19 inches.

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BOREHOLE BH-13

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/13/22 **COMPLETED** 4/13/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY SMH **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ORG		ORGANIC MAT, (ORG)	G S1							71
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, organics.								
	ML		SILT WITH SAND, (ML) 0% gravel, 24% sand, 76% fines Brown, moist.	HD S2	75	2-2-2-3 (4)				LMA	
5	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. Environmental sample collected by ChemTrack.	HD S3	83	2-3-3-3 (6)					
	ML		0% gravel, 3% sand, 97% fines	HD S4	75	2-1-2-2 (3)				LMA	
10	ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist.	HD S5	75	2-1-3-4 (4)					
15	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist, nonplastic.	HD S6	75	3-5-5-6 (10)	1.0 1.5 1.5			AL	
20											

(Continued Next Page)

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BOREHOLE BH-13

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) Brown, moist.	HD S7	75	3-4-6-7 (10)					
25	ML		0% gravel, 12% sand, 87% fines	HD S8	100	4-7-13-17 (20)	2.0 2.5 2.0			LMA	
30			0% gravel, 6% sand, 94% fines	HD S9	100	5-6-9 (15)	2.0 2.5 2.25				

Bottom of borehole at 31.5 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-14

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/7/22 **COMPLETED** 4/7/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Auger wet while pulling out of hole at ~25 feet BGS
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown, wet, few small roots and organics, visible snow.	G S1							55
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown, wet, few roots. Top 3" of sample frozen, Nbn. 1/16" communications wire in sample.	HD S2	75	1-0-1-0 (1)	1.25 0.5 0.25				
5	ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown/gray, moist, trace organics up to 1/2", trace wood pieces up to 1" long.	HD S3	100	3-3-5-6 (8)	3.5 2.25 3.0			LMA	
	ML		SILT, (ML) 5% gravel, 5% sand, 95% fines Blue/gray/brown, wet at top of sample, moist at bottom of sample, trace black organics up to 1/8", trace wood chips up to 1/2".	HD S4	100	5-4-6-6 (10)	3.0 3.25 3.5				
10	ML		SILT WITH SAND, (ML) 2% gravel, 26% sand, 72% fines Blue/gray with woodchips and black organics up to 1". Some roots.	HD S5A HD S5B	100	3-4-5-4 (9)				LMA	
15	ML		SILT, (ML) 0% gravel, 8% sand, 92% fines Brown, moist.	HD S6	100	3-5-5-6 (10)	4.0 4.25 3.5			LMA	
20											

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BOREHOLE BH-14

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) 1% gravel, 8% sand, 91% fines Brown, moist, trace black organics in upper 3" of sample. Subrounded gravel up to 2" broken to angular.	HD S7	100	4-7-7-5 (14)				LMA	
25			Brown, moist.	HD S8	100	5-10-13-14 (23)	3.25 2.25 2.5				
30	ML		Nonplastic.	HD S9	100	5-7-7-6 (14)				AL	
35			0% gravel, 10% sand, 90% fines Medium grain sand.	HD S10	100	4-6-9-9 (15)	1.5 1.5 1.25				
40	SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist. Fine grain sand.	HD S11	100	6-9-9-10 (18)				SA	

(Continued Next Page)

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BOREHOLE BH-14

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist. Fine grain sand. *(continued)*								
45											
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown/gray, moist. Medium grain sand.	HD S12	100	6-8-8-10 (16)					○ ▲

Bottom of borehole at 47.0 feet.

Notes:
Backfilled with cuttings. Auger wet while pulling out of hole at ~25 feet BGS.

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BOREHOLE BH-15

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/5/22 **COMPLETED** 4/5/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Not Observed

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown/dark brown, moist, few roots and organics. Trace subrounded gravel up to 1/4".	G S1							
			SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. One 1/4" root.	HD S2	8	9-8-9-8 (17)					
5	ML		0% gravel, 4% sand, 96% fines	HD S3	75	8-3-4-4 (7)				LMA	
				HD S4	88	2-2-4-4 (6)					
10				HD S5A	100	3-3-6-6 (9)	3.5 2.0 2.5				
	ML		SILT WITH SAND, (ML) 0% gravel, 28% sand, 72% fines Brown, crumbles under hand pressure.	HD S5B						LMA	
15	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 91% sand, 8% fines Brown/gray, moist, trace subrounded gravel up to 3/8". One 1/2" black organic layer at ~ 16 feet.	HD S6	100	2-3-5-5 (8)				SA	
20											

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BOREHOLE BH-15

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 16% gravel, 77% sand, 7% fines Brown, moist, subrounded gravel up to 1.5", broken to angular. Medium grain sand.	HD S7	100	4-8-9-11 (17)				LMA	
25	SP		POORLY GRADED SAND WITH GRAVEL, (SP) 35% gravel, 60% sand, 5% fines Brown, moist, subrounded gravel up to 2". Medium to coarse grain sand.	HD S8A	100	9-13-15-16 (28)				LMA	
	GP		POORLY GRADED GRAVEL WITH SAND, (GP) 67% gravel, 30% sand, 3% fines Dark gray/brown, subrounded gravel up to 2.5" broken to angular. Likely cobbles insitu. Medium to coarse grain sand.	HD S8B							
30	SM		SILTY SAND WITH GRAVEL, (SM) 24% gravel, 47% sand, 29% fines Brown, moist, subrounded gravel up to 1.5", broken to angular. Medium grain sand. One black charcoal lens.	HD S9	100	7-7-10-17 (17)				LMA	
35	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.	HD S10A	100	5-4-5-9 (9)					
	SM		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, moist. Medium grain sand. Gravel and few cobbles in drilling returns.	HD S10B							
40	ML		SANDY SILT, (ML) 0% gravel, 39% sand, 61% fines Brown, moist. One 2.5" gravel in top of spoon. Medium grain sand.	HD S11	88	5-2-5-6 (7)				LMA	

Bottom of borehole at 42.0 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 7 to 42 feet. Stickup 18 inches

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BOREHOLE BH-16

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/6/22 **COMPLETED** 4/6/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, organics, snow.	G S1							140
	ML		SILT WITH SAND, (ML) 5% gravel, 10% sand, 80% fines Brown, moist, subrounded to anglar gravel up to 3/4". Medium grain sand. Outside of spoon wet.	HD S2	100	4-5-4-5 (9)					
5	ML		5% gravel, 15% sand, 80% fines Trace wood material up to 1/4" diameter.	HD S3	88	4-3-4-5 (7)				LMA	
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S4	75	2-3-3-4 (6)					
10				HD S5	75	2-4-5-6 (9)	1.5 1.25 1.25				
	ML										
15			0% gravel, 8% sand, 92% fines	HD S6	100	3-3-4-5 (7)	1.0 1.5 1.5			LMA	
20											

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BOREHOLE BH-16

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S7	100	3-4-6-8 (10)	3.0 3.0 3.25			AL	
25											
	ML		SILT, (ML) 0% gravel, 12% sand, 93% fines Brown, moist.	HD S8	100	1-2-3-6 (5)	1.75 1.5 1.0			LMA	
30											
	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S9	100	4-5-7-5 (12)				AL	
35											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S10	100	4-9-11-12 (20)	2.0 2.5 1.5				

Bottom of borehole at 37.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-17

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/14/22 **COMPLETED** 4/14/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown/dark brown with small roots and organics.	G S1							56
	ML		SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Brown, moist, outside of sample wet from melted snow. Few tiny roots and trace subrounded gravel up to 1/2".	HD S2	88	1-2-1-3 (3)				LMA	▲ ○
5	ML		10% gravel, 10% sand, 80% fines Subrounded gravel up to 1.5".	HD S3	100	2-3-5-5 (8)					▲ ○
	ML		SILT WITH GRAVEL, (ML) 10% gravel, 5% sand, 85% fines Brown, moist, subrounded and broken gravel up to 2.5". Possibly cobbles insitu.	HD S4	100	2-4-4-4 (8)					▲ ○
10											
	ML		SILT, (ML) 1% gravel, 10% sand, 89% fines Brown, moist, trace gravel up 1/2" with one 2.5" rounded gravel in spoon. Possibly cobbles insitu.	HD S5	100	3-5-7-7 (12)				LMA	▲ ○
15	ML		5% gravel, 0% sand, 95% fines Brown/gray, moist, one piece of 2.5" subrounded broken gravel.	HD S6	100	3-5-6-7 (11)	3.0 2.75 2.25				▲ ○
20											

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BOREHOLE BH-17

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/gray, moist. Nonplastic.	HD S7	133	4-10-16 (26)	1.75 2.5 4.5			AL	
25				HD S8	133	6-14-33 (47)	4.5 3.25 4.25				
30	SM		SILTY SAND, (SM) 0% gravel, 78% sand, 22% fines Gray, moist. Medium grain sand.	HD S9	83	7-9-12 (21)				LMA	

Bottom of borehole at 31.5 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-18

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/14/22 **COMPLETED** 4/14/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	PT		PEAT, (PT) 0% gravel, 10% sand, 90% fines Dark brown, moist, previously frozen and thawed while drilling. Includes grass and organics.	G S1							131
	SM		SILTY SAND, (SM) 1% gravel, 54% sand, 45% fines Dark brown, moist, frozen, includes grass and organics.	HD S2A						LMA	138
			SILT, (ML) 0% gravel, 10% sand, 90% fines Gray with trace rusty red color, moist, trace roots.	HD S2B	100	2-2-1-2 (3)	3.0 3.0 4.5			LMA	
5	ML		0% gravel, 5% sand, 95% fines No roots and rust color.	HD S3	100	1-3-5-5 (8)					
			SILTY SAND, (SM) 0% gravel, 72% sand, 28% fines Brown, moist. Medium grain sand.	HD S4	88	2-5-3-4 (8)				LMA	
10	SM		0% gravel, 77% sand, 23% fines Moist, almost wet.	HD S5	63	2-4-5-2 (9)				LMA	
15	CL-ML		CLAYEY SILT, (CL-ML) 5% gravel, 5% sand, 95% fines Gray/blue, moist, trace subangular gravel up to 1".	HD S6	100	2-3-3-5 (6)	3.75 4.0 3.5 1.0			AL	
20											

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BOREHOLE BH-18

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
			SILT, (ML) 0% gravel, 5% sand, 95% fines Gray with blue, moist, higher plasticity than above.	HD S7	100	4-5-5-6 (10)	4.0 >4.5 4.5				
25											
	ML		0% gravel, 10% sand, 90% fines Gray/brown with trace rust layering.	HD S8	100	5-10-14-18 (24)				LMA	
30											
			0% gravel, 5% sand, 95% fines Brown trace tiny roots in upper 6 inches of sample. Nonplastic.	HD S9	100	6-16-30-36 (46)				AL	

Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-19

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/5/22 **COMPLETED** 4/5/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 42.00 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown, moist.	G S1							
5	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, trace roots and organics.	HD S2	100	2-2-2-2 (4)	3.0 4.0 1.5				▲ ○
	ML		0% gravel, 12% sand, 88% fines Outside of spoon wet, no roots.	HD S3	88	1-1-2-3 (3)	1.0 1.0 2.0			LMA	▲ ○
10	ML		0% gravel, 5% sand, 95% fines	HD S4	100	2-4-3-5 (7)					▲ ○
	ML		0% gravel, 5% sand, 95% fines Environmental sample collected by ChemTrack.	HD S5	88	2-5-7-7 (12)					▲ ○
15	ML		0% gravel, 3% sand, 97% fines	HD S6	88	3-5-6-8 (11)	3.0 2.5 3.25			LMA	▲ ○
20											

(Continued Next Page)

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BOREHOLE BH-19

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S7	100	4-6-6-7 (12)					
25			0% gravel, 5% sand, 95% fines	HD S8	88	3-4-4-4 (8)	2.5 2.0 2.5				
30	ML		0% gravel, 10% sand, 90% fines	HD S9	100	3-5-6-6 (11)	1.5 2.0 4.0			LMA	
35			0% gravel, 5% sand, 95% fines	HD S10	88	3-4-6-5 (10)					
40	ML		SILT WITH SAND, (ML) 0% gravel, 28% sand, 72% fines Brown, moist. Medium grain sand. Friable.	HD S11	100	4-6-7-9 (13)				LMA	

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BOREHOLE BH-19

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	ML		SILT WITH SAND, (ML) 0% gravel, 28% sand, 72% fines Brown, moist. Medium grain sand. Friable. *(continued)*								
45											
	ML		SANDY SILT, (ML) 0% gravel, 49% sand, 51% fines Brown, moist. Medum to fine grain sand.	HD S12	100	8-13-14-18 (27)				LMA	

Bottom of borehole at 47.0 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 7 to 47 feet. Stickup 15 inches.

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BOREHOLE BH-20

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/4/22 **COMPLETED** 4/4/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 5% gravel, 5% sand, 90% fines Dark brown, moist, organics, subrounded and angular gravel up to 1".	G S1							
	ML		SILT WITH SAND, (ML) 5% gravel, 15% sand, 80% fines Brown with rust coloring, moist, subrounded and subangular gravel up to 1/2".	HD S2A	100	3-3-4-5 (7)				LMA	
				HD S2B							
5	ML		SILT WITH SAND, (ML) 3% gravel, 22% sand, 75% fines Gray, moist, trace black organics.								
			0% gravel, 15% sand, 85% fines Fine to medium grain sand.	HD S3A	88	2-2-1-1 (3)				AL	
	ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist. Wood pieces up to 2". Small fibrous roots. Few black organics. Nonplastic.	HD S3B							
	ML		SILT WITH SAND, (ML) 1% gravel, 24% sand, 75% fines Brown, moist, some small fibrous roots, no wood pieces. Fine grain sand.	HD S4	88	1-0-1-2 (1)				LMA	
10											
	SM		SILTY SAND, (SM) 0% gravel, 52% sand, 48% fines Brown/tan/gray, moist. Less roots than above and only in top of sample. Medium to fine grain sand.	HD S5	100	1-2-3-2 (5)				LMA	
15											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, trace organics.	HD S6	100	1-3-3-5 (6)	2.5 2.0 3.0 1.5				
20											

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BOREHOLE BH-20

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	ML		SILT WITH SAND, (ML) 10% gravel, 15% sand, 75% fines Brown/tan/gray with reddish orange layering. Gravel up to 1" broken to angular.	HD S7	100	4-3-8-9 (11)					▲ ○
25	GM		SILTY GRAVEL WITH SAND, (GM) 36% gravel, 25% sand, 39% fines Brown with few black and orange spots, moist, subrounded to subangular gravel up to 2.75" broken to angular. Likely cobbles insitu.	HD S8	100	6-10-11-12 (21)				LMA	○ ▲
30	ML		SILT, (ML) 5% gravel, 5% sand, 90% fines Gray/brown, trace subrounded gravel up to 1/4".	HD S9	100	7-10-12-16 (22)					▲ ○

Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-21

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/3/22 **COMPLETED** 4/3/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 45.90 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	SPT N VALUE / PL MC LL
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist. Grass and organics.	G S1							65
5	ML		SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown, moist, trace roots. Top 3" frozen.	HD S2	88	1-3-3-3 (6)	2.5 3.0 2.0			LMA	
	ML		SILT, (ML) 0% gravel, 6% sand, 94% fines Brown, moist.	HD S3	88	1-2-2-3 (4)	1.5 4.5 3.5 3.75			LMA	
10	ML		0% gravel, 5% sand, 95% fines Moist, almost wet. Environmental sample collected by ChemTrack.	HD S4	100	1-3-3-7 (6)	2.0 1.75 2.0			LMA	
	ML		Drill rig failure at 10 feet BGS. Pull out of hole, repair rig, and drill new borehole 2 feet next to original borehole. Restart sampling in adjacent hole at 10 feet BGS. 0% gravel, 5% sand, 95% fines	HD S5	100	1-2-5-5 (7)	3.5 3.25 2.75				
15	ML		0% gravel, 1% sand, 99% fines Light brown.	HD S6	75	3-3-3-6 (6)				LMA	
20											

(Continued Next Page)

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BOREHOLE BH-21

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown, moist. Nonplastic.	HD S7	100	3-5-3-7 (8)	1.5 1.75 2.75			AL	
25			0% gravel, 5% sand, 95% fines Light brown with one rust layer.	HD S8A	100	3-5-7-8 (12)					
	ML		SANDY SILT, (ML) 0% gravel, 46% sand, 54% fines Brown, moist, crumbles. Fine grain sand.	HD S8B						LMA	
30											
	SM		SILTY SAND, (SM) 0% gravel, 69% sand, 31% fines Brown, moist. Fine to medium grain sand.	HD S9A	100	5-7-8-5 (15)	2.5 2.75 1.5			LMA	
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.	HD S9B							
35											
	SM		SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist. Fine grain sand.	HD S10	100	6-12-12-12 (24)					
40			0% gravel, 69% sand, 31% fines Sand grain finer with depth. Siltier in bottom 6" of sample.	HD S11	100	4-8-10-10 (18)				LMA	

(Continued Next Page)

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BOREHOLE BH-21

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	SM		SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist. Fine grain sand. *(continued)*								
45			0% gravel, 85% sand, 15% fines Few black organics. Medium to coarse grain sand.	HD S12A	100	5-8-11-12 (19)					○ ▲
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown, moist. Medium grain sand.	HD S12B							○
			Bottom of borehole at 47.0 feet.								

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 2 to 47 feet. Stickup 52.5 inches.

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BOREHOLE BH-22

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/6/22 **COMPLETED** 4/6/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist, some twigs and small roots.	G S1							55
			SANDY SILT, (ML) 0% gravel, 33% sand, 67% fines Brown, moist, trace twigs and roots. Medium grain sand.	HD S2	63	1-2-2-2 (4)				LMA	
5			0% gravel, 15% sand, 85% fines Trace tiny roots and organics. Less organics than above.	HD S3	75	2-2-1-2 (3)					
	ML		0% gravel, 48% sand, 52% fines	HD S4	75	2-2-3-2 (5)				LMA	
10			0% gravel, 37% sand, 63% fines	HD S5	75	2-3-3-3 (6)	0.5 0.25 <0.25			LMA	
15			5% gravel, 20% sand, 75% finesTrace subrounded gravel up to 1/2".	HD S6A							
	SM		SILTY SAND WITH GRAVEL, (SM) 35% gravel, 35% sand, 30% fines Gray/brown, moist, subrounded and subangular gravel up to 1". 1/2" black organic layer. Medium to coarse sand.	HD S6B	75	6-10-7-6 (17)					
20											

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BOREHOLE BH-22

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 36% gravel, 56% sand, 8% fines Brown/gray, subrounded gravel up to 1.5" broken to angular. Medium grain sand.	HD S7	75	5-7-8-11 (15)				LMA	
25				HD S8A							
	SM		SILTY SAND, (SM) 1% gravel, 62% sand, 37% fines Brown, moist, trace black organics. Medium grain sand.	HD S8B	100	4-5-5-6 (10)				LMA	
30											
	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 93% sand, 6% fines Brown/black/white, moist, trace black orgnics. Trace subrounded gravel up to 1/4". Medium to coarse grain sand.	HD S9	100	4-6-7-7 (13)				LMA	
35											
	ML		SANDY SILT, (ML) 0% gravel, 30% sand, 70% fines Brown, moist. Medium grain sand. Varying consistency.	HD S10	100	3-6-7-6 (13)	3.0 2.0				
40											
	SP-SM		0% gravel, 40% sand, 60% fines	HD S11A							
			POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium grain sand.	HD S11B	88	4-6-6-6 (12)				LMA	

(Continued Next Page)

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BOREHOLE BH-22

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
45	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium grain sand. *(continued)*								
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown, moist, crumbles easily under hand pressure.	HD S12	100	5-8-11-11 (19)					
50			0% gravel, 12% sand, 88% fines Moist to dry, crumbles very easily under hand pressure.	HD S13	100	9-18-16-19 (34)				LMA	

Bottom of borehole at 52.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-23

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed.
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 62% gravel, 29% sand, 9% fines Dark brown, moist, subrounded gravel up to 1.5", frozen.	G S1						SA	
5	ML		SANDY SILT WITH GRAVEL, (ML) 30% gravel, 44% sand, 53% fines Brown, moist, trace black organics and small roots. Subrounded gravel up to 1/4". Medium grained sand. One piece of rubber tubing 1/16" diameter.	HD S2	100	2-4-6-8 (10)				LMA	
	SM		15% gravel, 15% sand, 70% fines Subrounded gravel up to 1.25". One piece of black plastic. SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown, moist. Fine to medium grain sand.	HD S3A HD S3B	88	2-6-4-4 (10)					
10	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 89% sand, 10% fines Brown, moist. Medium grain sand.	HD S4	75	1-3-3-3 (6)				LMA	
	ML SM		SILT, (ML) 5% gravel, 5% sand, 90% fines Brown, moist. Gravel up to 1/4". Medium grain sand. SILTY SAND, (SM) 0% gravel, 85% sand, 15% fines Brown, moist.	HD S5A HD S5B	100	2-3-2-2 (5)					
15	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, crumbles under hand pressure.	HD S5C							
	ML		SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Light brown/tan, moist, crumbles under hand pressure.	HD S6	100	3-4-4-5 (8)				LMA	
20											

(Continued Next Page)

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BOREHOLE BH-23

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% finesLight brown/tan, moist. Varying consistency. Nonplastic.	HD S7	100	3-5-5-7 (10)	0.5 1.5 0.75			AL	
25				HD S8A	100	3-3-8-7 (11)	S8A: 2.0 4.0 3.5				
	SM		SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown, moist. Fine grain sand.	HD S8B			3.75 2.0				
	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist. Sample moisture content not determined at lab.	HD S8C			3.0				
30											
	ML		SANDY SILT, (ML) 0% gravel, 33% sand, 67% fines Brown, moist, trace black organics. Medium grain sand.	HD S9	100	3-7-8-9 (15)	4.0 4.5 1.0 1.5			LMA	
35											
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, moist, with layerings of coarse black/white sand. One piece of gravel 0.5". Outside of sample spoon wet.	HD S10A	100	7-14-18-23 (32)					
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Light gray, moist. Medium grain sand.	HD S10B							
40											
	ML		SANDY SILT, (ML) 17% gravel, 39% sand, 49% fines Brown, moist, with layerings of black/white sand and trace black organics. 2.5" pieces of gravel stuck in spoon catcher. Broken and pulverized gravel in bottom 3" of spoon. Subrounded and subangular gravel up to 1".	HD S11	100	6-9-18-25 (27)				LMA	

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BOREHOLE BH-23

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
45	ML		SANDY SILT, (ML) 17% gravel, 39% sand, 49% fines Brown, moist, with layerings of black/white sand and trace black organics. 2.5" pieces of gravel stuck in spoon catcher. Broken and pulverized gravel in bottom 3" of spoon. Subrounded and subangular gravel up to 1". *(continued)*								
	SW-SM		WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 19% gravel, 69% sand, 12% fines Gray/light brown/black, moist. Subrounded and subangular gravel up to 2". Medium to coarse grain sand. Trace black organics.	HD S12	100	7-9-10-12 (19)				SA	
50	SM		SILTY SAND WITH GRAVEL, (SM) 30% gravel, 40% sand, 30% fines Dark brown, moist, subrounded gravel up to 3/4". 15% gravel, 70% sand, 15% fines Light brown/gray, moist, decreasing coarseness with depth. Coarse to fine grain sand.	HD S13A / HD S13B	100	15-23-24-22 (47)					

Bottom of borehole at 52.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-24

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	GW-GM		WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 55% gravel, 38% sand, 7% fines Brown, moist, subrounded gravel up to 1.5". Frozen to 0.5 feet BGS.	G S1						SA	
				HD S2A	75	6-6-4-3 (10)					
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Gray/brown, moist, tiny roots.	HD S2B							
5	ML		SILT WITH SAND, (ML) 1% gravel, 20% sand, 79% fines Gray/brown, moist, gravel up to 1/2". Fine grain sand.	HD S3	100	5-6-6-5 (12)	3.5 2.5 1.5			LMA	
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/brown, moist, friable. Fine grain sand.	HD S4	100	3-6-8-9 (14)					
10				HD S5A	100	4-6-6-9 (12)	1.5 1.5 1.5				
	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Seperated from Sample S5A by 1" of brown soil with woody organics, twigs, and possibly a geotextile layer. S5B: Dark gray, moist, firm.	HD S5B							
15	ML		SANDY SILT, (ML) 1% gravel, 39% sand, 60% fines Gray with rust/brown streaks. Fine grain sand. Trace roots.	HD S6	100	1-2-2-3 (4)				LMA	
20											

(Continued Next Page)

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BOREHOLE BH-24

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown/gray, moist. Trace fine grain sand on outside of sample.	HD S7	100	3-4-5-6 (9)				AL	
25											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, friable.	HD S8	100	4-5-6-7 (11)					
30											
	ML		SILT WITH SAND, (ML) 0% gravel, 22% sand, 78% fines Gray, moist.	HD S9	100	6-7-8-6 (15)	0.5 1.5 2.0			LMA	
35											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/brown, wet at top of sample. Trace fine sand. Varying consistency, increasing stiffness with depth.	HD S10	88	5-6-6-6 (12)	1.0 2.0 3.5 >4.5				
40											
	SM		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, wet, black organic streaks. One 1" piece of angular gravel.	HD S11A	100	4-7-5-7 (12)	3.0				
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, firm. Trace fine sand.	HD S11B			3.0 3.5				

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BOREHOLE BH-24

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, firm. Trace fine sand. *(continued)*								
45											
	ML		0% gravel, 11% sand, 89% fines One 1/2" fine grain sand layer. Nonplastic.	HD S12	100	4-6-10-11 (16)	3.0 3.5 3.5			LMA, AL	▲ ○
50											
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown/white/reddish, moist, trace black organics. Medium grain sand.	HD S13	100	6-10-12-12 (22)					○ ▲

Bottom of borehole at 52.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-25

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/30/22 **COMPLETED** 3/30/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Not Observed

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Brown, moist, organics and twigs, gravel up to 1/2".	G S1							58
	ML		SILT WITH SAND, (ML) 0% gravel, 18% sand, 82% fines Light brown/tan, moist, friable, trace twigs.	HD S2	100	2-4-4-5 (8)				LMA	
5	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist to dry.	HD S3A	100	4-6-6-8 (12)					
	ML		SANDY SILT, (ML) 2% gravel, 48% sand, 50% fines Light brown/tan, moist, trace gravel up to 1".	HD S3B						LMA	
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Light brown/tan, moist, crumbles easily. Fine grain sand.	HD S4	88	4-5-5-4 (10)					
10	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Tan/gray, moist to dry, crumbles easily under hand pressure. Environmental sample collected by ChemTrack.	HD S5	100	3-5-5-5 (10)	0.5 0.5 2.0 2.5				
15	ML			HD S6	100	2-4-5-6 (9)					
20											

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BOREHOLE BH-25

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20	ML		SILT WITH SAND, (ML) 0% gravel, 19% sand, 81% fines Tan/gray, moist.	HD S7	88	4-6-7-6 (13)				LMA	
25	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/tan, moist, stiffer than above samples.	HD S8A	100	3-4-7-10 (11)	2.5 3.5 3.0				
	SM		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown/tan, moist, fine grain sand.	HD S8B							
30	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/tan, moist. One small piece of organics.	HD S9	100	5-8-10-13 (18)					
35	ML		SILT WITH SAND, (ML) 0% gravel, 14% sand, 86% fines Brown/tan, moist, stiffer than above sample.	HD S10	100	6-8-13-14 (21)	2.0 2.75 4.0 3.5			LMA	

Bottom of borehole at 37.0 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 0 to 37 feet. Stickup 17 inches.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ

CRW Engineering Group, LLC
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BOREHOLE BH-26

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/4/22 **COMPLETED** 4/4/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT, (ML) 0% gravel, 7% sand, 93% fines Brown/gray, moist, grass.	G S1						LMA	
5	ML		GRAVELLY SILT, (ML) 20% gravel, 10% sand, 70% fines Brown, moist, trace grass and roots, two pieces of subrounded and broken to angular gravel 2.5".	HD S2	50	4-15-25-10 (40)					
	ML		SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown, moist, one 2.5" piece of pulverized gravel in top 3 inches of sample.	HD S3	75	25-12-10-10 (22)					
10	ML		SILT, (ML) 5% gravel, 5% sand, 90% fines Brown, moist, one 1.5" piece of gravel in Sample S4. Nonplastic.	HD S4	88	4-5-5-6 (10)				AL	
	ML		1% gravel, 12% sand, 87% fines	HD S5	88	2-5-5-5 (10)	2.0 3.5 3.5			LMA	
15	ML		0% gravel, 5% sand, 95% fines Gray, moist, crumbles easily under hand pressure.	HD S6A	75	5-6-13-7 (19)					
			Brown, moist, silt with sand, with wood chunks, roots, twigs, and black organics. Subrounded gravel up to 1/4". 5" piece of wood stuck in sample spoon upon recovery.	HD S6B							
20			Sticks observed in auger cuttings from 15 to 20 feet.								

(Continued Next Page)

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BOREHOLE BH-26

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			Sample contains mostly woody debris. One 4" piece of wood in sample catcher. Large roots and wood pieces in spoon. Soil is brown, moist, mostly silt.	HD S7	38	5-6-6-5 (12)					
25			Tan/brown silt with woody debris.	HD S8A							
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/light gray. Crumbles under hand pressure. Nonplastic.	HD S8B	100	5-6-6-8 (12)				AL	
30			1% gravel, 8% sand, 91% fines Gray/light brown, moist.	HD S9	100	4-7-6-13 (13)	3.25 4.0 >4.5			LMA	

Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-27

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 52% gravel, 43% sand, 5% fines Dark brown, moist, subrounded and subangular gravel up to 1". Frozen with visble ice.	G S1						LMA	
	ML		SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Dark brown with gray streaks, moist, organics and roots. Possible frozen.	HD S2A							
	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, crumbles.	HD S2B	100	2-5-4-4 (9)				AL	
5	ML		GRAVELLY SILT WITH SAND, (ML) 25% gravel, 20% sand, 55% fines Dark brown, moist, subrounded and sub angular gravel up to 3/4", smal roots and organics.	HD S3A							
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Light brown/tan, moist, varying consistency.	HD S3B	100	3-4-5-4 (9)					
			SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Tan/light brown, moist, breaks easily under hand pressure.	HD S4	100	2-3-4-4 (7)				LMA	
10	SM		0% gravel, 72% sand, 28% fines	HD S5	100	3-4-4-5 (8)				LMA	
15	SP		POORLY GRADED SAND, (SP) 5% gravel, 95% sand, 0% fines Light gray/white/black, moist, trace black organics, loose. Medium grain sand.	HD S6	75	3-4-5-5 (9)					
20											

(Continued Next Page)

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BOREHOLE BH-27

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20			SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Tan/light brown, moist, crumbles easily under hand pressure, trace black organics.	HD S7	100	3-5-6-6 (11)				LMA	
25	SM		0% gravel, 61% sand, 39% fines	HD S8	100	4-7-8-7 (15)				LMA	
30	GM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 20% sand, 30% fines Brown, moist, soil. Medium grain sand. One piece of woody debris 1/16" diameter and 1" long. Gray, pulverized gravel up to 2.5" broken to angular.	HD S9A HD S9B	100	11-9-9-10 (18)					
	SM		SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown/tan, moist. Fine grain sand.								
35			0% gravel, 80% sand, 20% fines Light brown/tan, moist to dry. Fine grain sand. Nonplastic.	HD S10	100	6-10-9-12 (19)				AL	

Bottom of borehole at 37.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-28

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/30/22 **COMPLETED** 3/30/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	SW		WELL GRADED SAND WITH GRAVEL, (SW) 39% gravel, 59% sand, 2% fines Brown, moist, subrounded gravel up to 3/4"	G S1						SA	
			Small roots, twigs, one large 2" wood chip.	HD S2A	100	3-1-5-6 (6)					
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, friable.	HD S2B							
5	ML		0% gravel, 5% sand, 95% fines Environmental sample collected by ChemTrack.	HD S3	100	6-8-8-6 (16)	1.5 0.5 2.0 2.0			LMA	
10	ML		SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Brown/gray, moist, subrounded gravel up to 1". Medium to fine grain sand.	HD S4	100	4-5-8-6 (13)					
	ML		SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand.	HD S5	100	6-6-9-9 (15)				SA	
15	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, crumbles easily under hand pressure.	HD S6	100	3-4-4-5 (8)					
20											

(Continued Next Page)

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BOREHOLE BH-28

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, firmer than above sample. Nonplastic.	HD S7	100	4-4-5-5 (9)				AL	▲ ○
25			0% gravel, 15% sand, 85% fines Crumbles easily under hand pressure.	HD S8	100	4-5-5-5 (10)				LMA	▲ ○
30											
	SM		SILTY SAND, (SM) 0% gravel, 77% sand, 23% fines Brown, moist, increasing sand content with depth. Medium grain sand.	HD S9	100	4-5-6-7 (11)				LMA	▲
35	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S10A			0.5 1.0				○
	SM		SILTY SAND WITH GRAVEL, (SM) 15% gravel, 40% sand, 45% fines Brown, moist, subangular and subroudned gravel up to 1". Easily crumbles under hand pressure. Fine grain sand.	HD S10B	100	2-4-3-3 (7)	2.5 2.75				▲ ○
	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist, firmer than above.	HD S10C			3.0 3.0				○
40											
	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 94% sand, 5% fines Brown/black/white, moist. Coarse to medium sand. 2" black coal layer 2" above bottom of sample spoon.	HD S11	100	5-7-7-6 (14)				LMA	○ ▲

Bottom of borehole at 42.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-29

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	GW-GM		WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 62% gravel, 32% sand, 6% fines Brown, moist, subrounded gravel up to 1.5". Frozen to 6". 5" cobble in drilling cuttings near surface.	G S1						SA	
	GM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 30% sand, 20% fines Bown, moist, subrounded gravel up to 1".	HD S2A	88	2-3-4-7 (7)	2.25 2.5 >4.5 3.25				
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, trace roots.	HD S2B							
5	ML		GRAVELLY SILT WITH SAND, (ML) 30% gravel, 20% sand, 50% fines Brown, moist, subrounded gravel up to 1/2".	HD S3A	88	5-8-8-9 (16)					
	ML		SILT WITH SAND, (ML) 1% gravel, 18% sand, 81% fines Light brown/tan, moist, trace gravel up to 1". Crumbles easily under hand pressure. Fine grain sand.	HD S3B						LMA	
	CL-ML		SILTY CLAY, (CL-ML) 3% gravel, 7% sand, 90% fines Tan/light brown, moist.	HD S4	100	6-7-9-9 (16)	4.5 1.25 4.25 2.5			LMA, AL	
10			SILT, (ML) 0% gravel, 5% sand, 95% fines Dark tan, moist.	HD S5	100	4-5-6-8 (11)	1.5 2.25 2.25 2.25				
15	ML		5% gravel, 5% sand, 95% fines Occasional light gray/red layers, trace fine sand and trace gravel <1/4". Two pieces of black organics and one 1" piece of electrial wire 1/16" diameter. Nonplastic.	HD S6	88	5-6-8-7 (14)				AL	
20											

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BOREHOLE BH-29

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	ML		SANDY SILT, (ML) 1% gravel, 45% sand, 55% fines Light brown, moist, trace gravel up to 1/8", few roots and organics up to 1/16" diameter. Fine grain sand.	HD S7	88	2-2-3-3 (5)				LMA	
25											
	ML		SILT, (ML) 0% gravel, 3% sand, 97% fines Tan/gray, moist, varying consistency.	HD S8	88	2-4-4-5 (8)				LMA	
30											
	ML		0% gravel, 5% sand, 95% fines	HD S9A							
			SANDY SILT, (ML) 0% gravel, 39% sand, 61% fines Brown, moist. Fine to medium grain sand.	HD S9B	88	4-4-5-5 (9)				SA	
35											
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 22% gravel, 72% sand, 6% fines Gray/light gray, moist to dry, subrounded and subangular gravel up to 1". Medium grain sand.	HD S10	88	10-8-7-8 (15)				SA	
40											
	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 93% sand, 7% fines Gray/white/black, moist to dry. Medium grain sand.	HD S11	100	5-6-8-7 (14)				LMA	

(Continued Next Page)

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BOREHOLE BH-29

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 93% sand, 7% fines Gray/white/black, moist to dry. Medium grain sand. *(continued)*								
45	GM		SILTY GRAVEL WITH SAND, (GM) 40% gravel, 20% sand, 40% fines Brown, moist, subrounded gravel up to 1". Medium grain sand.	HD S12A	100	3-7-7-10 (14)	1.5				
				HD S12B			2.5				
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.				1.0				
50	GM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 36% sand, 14% fines Brown/gray, moist, subrounded and subangular gravel up to 2". Medium grain sand.	HD S13	88	7-11-13-13 (24)				SA	

Bottom of borehole at 52.0 feet.

Notes:
Backfilled with cuttings.

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BOREHOLE BH-30

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0			SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Dark brown, moist, roots and grass.	G S1							
	ML		0% gravel, 15% sand, 85% fines Less roots than above.	HD S2	75	1-2-3-3 (5)					
5											
	ML		SANDY SILT, (ML) 0% gravel, 38% sand, 63% fines Dark brown, moist, few roots, firm.	HD S3	88	3-4-3-4 (7)	3.0 2.75 3.25 3.75			LMA	
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, moist, varying consistency.	HD S4	88	2-3-3-4 (6)	1.5 2.25 2.5				
10											
			SANDY SILT, (ML) 0% gravel, 35% sand, 65% fines Dark brown, moist.	HD S5	88	2-4-4-7 (8)	1.5 2.0 2.0 1.5			LMA, AL	
15	ML										
			0% gravel, 36% sand, 64% fines Light brown/tan. Fine grain sand.	HD S6A HD S6B	100	3-5-5-6 (10)				LMA	
20											

(Continued Next Page)

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BOREHOLE BH-30

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	SM		SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Gray/white/black, moist. Medium grain sand.	HD S7	100	3-5-6-4 (11)				SA	
25				HD S8A	100	4-6-7-9 (13)					
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, crumbles easily under hand pressure.	HD S8B							
30	ML		SANDY SILT, (ML) 0% gravel, 40% sand, 60% fines Brown, moist. Fine grain sand.	HD S9A	100	4-3-2-6 (5)				AL	
	CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Brown, moist, trace subrounded gravel up to 1/4" in catcher of spoon.	HD S9B							
35	ML		SANDY SILT, (ML) 0% gravel, 49% sand, 51% fines Brown/tan, moist, subrounded and subangular gravel up to 2.5". Fine to coarse sand.	HD S10	100	3-4-5-5 (9)				LMA	

Bottom of borehole at 37.0 feet.

Notes:
Backfilled with cuttings.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ

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BOREHOLE BH-31

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/2/22 **COMPLETED** 4/2/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Not Observed

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SILT WITH SAND, (ML) 5% gravel, 15% sand, 85% fines Dark brown/reddish brown, organics, moist.	G S1							
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S2	100	2-4-5-5 (9)	4.0 3.5 4.0				
5			0% gravel, 8% sand, 92% fines Varying consistency. Trace gravel up to 1/4".	HD S3	100	4-6-7-8 (13)	2.0 4.5			LMA	
			0% gravel, 5% sand, 95% fines Crumbles easily under hand pressure.	HD S4	100	5-7-10-10 (17)					
10	ML		0% gravel, 6% sand, 94% fines Varying consistency.	HD S5	88	3-4-6-5 (10)	2.5 3.75			LMA	
15			0% gravel, 5% sand, 95% fines	HD S6	88	3-5-5-9 (10)					
20											

(Continued Next Page)

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BOREHOLE BH-31

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
	SM		SILTY SAND, (SM) 0% gravel, 61% sand, 39% fines Brown, moist, trace black organics. Medium to fine grain sand.	HD S7	75	3-6-7-12 (13)				LMA	
25											
	GM		SILTY GRAVEL WITH SAND, (GM) 44% gravel, 20% sand, 36% fines Brown, moist, subrounded gravel up to 2". Medium grain sand.	HD S8A HD S8B	100	5-8-7-14 (15)	>4.5 4.0 3.75			LMA	
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.	HD S8C							
	SM		SILTY SAND, (SM) 0% gravel, 85% sand, 15% fines Brown, moist. Medium grain sand.								
30											
	ML		SANDY SILT, (ML) 3% gravel, 40% sand, 57% fines Brown, moist, subrounded gravel up to 1". Medium grain sand.	HD S9	100	6-11-15-19 (26)				LMA	
35											
	SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Light brown/gray. Coarse to fine sand, increasing fineness with depth.	HD S10	100	14-32-50/4"					>>▲

Bottom of borehole at 36.3 feet.

Notes:
Completed as piezometer with 1 inch Schedule 80 PVC.
Handslotted from 1.6 to 36.3 feet. Stickup 19 inches.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ

CRW Engineering Group, LLC
3940 Arctic Blvd Ste 300
Anchorage, Alaska 99503
Telephone: (907) 562-3252

BOREHOLE BH-32

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 4/2/22 **COMPLETED** 4/2/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING --- Not Observed
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	ML		SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Dark brown, moist, organics, subrounded gravel up to 3/4".	G S1							
			SILT, (ML) 0% gravel, 12% sand, 88% fines Red/gray rust colored, moist, trace roots.	HD S2	88	1-2-3-4 (5)	3.0 2.5 4.0			LMA	
5			0% gravel, 5% sand, 95% fines Less roots than above. Trace black organics.	HD S3	75	1-3-3-4 (6)	1.5 3.75 3.5				
			0% gravel, 6% sand, 94% fines Gray with red/orange/black streaks. One piece of subrounded gravel 1".	HD S4	100	2-2-5-6 (7)	3.25x3 4.25			LMA	
10	ML		0% gravel, 5% sand, 95% fines Light brown/gray with dew red streaks. One small root.	HD S5	100	2-5-5-5 (10)	3.0 2.0 3.0				
15			0% gravel, 5% sand, 95% fines Light brown.	HD S6	100	3-5-5-5 (10)	3.0 3.5 3.25			LMA	
20											

(Continued Next Page)

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Telephone: (907) 562-3252

BOREHOLE BH-32

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark Cargo Terminal
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
20											
			SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, easily crumbles under hand pressure.	HD S7	100	3-5-5-7 (10)					
25											
			0% gravel, 5% sand, 95% fines Varying consistency.	HD S8	100	4-7-8-9 (15)	3.5 2.5				
	ML										
30											
			0% gravel, 2% sand, 98% fines Moist, almost wet in middle of sample.	HD S9	88	4-4-7-12 (11)	2.5 2.25 3.0			LMA	
35											
	ML		SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Brown, moist, subrounded gravel up to 1". Fine to medium grain sand.	HD S10A	100	6-12-8-9 (20)					
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S10B			3.25 2.5 2.25				

Bottom of borehole at 37.0 feet.

Notes:
Backfilled with cuttings.

Appendix B

Laboratory Results

Included in this section:

1) Laboratory Results from Alaska Testlab

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0600
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0600-S01	22-0600-S02	22-0600-S03	22-0600-S04
Client Sample ID	TH-01 S1	TH-01 S2	TH-01 S3	TH-01 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	33	22	11	12	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487		ML			
Group Name			Silt			
Liquid Limit			0			
Plasticity Index			0			
Material Proportions Estimated	ASTM D2487		Yes			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Cindy Zickefoose			
Liquid Limit	ASTM D4318		Not Obtainable			
Plastic Limit			NP (Non-Plastic)			
Plasticity Index			NP (Non-Plastic)			
Tested By			Cindy Zickefoose			
Date Tested			5/9/2022			
Percent Gravel	LMA (Internal Method)				11	
Percent Sand					56	
Percent Fines (Silt/Clay)					33	
Group Symbol					SM	
Group Name					Silty sand	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0600
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0600-S05	22-0600-S06	22-0600-S07	22-0600-S08
Client Sample ID	TH-01 S5	TH-01 S6	TH-01 S7	TH-01 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	4	2	20	2	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487	GP-GM	SP-SM	SM	GP-GM	
Group Name		Poorly graded gravel with silt and sand	Poorly graded sand with silt	Silty sand	Poorly graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	Yes		Yes	
Liquid Limit				0		
Plasticity Index				0		
Tested By	ASTM D2487		John Platt		Cindy Zickefoose	
Method	ASTM D6913	A	A	A	A	
Preparation Method		Oven Dry	Oven Dry	Oven Dry	Oven Dry	
Composite Sieving?		Yes	Yes	Yes	Yes	
Separating Sieve(s)		No. 4	No. 4	No. 4	No. 4	
Cu	ASTM D2487	52.03	2.82		31.91	
Cc		0.28	1.22		0.45	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0600
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0600-S09	22-0600-S10	22-0600-S11
Client Sample ID	TH-01 S9	TH-01 S10	TH-01 S11
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	3	10	4	
Date Tested		4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487	GP-GM			
Group Name		Poorly graded gravel with silt and sand			
Atterberg Limits Estimated		Yes			
Tested By		Cindy Zickefoose			
Method	ASTM D6913	A			
Preparation Method		Oven Dry			
Composite Sieving?		Yes			
Separating Sieve(s)		No. 4			
Cu	ASTM D2487				
Cc					
Percent Gravel	LMA (Internal Method)		5	17	
Percent Sand			50	66	
Percent Fines (Silt/Clay)			45	17	
Group Symbol			SM	SM	
Group Name			Silty Sand	Silty sand with gravel	
Tested By			John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

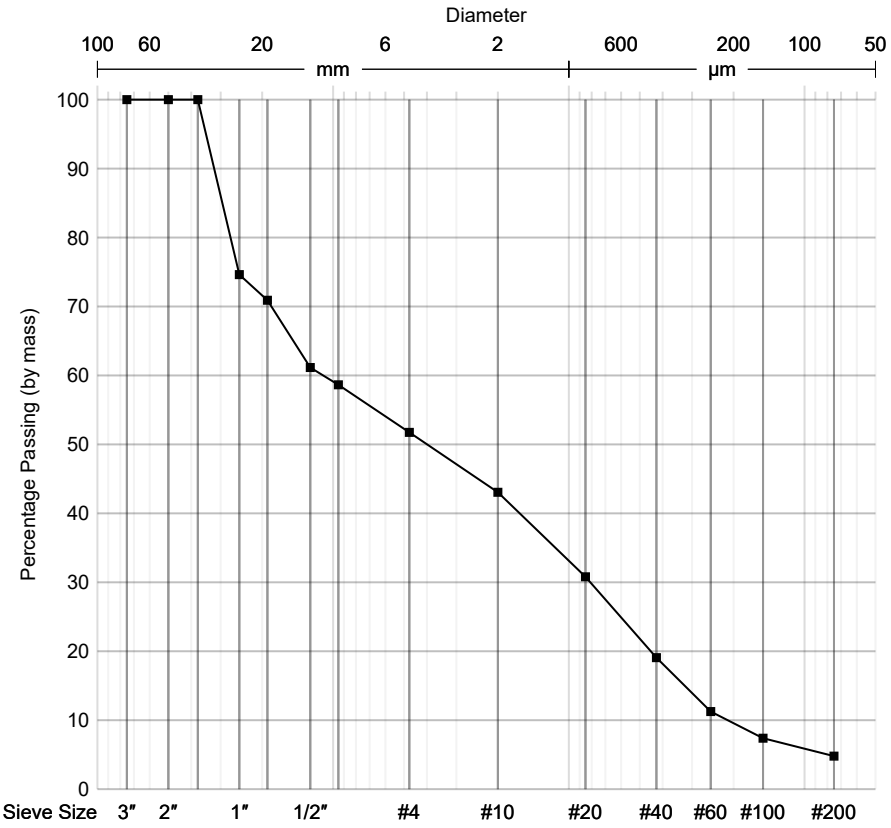
Sample Details

Sample ID	22-0600-S05
Client Sample ID	TH-01 S5

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GP-GM	
Group Name		Poorly graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	52.03	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/3/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	75	
¾in	71	
½in	61	
3/8in	59	
No.4	51.7	
No.10	43	
No.20	31	
No.40	19	
No.60	11	
No.100	7	
No.200	5	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Cc	ASTM D2487	0.28	
Date Tested		5/3/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

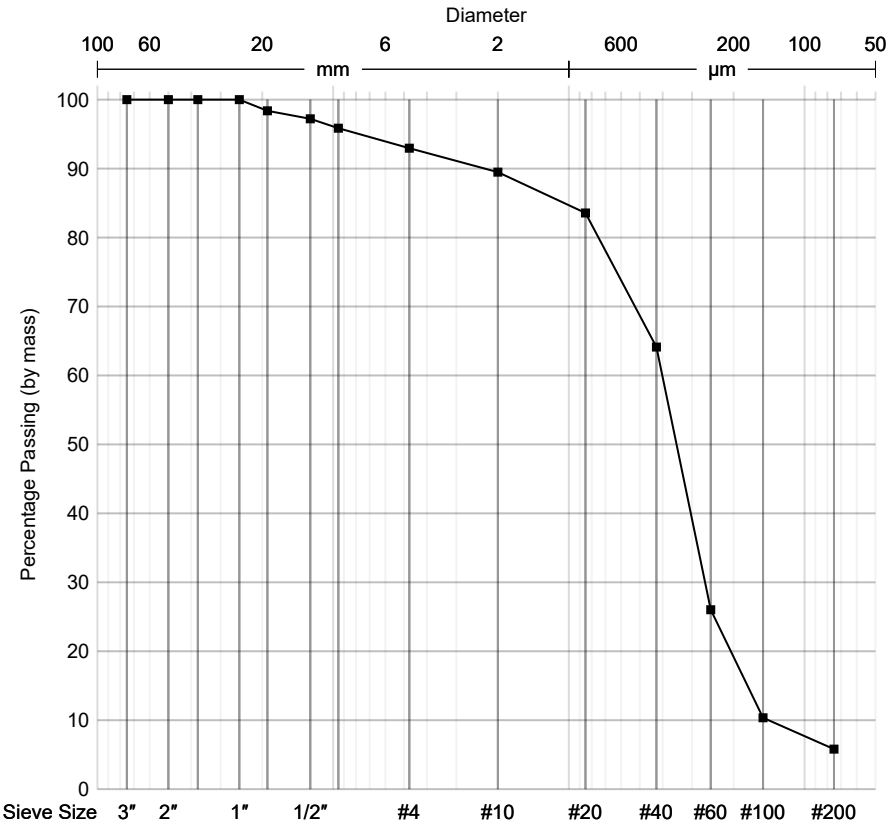
Sample Details

Sample ID	22-0600-S06
Client Sample ID	TH-01 S6

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	2	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	SP-SM	
Group Name		Poorly graded sand with silt	
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Date Tested		5/3/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/3/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	98	
½in	97	
3/8in	96	
No.4	93.0	
No.10	89	
No.20	84	
No.40	64	
No.60	26	
No.100	10	
No.200	6	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	2.82	
Cc		1.22	
Date Tested		5/3/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S07
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

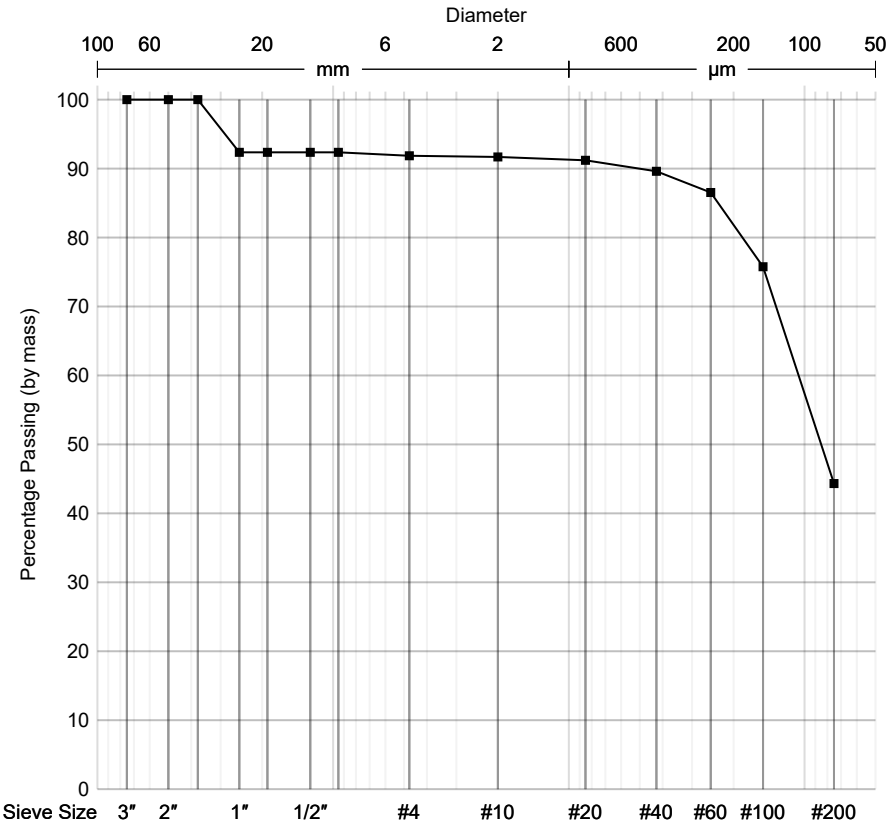
Sample Details

Sample ID	22-0600-S07
Client Sample ID	TH-01 S7

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	20	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/3/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	92	
¾in	92	
½in	92	
3/8in	92	
No.4	91.9	
No.10	92	
No.20	91	
No.40	90	
No.60	87	
No.100	76	
No.200	44	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S07
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Cu	ASTM D2487		
Cc			
Date Tested		5/3/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Phone: 907-205-1987
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Material Test Report

Report No: MAT:22-0600-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

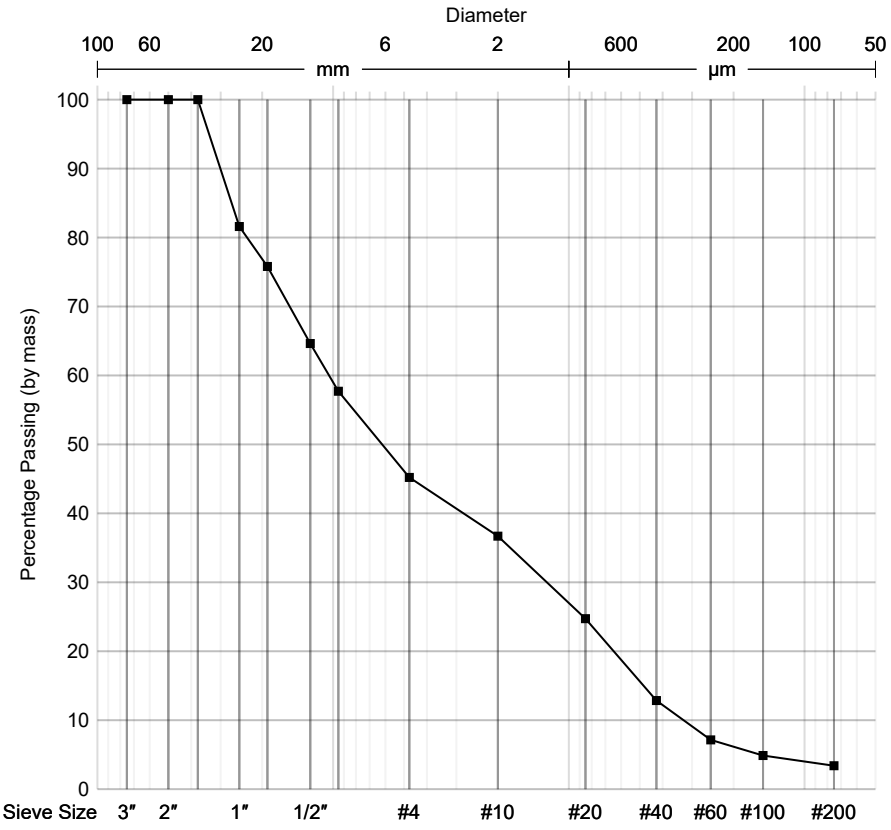
Sample Details

Sample ID	22-0600-S08
Client Sample ID	TH-01 S8

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	2	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GP-GM	
Group Name		Poorly graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		5/5/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/3/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	82	
¾in	76	
½in	65	
3/8in	58	
No.4	45.2	
No.10	37	
No.20	25	
No.40	13	
No.60	7	
No.100	5	
No.200	3	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	31.91	
Cc		0.45	
Date Tested		5/3/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

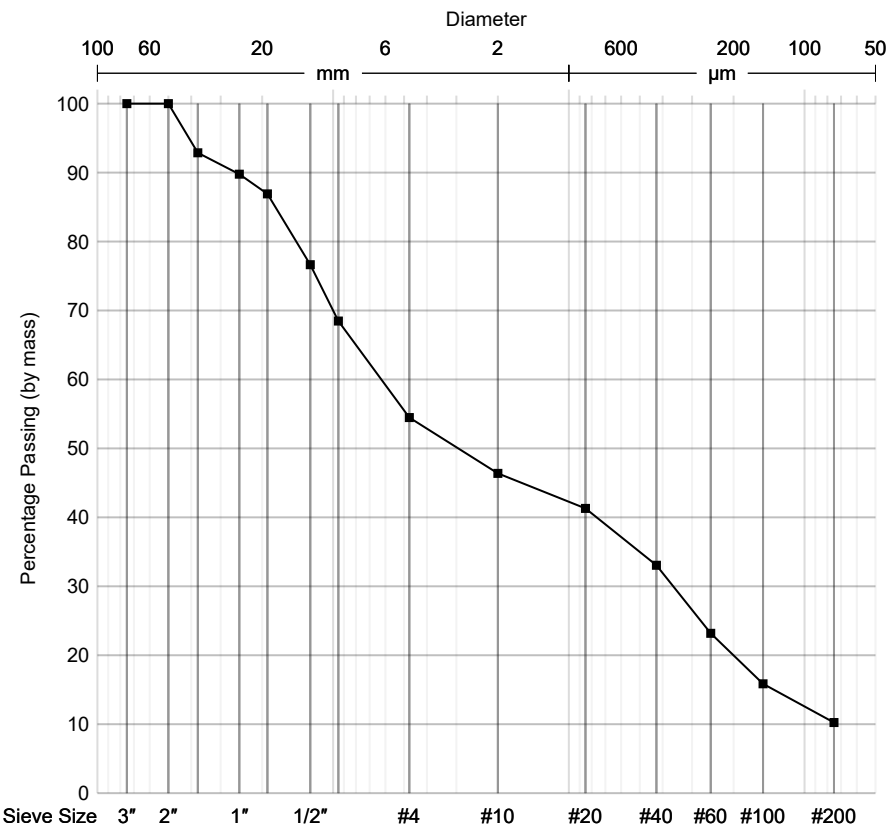
Sample Details

Sample ID	22-0600-S09
Client Sample ID	TH-01 S9

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	3	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GP-GM	
Group Name		Poorly graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		5/5/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/3/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	93	
1in	90	
¾in	87	
½in	77	
3/8in	68	
No.4	54.5	
No.10	46	
No.20	41	
No.40	33	
No.60	23	
No.100	16	
No.200	10	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0600-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487		
Cc			
Date Tested		5/3/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0599
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0599-S01	22-0599-S02	22-0599-S03	22-0599-S04
Client Sample ID	TH-02 S1	TH-02 S2	TH-02 S3	TH-02 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	300	528	442	27	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)				8	
Percent Sand					26	
Percent Fines (Silt/Clay)					66	
Group Symbol					ML	
Group Name					Sandy Silt	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0599
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0599-S05	22-0599-S06	22-0599-S07	22-0599-S08
Client Sample ID	TH-02 S5	TH-02 S6	TH-02 S7A	TH-02 S7B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	23	10	6	5	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487	ML	GM			
Group Name		Silt	Silty gravel with sand			
Liquid Limit		0	0			
Plasticity Index		0	0			
Gravel (%)		0				
Sand (%)		0				
Fines (%)		100				
Tested By	ASTM D2487	Karen Jackson				
Liquid Limit	ASTM D4318	Not Obtainable				
Plastic Limit		NP (Non-Plastic)				
Plasticity Index		NP (Non-Plastic)				
Tested By		Karen Jackson				
Date Tested		5/2/2022				
Method	ASTM D6913		A			
Preparation Method			Oven Dry			
Composite Sieving?			Yes			
Separating Sieve(s)			No. 4			
Cu	ASTM D2487					
Cc						

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0599
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0599-S09	22-0599-S10	22-0599-S11	22-0599-S12
Client Sample ID	TH-02 S8	TH-02 S9	TH-02 S10	TH-02 S11
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	3	15	4	4	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487	GW-GM				
Group Name		Well-graded gravel with silt and sand				
Atterberg Limits Estimated		Yes				
Tested By		John Platt				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Cu	ASTM D2487	50.48				
Cc		0.97				
Percent Gravel	LMA (Internal Method)		19	31	40	
Percent Sand			53	62	52	
Percent Fines (Silt/Clay)			28	7	8	
Group Symbol			SM	SP-SM	SP-SM	
Group Name			Silty sand with gravel	Poorly graded sand with silt and gravel	Poorly graded sand with silt and gravel	
Tested By			John Platt	John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0599
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0599-S13	22-0599-S14
Client Sample ID	TH-02 S12	TH-02 S13
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D2216	17	18	
Date Tested		4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	33	0	
Percent Sand		48	23	
Percent Fines (Silt/Clay)		19	77	
Group Symbol		SM	ML	
Group Name		Silty sand with gravel	Silt with sand	
Tested By		John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0599-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

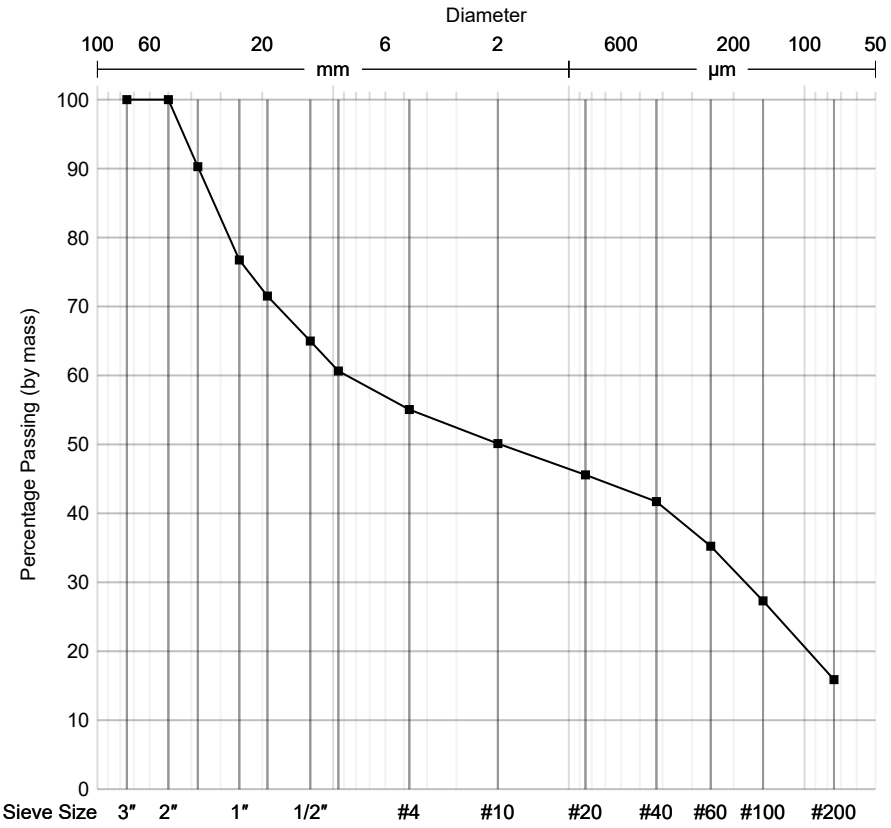
Sample Details

Sample ID	22-0599-S06
Client Sample ID	TH-02 S6

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	10	
Date Tested		4/28/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GM	
Group Name		Silty gravel with sand	
Liquid Limit		0	
Plasticity Index		0	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/2/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	90	
1in	77	
¾in	72	
½in	65	
3/8in	61	
No.4	55.1	
No.10	50	
No.20	46	
No.40	42	
No.60	35	
No.100	27	
No.200	16	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0599-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Cu	ASTM D2487		
Cc			
Date Tested		5/2/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0599-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

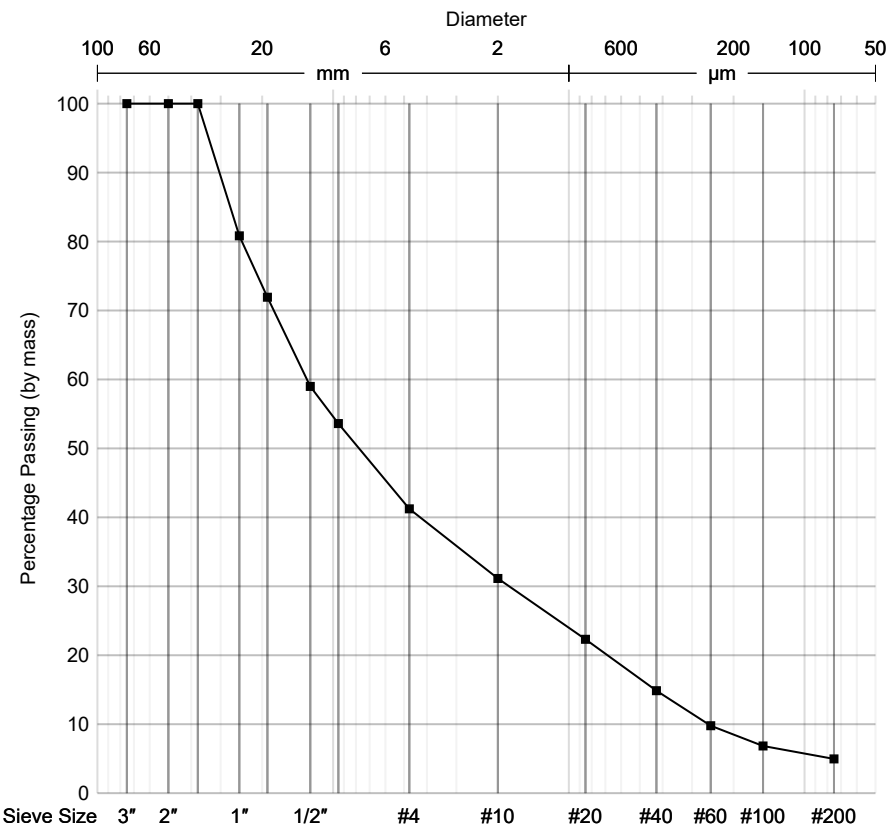
Sample Details

Sample ID	22-0599-S09
Client Sample ID	TH-02 S8

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	3	
Date Tested		4/28/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GW-GM	
Group Name		Well-graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Date Tested		5/7/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/2/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	81	
¾in	72	
½in	59	
3/8in	54	
No.4	41.2	
No.10	31	
No.20	22	
No.40	15	
No.60	10	
No.100	7	
No.200	5	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0599-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	50.48	
Cc		0.97	
Date Tested		5/2/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: ASM:22-0601
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0601-S01	22-0601-S02	22-0601-S03	22-0601-S04	22-0601-S05
Client Sample ID	TH-03 S1	TH-03 S2	TH-03 S3	TH-03 S4	TH-03 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	240	23	16	21	20	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487				ML		
Group Name					Silt		
Liquid Limit					0		
Plasticity Index					0		
Material Proportions Estimated	ASTM D2487				Yes		
Gravel (%)					0		
Sand (%)					0		
Fines (%)					100		
Tested By	ASTM D2487				Karen Jackson		
Liquid Limit	ASTM D4318				Not Obtainable		
Plastic Limit					NP (Non-Plastic)		
Plasticity Index					NP (Non-Plastic)		
Preparation Method					Air Dry		
Oversize Removed By					Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus					Mechanical		
Grooving Tool					Plastic		
Rolling					Hand		
Tested By					Karen Jackson		
Date Tested					5/11/2022		
Percent Gravel	LMA (Internal Method)					0	
Percent Sand						5	
Percent Fines (Silt/Clay)						95	
Group Symbol						ML	
Group Name						Silt	
Tested By						John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0601
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0601-S06	22-0601-S07	22-0601-S08	22-0601-S09
Client Sample ID	TH-03 S6	TH-03 S7	TH-03 S8	TH-03 S9
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	21	21	10	12	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		5				
Percent Fines (Silt/Clay)		95				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				
Group Code	ASTM D2487		CL-ML			
Group Name			Silty clay			
Material Proportions Estimated			Yes			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Karen Jackson			
Liquid Limit	ASTM D4318		24			
Plastic Limit			20			
Plasticity Index			4			
Preparation Method			Air Dry			
Oversize Removed By			Dry Sieving over No. 40 sieve			
Liquid Limit Apparatus			Mechanical			
Grooving Tool			Plastic			
Rolling			Hand			
Tested By			Karen Jackson			
Date Tested			5/10/2022			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0602
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0602-S01	22-0602-S02	22-0602-S03	22-0602-S04
Client Sample ID	TH-04 S1	TH-04 S2	TH-04 S3	TH-04 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	106	11	11	25	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Material Proportions Estimated	ASTM D2487			Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Karen Jackson		
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			57			
Percent Fines (Silt/Clay)			43			
Group Symbol			SM			
Group Name			Silty sand			
Tested By			John Platt			
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Tested By				Karen Jackson		
Date Tested				5/11/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0602
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0602-S05	22-0602-S06	22-0602-S07	22-0602-S08
Client Sample ID	TH-04 S5	TH-04 S6	TH-04 S7	TH-04 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	23	23	22	23	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0		0		
Percent Sand		10		5		
Percent Fines (Silt/Clay)		90		95		
Group Symbol		ML		ML		
Group Name		Silt		Silt		
Tested By		John Platt		John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0602
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0602-S09	22-0602-S10	22-0602-S11	22-0602-S12
Client Sample ID	TH-04 S9	TH-04 S10	TH-04 S11A	TH-04 S11B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	19	16	14	6	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		9				
Percent Fines (Silt/Clay)		91				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0602
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0602-S13	22-0602-S14	22-0602-S15
Client Sample ID	TH-04 S12A	TH-04 S12B	TH-04 S13
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	9	23	19	
Date Tested		4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	1		0	
Percent Sand		66		20	
Percent Fines (Silt/Clay)		33		80	
Group Symbol		SM		ML	
Group Name		Silty Sand		Silt with sand	
Tested By		John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0606
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0606-S01	22-0606-S02	22-0606-S03	22-0606-S04
Client Sample ID	TH-05 S1	TH-05 S2	TH-05 S3	TH-05 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	319	20	18	17	
Date Tested		4/28/2022	4/29/2022	4/29/2022	4/29/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Material Proportions Estimated	ASTM D2487			Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Percent Gravel	LMA (Internal Method)		0		0	
Percent Sand			19		13	
Percent Fines (Silt/Clay)			81		87	
Group Symbol			ML		ML	
Group Name			Silt with sand		Silt	
Tested By			John Platt		John Platt	
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Tested By				Karen Jackson		
Date Tested				5/9/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0606
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0606-S05	22-0606-S06	22-0606-S07	22-0606-S08
Client Sample ID	TH-05 S5	TH-05 S6	TH-05 S7	TH-05 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	18	22	18	17	
Date Tested		4/28/2022	4/29/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487		ML			
Group Name			Silt			
Liquid Limit			0			
Plasticity Index			0			
Material Proportions Estimated	ASTM D2487		Yes			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Karen Jackson			
Liquid Limit	ASTM D4318		Not Obtainable			
Plastic Limit			NP (Non-Plastic)			
Plasticity Index			NP (Non-Plastic)			
Tested By			Karen Jackson			
Date Tested			5/11/2022			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0606
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0606-S09	22-0606-S10	22-0606-S11
Client Sample ID	TH-05 S9	TH-05 S10	TH-05 S11
Date Sampled			

Other Test Results

	Method	Results			Limits
Water Content (%)	ASTM D2216	17	11	20	
Date Tested		4/28/2022	4/29/2022	4/29/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0		0	
Percent Sand		9		6	
Percent Fines (Silt/Clay)		91		94	
Group Symbol		ML		ML	
Group Name		Silt		Silt	
Tested By		John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0435
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0435-S01	22-0435-S02	22-0435-S03	22-0435-S04
Client Sample ID	TH-06 S1	TH-06 S2	TH-06 S3	TH-06 S4
Date Sampled				

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	49	22	20	
Date Tested		4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487		ML		
Group Name			Silt		
Material Proportions Estimated			Yes		
Gravel (%)			0		
Sand (%)			0		
Fines (%)			100		
Tested By	ASTM D2487		Cindy Zickefoose		
Liquid Limit	ASTM D4318		28		
Plastic Limit			25		
Plasticity Index			3		
Preparation Method			Air Dry		
Oversize Removed By			Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus			Mechanical		
Grooving Tool			Plastic		
Rolling			Hand		
Tested By			Cindy Zickefoose		
Date Tested			4/29/2022		
Percent Gravel	LMA (Internal Method)			1	
Percent Sand				15	
Percent Fines (Silt/Clay)				84	
Group Symbol				ML	
Group Name				Silt with sand	
Tested By				John Platt	

Comments

TH-06 Sa4 - Not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Material Test Report

Report No: ASM:22-0435
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0435-S05	22-0435-S06	22-0435-S07	22-0435-S08
Client Sample ID	TH-06 S4A	TH-06 S4B	TH-06 S5	TH-06 S6
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	4	24	28	31	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Material Proportions Estimated	ASTM D2487			Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Cindy Zickefoose		
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Preparation Method				Air Dry		
Oversize Removed By				Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Cindy Zickefoose		
Date Tested				4/26/2022		

Comments

TH-06 Sa4 - Not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0435
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0435-S09	22-0435-S10	22-0435-S11	22-0435-S12
Client Sample ID	TH-06 S7A	TH-06 S7B	TH-06 S8	TH-06 S9
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	24	7	2	2	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			55	44	
Percent Sand				41	52	
Percent Fines (Silt/Clay)				4	4	
Group Symbol				GP	SP	
Group Name				Poorly graded gravel with sand	Poorly graded sand with gravel	
Tested By				John Platt	John Platt	

Comments

TH-06 Sa4 - Not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0587
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0587-S01	22-0587-S02	22-0587-S03	22-0587-S04
Client Sample ID	TH-08 S1	TH-08 S2	TH-08 S3	TH-08 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	127	17	6	16	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487		ML	SM		
Group Name			Silt	Silty sand		
Liquid Limit				0		
Plasticity Index				0		
Material Proportions Estimated	ASTM D2487		Yes			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Karen Jackson	Cindy Zickefoose		
Liquid Limit	ASTM D4318		19			
Plastic Limit			18			
Plasticity Index			1			
Preparation Method			Air Dry			
Oversize Removed By			Dry Sieving over No. 40 sieve			
Liquid Limit Apparatus			Mechanical			
Grooving Tool			Plastic			
Rolling			Hand			
Tested By			Karen Jackson			
Date Tested			5/9/2022			
Method	ASTM D6913			A		
Preparation Method				Oven Dry		
Composite Sieving?				Yes		
Separating Sieve(s)				No. 4		
Cu	ASTM D2487					
Cc						
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					40	
Percent Fines (Silt/Clay)					60	
Group Symbol					ML	
Group Name					Sandy Silt	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0587
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0587-S05	22-0587-S06	22-0587-S07
Client Sample ID	TH-08 S5	TH-08 S6	TH-08 S7
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	6	22	23	
Date Tested		4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0			
Percent Sand		67			
Percent Fines (Silt/Clay)		33			
Group Symbol		SM			
Group Name		Silty Sand			
Tested By		John Platt			
Group Code	ASTM D2487		ML		
Group Name			Silt		
Material Proportions Estimated			Yes		
Gravel (%)			0		
Sand (%)			0		
Fines (%)			100		
Tested By	ASTM D2487		Karen Jackson		
Liquid Limit	ASTM D4318		29		
Plastic Limit			24		
Plasticity Index			5		
Preparation Method			Air Dry		
Oversize Removed By			Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus			Mechanical		
Grooving Tool			Plastic		
Rolling			Hand		
Tested By			Karen Jackson		
Date Tested			5/9/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0587-S03
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

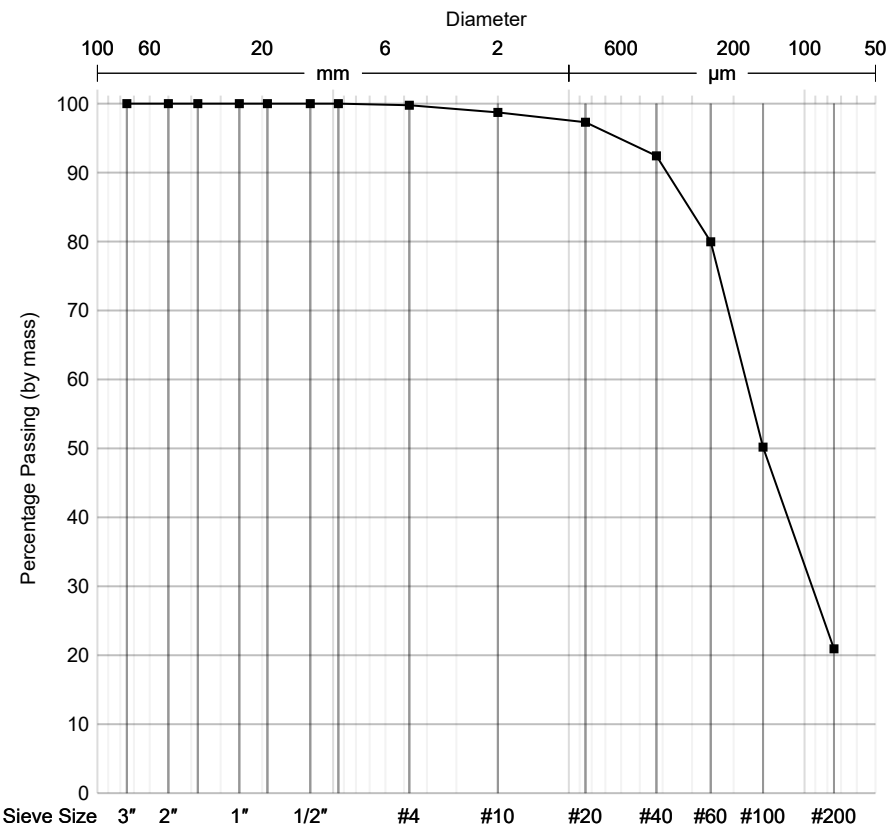
Sample Details

Sample ID	22-0587-S03
Client Sample ID	TH-08 S3

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	6	
Date Tested		4/28/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		5/5/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 5/2/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	99.8	
No.10	99	
No.20	97	
No.40	92	
No.60	80	
No.100	50	
No.200	21	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0587-S03
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487		
Cc			
Date Tested		5/2/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0471
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0471-S01	22-0471-S02	22-0471-S03	22-0471-S04
Client Sample ID	TH-09 S1	TH-09 S2	TH-09 S3	TH-09 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	40	18	25	29	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Tested By	ASTM D2487			Cindy Zickefoose		
Method	ASTM D6913			A		
Preparation Method				Oven Dry		
Composite Sieving?				Yes		
Separating Sieve(s)				No. 4		
Fractional Mass Retained (%)				0.00		
Cu	ASTM D2487					
Cc						

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0471
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0471-S05	22-0471-S06	22-0471-S07	22-0471-S08
Client Sample ID	TH-09 S5	TH-09 S6	TH-09 S7	TH-09 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	32	2	3	14	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		4				
Percent Fines (Silt/Clay)		96				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				
Group Code	ASTM D2487		SP-SM		SP-SM	
Group Name			Poorly graded sand with silt and gravel		Poorly graded sand with silt and gravel	
Atterberg Limits Estimated			Yes		Yes	
Tested By			Cindy Zickefoose		Cindy Zickefoose	
Method	ASTM D6913		A		A	
Preparation Method			Oven Dry		Oven Dry	
Composite Sieving?			Yes		Yes	
Separating Sieve(s)			No. 4		No. 4	
Fractional Mass Retained (%)			0.00		0.00	
Cu	ASTM D2487		8.36		40.17	
Cc			0.90		0.16	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0471
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0471-S09	22-0471-S10	22-0471-S11	22-0471-S12
Client Sample ID	TH-09 S9A	TH-09 S9B	TH-09 S10	TH-09 S11
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	11	3	5	2	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Cindy Zickefoose	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			62		
Percent Sand				33		
Percent Fines (Silt/Clay)				5		
Group Symbol				GP-GM		
Group Name				Poorly graded gravel with silt and sand		
Tested By				John Platt		
Group Code	ASTM D2487				SW-SM	
Group Name					Well-graded sand with silt and gravel	
Atterberg Limits Estimated					Yes	
Tested By					Cindy Zickefoose	
Method	ASTM D6913				A	
Preparation Method					Oven Dry	
Composite Sieving?					Yes	
Separating Sieve(s)					No. 4	
Fractional Mass Retained (%)					0.00	
Cu	ASTM D2487				7.56	
Cc					0.97	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0471
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0471-S13	22-0471-S14	22-0471-S15
Client Sample ID	TH-09 S12A	TH-09 S12B	TH-09 S13
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	3	19	13	
Date Tested		4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			2	
Percent Sand				30	
Percent Fines (Silt/Clay)				68	
Group Symbol				ML	
Group Name				Sandy Silt	
Tested By				John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0471-S03
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

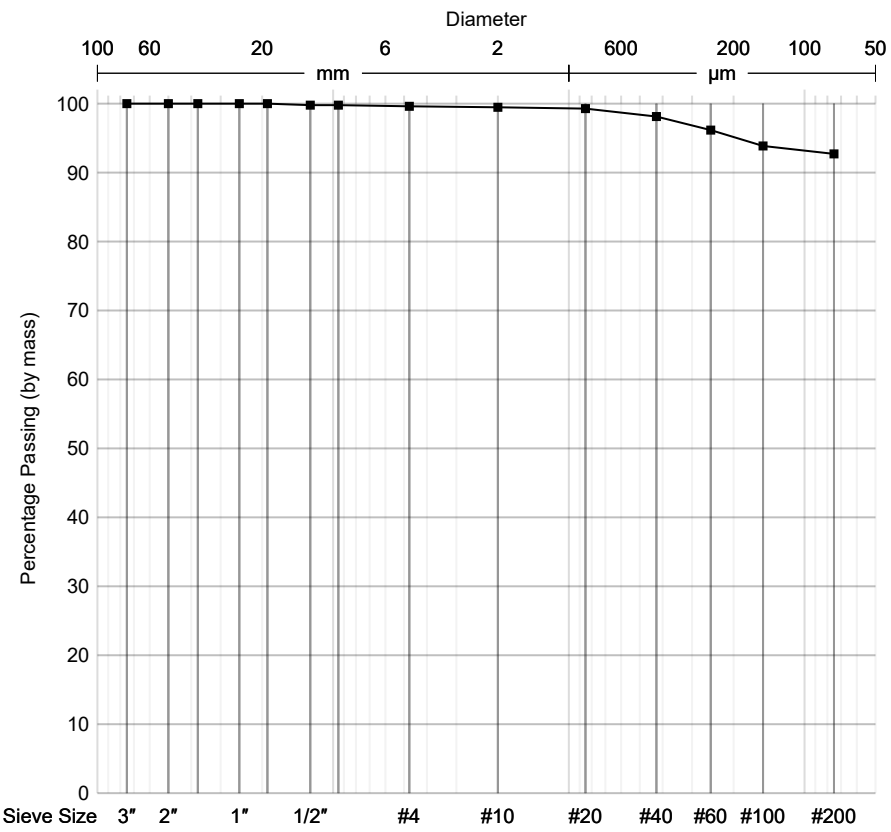
Sample Details

Sample ID	22-0471-S03
Client Sample ID	TH-09 S3

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	25	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	ML	
Group Name		Silt	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		4/29/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/26/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	99.6	
No.10	99	
No.20	99	
No.40	98	
No.60	96	
No.100	94	
No.200	93	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0471-S03
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/26/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0471-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

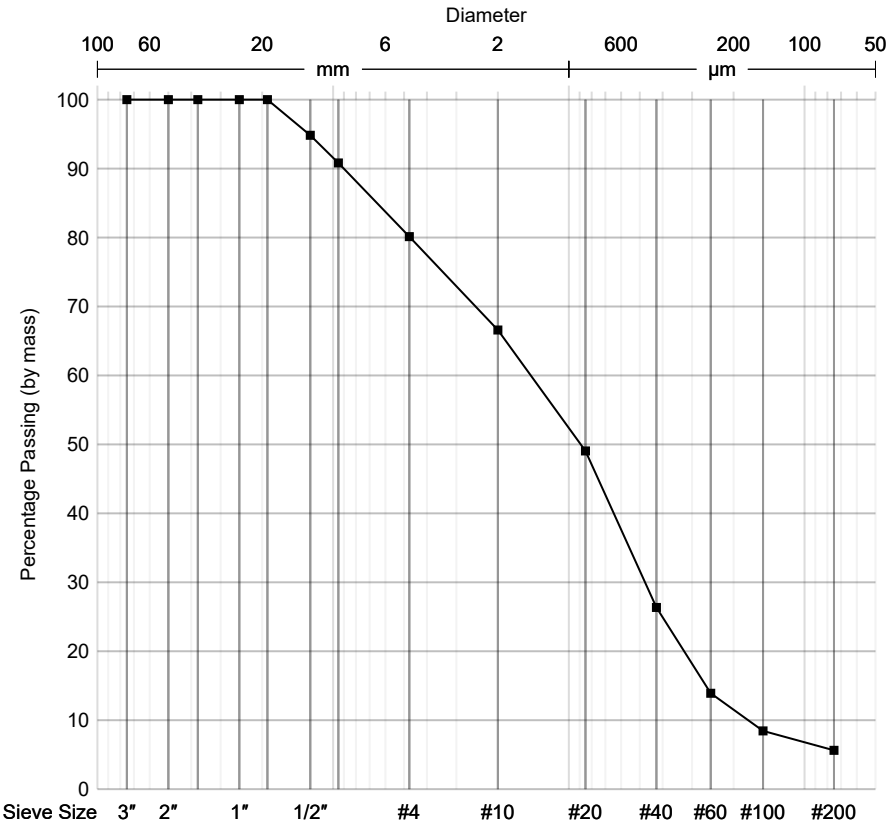
Sample Details

Sample ID	22-0471-S06
Client Sample ID	TH-09 S6

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	2	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SP-SM	
Group Name		Poorly graded sand with silt and gravel	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		4/29/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/26/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	95	
3/8in	91	
No.4	80.1	
No.10	67	
No.20	49	
No.40	26	
No.60	14	
No.100	8	
No.200	6	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0471-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	8.36	
Cc		0.90	
Date Tested		4/26/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0471-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

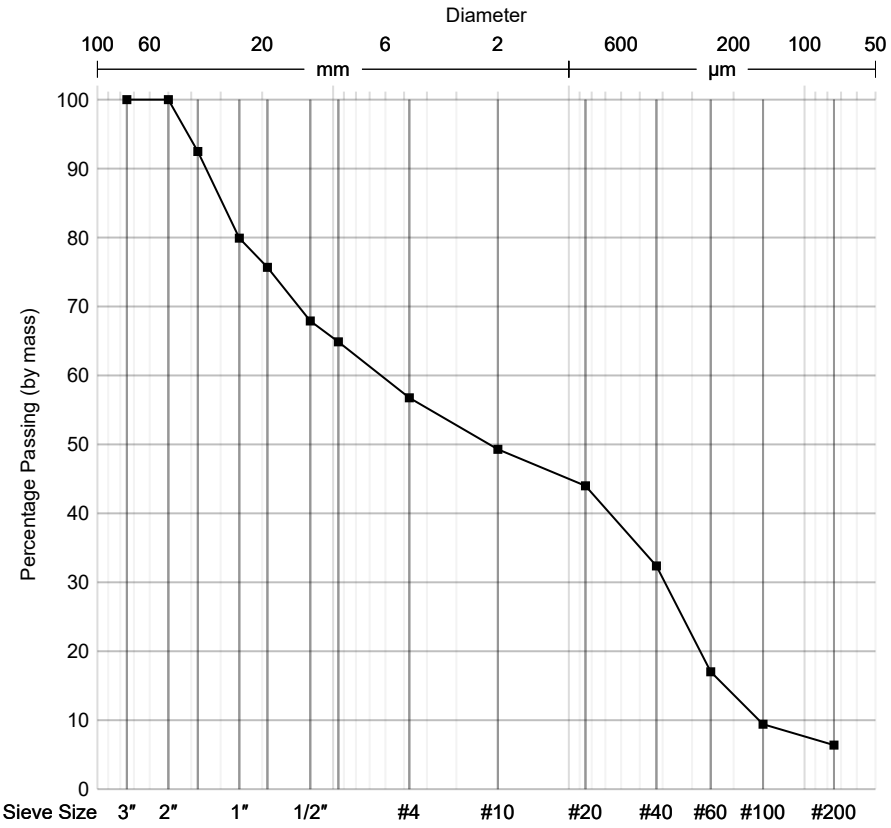
Sample Details

Sample ID	22-0471-S08
Client Sample ID	TH-09 S8

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	14	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SP-SM	
Group Name		Poorly graded sand with silt and gravel	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		4/29/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/26/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	92	
1in	80	
¾in	76	
½in	68	
3/8in	65	
No.4	56.8	
No.10	49	
No.20	44	
No.40	32	
No.60	17	
No.100	9	
No.200	6	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0471-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	40.17	
Cc		0.16	
Date Tested		4/26/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0471-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

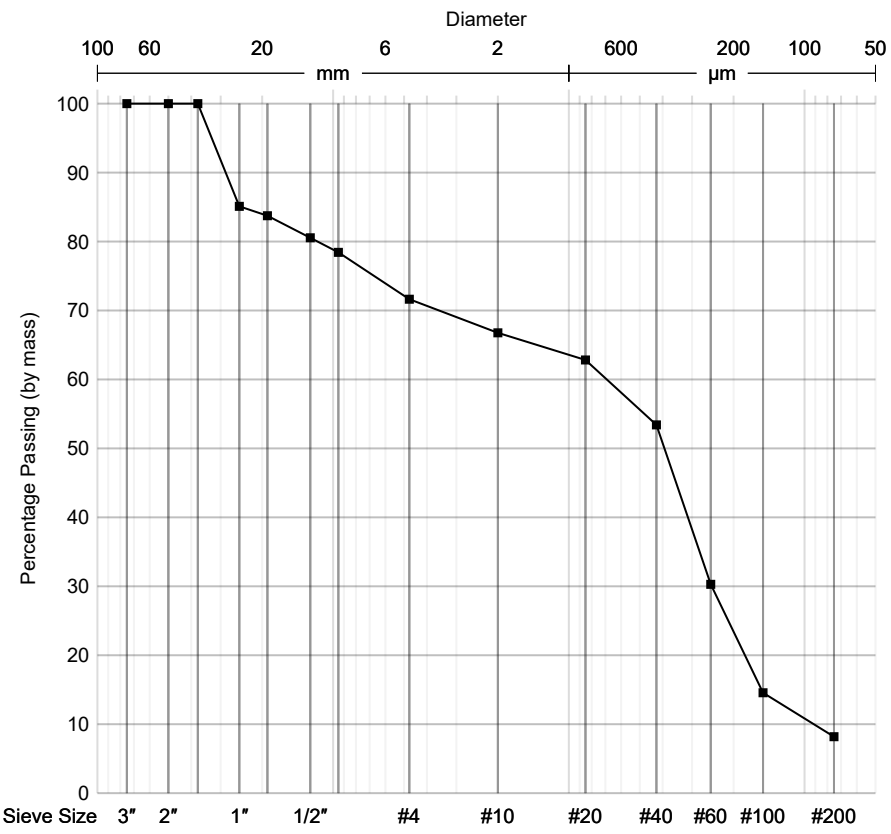
Sample Details

Sample ID	22-0471-S12
Client Sample ID	TH-09 S11

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	2	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SW-SM	
Group Name		Well-graded sand with silt and gravel	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		4/29/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/26/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	85	
¾in	84	
½in	81	
3/8in	78	
No.4	71.6	
No.10	67	
No.20	63	
No.40	53	
No.60	30	
No.100	15	
No.200	8	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0471-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	7.56	
Cc		0.97	
Date Tested		4/26/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0476
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0476-S01	22-0476-S02	22-0476-S03	22-0476-S04
Client Sample ID	TH-10 S1	TH-10 S2	TH-10 S3	TH-10 S4
Date Sampled				

Other Test Results

	Method	Results				Limits
Water Content (%)	ASTM D2216	53	19	18	19	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Material Proportions Estimated	ASTM D2487			Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Cindy Zickefoose		
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Preparation Method				Air Dry		
Oversize Removed By				Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Karen Jackson		
Date Tested				4/26/2022		
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					4	
Percent Fines (Silt/Clay)					96	
Group Symbol					ML	
Group Name					Silt	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0476
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0476-S05	22-0476-S06	22-0476-S07	22-0476-S08
Client Sample ID	TH-10 S5	TH-10 S6A	TH-10 S6B	TH-10 S7A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	24	8	24	19	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			43			
Percent Fines (Silt/Clay)			57			
Group Symbol			ML			
Group Name			Sandy silt			
Tested By			John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0476
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0476-S09	22-0476-S10	22-0476-S11	22-0476-S12
Client Sample ID	TH-10 S7B	TH-10 S8	TH-10 S9A	TH-10 S9B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	2	22	20	10	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0		0	
Percent Sand			5		45	
Percent Fines (Silt/Clay)			95		55	
Group Symbol			ML		ML	
Group Name			Silt		Sandy silt	
Tested By			John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0603
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0603-S01	22-0603-S02	22-0603-S03	22-0603-S04
Client Sample ID	TH-11 S1	TH-11 S2	TH-11 S3	TH-11 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	56	17	16	19	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487			ML		
Group Name				Silt		
Material Proportions Estimated				Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			24			
Percent Fines (Silt/Clay)			76			
Group Symbol			ML			
Group Name			Silt with sand			
Tested By			John Platt			
Liquid Limit	ASTM D4318			15		
Plastic Limit				13		
Plasticity Index				2		
Preparation Method				Air Dry		
Oversize Removed By				Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Cindy Zickefoose		
Date Tested				5/9/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0603
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0603-S05	22-0603-S06	22-0603-S07	22-0603-S08
Client Sample ID	TH-11 S5	TH-11 S6	TH-11 S7	TH-11 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	13	8	22	14	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			62			
Percent Fines (Silt/Clay)			38			
Group Symbol			SM			
Group Name			Silty Sand			
Tested By			John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0603
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0603-S09
Client Sample ID	TH-11 S9
Date Sampled	

Other Test Results

Description	Method	Results	Limits
Water Content (%)	ASTM D2216	27	
Date Tested		4/26/2022	
Tested By		Karen Jackson	
Percent Gravel	LMA (Internal Method)	0	
Percent Sand		5	
Percent Fines (Silt/Clay)		95	
Group Symbol		ML	
Group Name		Silt	
Tested By		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0604
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0604-S01	22-0604-S02	22-0604-S03	22-0604-S04	22-0604-S05
Client Sample ID	TH-12 S1	TH-12 S2	TH-12 S3	TH-12 S4	TH-12 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	33	25	16	22	28	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/29/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)		0	0		0	
Percent Sand			4	1		3	
Percent Fines (Silt/Clay)			96	99		97	
Group Symbol			ML	ML		ML	
Group Name			Silt	Silt		Silt	
Tested By			John Platt	John Platt		John Platt	
Group Code	ASTM D2487				ML		
Group Name					Silt		
Liquid Limit					0		
Plasticity Index					0		
Material Proportions Estimated	ASTM D2487				Yes		
Gravel (%)					0		
Sand (%)					0		
Fines (%)					100		
Tested By	ASTM D2487				Karen Jackson		
Liquid Limit	ASTM D4318				Not Obtainable		
Plastic Limit					NP (Non-Plastic)		
Plasticity Index					NP (Non-Plastic)		
Tested By					Karen Jackson		
Date Tested					5/10/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0604
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0604-S06	22-0604-S07	22-0604-S08	22-0604-S09
Client Sample ID	TH-12 S6A	TH-12 S6B	TH-12 S7	TH-12 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	7	31	6	16	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				67		
Percent Fines (Silt/Clay)				33		
Group Symbol				SM		
Group Name				Silty Sand		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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4040 B Street, Suite 102
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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0605
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0605-S01	22-0605-S02	22-0605-S03	22-0605-S04	22-0605-S05
Client Sample ID	TH-13 S1	TH-13 S2	TH-13 S3	TH-13 S4	TH-13 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	71	11	15	21	24	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487						
Group Name							
Percent Gravel	LMA (Internal Method)		0		0		
Percent Sand			24		3		
Percent Fines (Silt/Clay)			76		97		
Group Symbol			ML		ML		
Group Name			Silt with sand		Silt		
Tested By			John Platt		John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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4040 B Street, Suite 102
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Material Test Report

Report No: ASM:22-0605
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0605-S06	22-0605-S07	22-0605-S08	22-0605-S09
Client Sample ID	TH-13 S6	TH-13 S7	TH-13 S9A	TH-13 S9B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	16	23	18	22	
Date Tested		4/26/2022	4/26/2022	4/26/2022	4/26/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487	ML				
Group Name		Silt				
Liquid Limit		0				
Plasticity Index		0				
Material Proportions Estimated	ASTM D2487	Yes				
Gravel (%)		0				
Sand (%)		0				
Fines (%)		100				
Tested By	ASTM D2487	Karen Jackson				
Liquid Limit	ASTM D4318	Not Obtainable				
Plastic Limit		NP (Non-Plastic)				
Plasticity Index		NP (Non-Plastic)				
Tested By		Karen Jackson				
Date Tested		5/10/2022				
Percent Gravel	LMA (Internal Method)			1	0	
Percent Sand				12	6	
Percent Fines (Silt/Clay)				87	94	
Group Symbol				ML	ML	
Group Name				Silt	Silt	
Tested By				John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0477
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0477-S01	22-0477-S02	22-0477-S03	22-0477-S04	22-0477-S05
Client Sample ID	TH-14 S1	TH-14 S2	TH-14 S3	TH-14 S4	TH-14 S5A
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	55	29	23	21	36	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			0			
Percent Sand				20			
Percent Fines (Silt/Clay)				80			
Group Symbol				ML			
Group Name				Silt with sand			
Tested By				John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0477
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0477-S06	22-0477-S07	22-0477-S08	22-0477-S09	22-0477-S10
Client Sample ID	TH-14 S5B	TH-14 S6	TH-14 S7	TH-14 S8	TH-14 S9
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	31	22	23	26	17	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	2	0	1			
Percent Sand		26	8	8			
Percent Fines (Silt/Clay)		72	92	91			
Group Symbol		ML	ML	ML			
Group Name		Silt with sand	Silt	Silt			
Tested By		John Platt	John Platt	John Platt			
Group Code	ASTM D2487					ML	
Group Name						Silt	
Liquid Limit						0	
Plasticity Index						0	
Material Proportions Estimated	ASTM D2487					Yes	
Gravel (%)						0	
Sand (%)						0	
Fines (%)						100	
Tested By	ASTM D2487					Cindy Zickefoose	
Liquid Limit	ASTM D4318					Not Obtainable	
Plastic Limit						NP (Non-Plastic)	
Plasticity Index						NP (Non-Plastic)	
Preparation Method						Air Dry	
Oversize Removed By						Dry Sieving over No. 40 sieve	
Liquid Limit Apparatus						Mechanical	
Grooving Tool						Plastic	
Rolling						Hand	
Tested By						Karen Jackson	
Date Tested						4/26/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0477
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0477-S11	22-0477-S12	22-0477-S13
Client Sample ID	TH-14 S10	TH-14 S11	TH-14 S12
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	22	7	6	
Date Tested		4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487		SM		
Group Name			Silty sand		
Liquid Limit			0		
Plasticity Index			0		
Tested By	ASTM D2487		Cindy Zickefoose		
Method	ASTM D6913		A		
Preparation Method			Oven Dry		
Composite Sieving?			Yes		
Separating Sieve(s)			No. 4		
Fractional Mass Retained (%)			0.00		
Cu	ASTM D2487				
Cc					

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0477-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

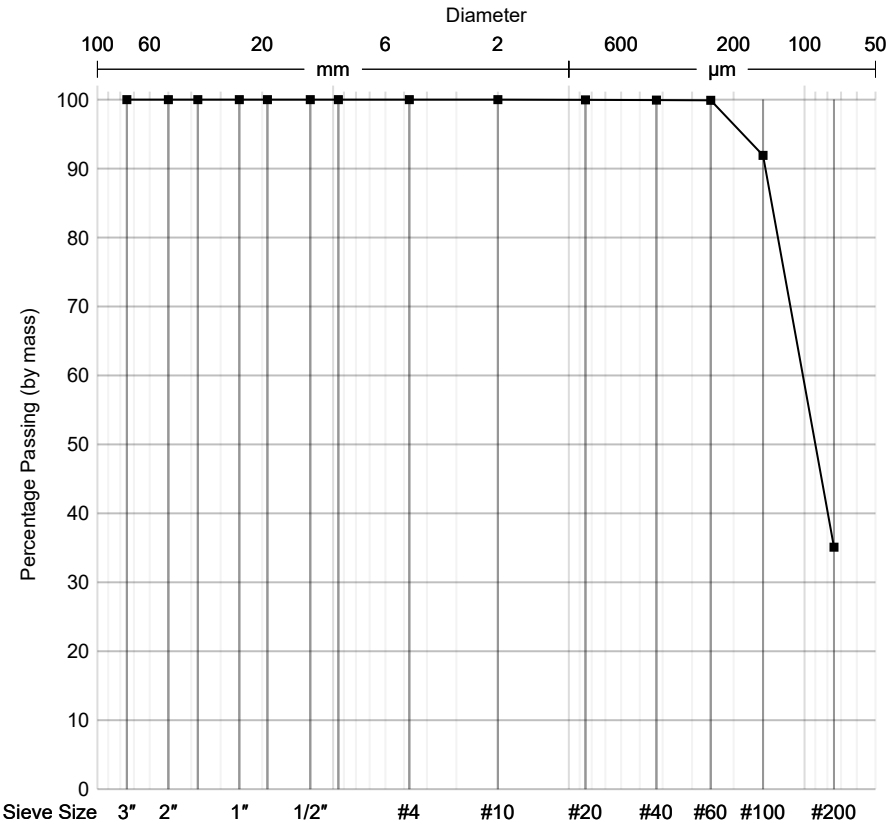
Sample Details

Sample ID	22-0477-S12
Client Sample ID	TH-14 S11

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	7	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		4/29/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/27/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	100.0	
No.10	100	
No.20	100	
No.40	100	
No.60	100	
No.100	92	
No.200	35	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0477-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/27/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Material Test Report

Report No: ASM:22-0478
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0478-S01	22-0478-S02	22-0478-S03	22-0478-S04
Client Sample ID	TH-15 S1	TH-15 S2	TH-15 S3	TH-15 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	32	22	17	23	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	John Platt	
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				4		
Percent Fines (Silt/Clay)				96		
Group Symbol				ML		
Group Name				Silt		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0478
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0478-S05	22-0478-S06	22-0478-S07	22-0478-S08
Client Sample ID	TH-15 S5A	TH-15 S5B	TH-15 S6	TH-15 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	28	18	3	3	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0		16	
Percent Sand			28		77	
Percent Fines (Silt/Clay)			72		7	
Group Symbol			ML		SP-SM	
Group Name			Silt with sand		Poorly graded sand with silt and gravel	
Tested By			John Platt		John Platt	
Group Code	ASTM D2487			SP-SM		
Group Name				Poorly graded sand with silt		
Atterberg Limits Estimated				Yes		
Tested By				Cindy Zickefoose		
Method	ASTM D6913			A		
Preparation Method				Oven Dry		
Composite Sieving?				Yes		
Separating Sieve(s)				No. 4		
Cu	ASTM D2487			3.50		
Cc				1.15		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0478
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0478-S09	22-0478-S10	22-0478-S11	22-0478-S12
Client Sample ID	TH-15 S8A	TH-15 S8B	TH-15 S9	TH-15 S10A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	2	3	4	22	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		67	24		
Percent Sand			30	47		
Percent Fines (Silt/Clay)			3	29		
Group Symbol			GP	SM		
Group Name			Poorly graded gravel with sand	Silty sand with gravel		
Tested By			John Platt	John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0478
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0478-S13	22-0478-S14
Client Sample ID	TH-15 S10B	TH-15 S11
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D2216	7	17	
Date Tested		4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0	
Percent Sand			39	
Percent Fines (Silt/Clay)			61	
Group Symbol			ML	
Group Name			Sandy silt	
Tested By			John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0478-S07
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

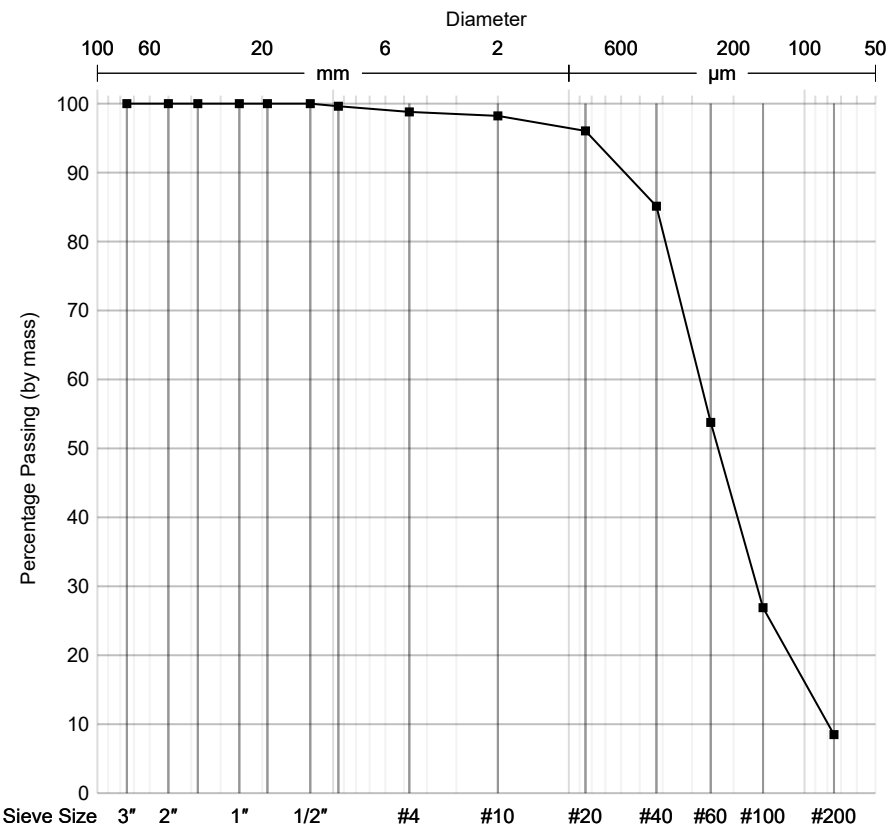
Sample Details

Sample ID	22-0478-S07
Client Sample ID	TH-15 S6

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	3	
Date Tested		4/12/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SP-SM	
Group Name		Poorly graded sand with silt	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		5/2/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/28/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	98.8	
No.10	98	
No.20	96	
No.40	85	
No.60	54	
No.100	27	
No.200	8	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0478-S07
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	3.50	
Cc		1.15	
Date Tested		4/28/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: ASM:22-0479
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0479-S01	22-0479-S02	22-0479-S03	22-0479-S04	22-0479-S05
Client Sample ID	TH-16 S1	TH-16 S2	TH-16 S3	TH-16 S4	TH-16 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	140	12	6	16	18	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			5			
Percent Sand				15			
Percent Fines (Silt/Clay)				80			
Group Symbol				ML			
Group Name				Silt with sand			
Tested By				John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0479
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0479-S06	22-0479-S07	22-0479-S08	22-0479-S09	22-0479-S10
Client Sample ID	TH-16 S6	TH-16 S7	TH-16 S8	TH-16 S9	TH-16 S10
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	15	12	21	13	24	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0		0			
Percent Sand		8		12			
Percent Fines (Silt/Clay)		92		93			
Group Symbol		ML		ML			
Group Name		Silt		Silt			
Tested By		John Platt		John Platt			
Group Code	ASTM D2487		CL-ML		CL-ML		
Group Name			Silty clay		Silty clay		
Material Proportions Estimated			Yes		Yes		
Gravel (%)			0		0		
Sand (%)			0		0		
Fines (%)			100		100		
Tested By	ASTM D2487		Cindy Zickefoose		Cindy Zickefoose		
Liquid Limit	ASTM D4318		25		26		
Plastic Limit			20		20		
Plasticity Index			5		6		
Preparation Method			Air Dry		Air Dry		
Oversize Removed By			Washing over No. 40 sieve		Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus			Mechanical		Mechanical		
Grooving Tool			Plastic		Plastic		
Rolling			Hand		Hand		
Tested By			Karen Jackson		Cindy Zickefoose		
Date Tested			4/25/2022		4/26/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0623
Issue No: 1

Client: CRW Engineering Group, LLC
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Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0623-S01	22-0623-S02	22-0623-S03	22-0623-S04	22-0623-S05
Client Sample ID	TH-17 S1	TH-17 S2	TH-17 S3	TH-17 S4	TH-17 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	56	16	15	18	18	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)		0			1	
Percent Sand			25			10	
Percent Fines (Silt/Clay)			75			89	
Group Symbol			ML			ML	
Group Name			Silt with sand			Silt	
Tested By			John Platt			John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0623
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0623-S06	22-0623-S07	22-0623-S08	22-0623-S09
Client Sample ID	TH-17 S6	TH-17 S7	TH-17 S8	TH-17 S9
Date Sampled				

Other Test Results

	Method	Results				Limits
Water Content (%)	ASTM D2216	15	21	21	5	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Cindy Zickefoose	Karen Jackson	
Group Code	ASTM D2487		ML			
Group Name			Silt			
Liquid Limit			0			
Plasticity Index			0			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Karen Jackson			
Liquid Limit	ASTM D4318		Not Obtainable			
Plastic Limit			NP (Non-Plastic)			
Plasticity Index			NP (Non-Plastic)			
Preparation Method			Air Dry			
Oversize Removed By			Dry Sieving over No. 40 sieve			
Liquid Limit Apparatus			Mechanical			
Grooving Tool			Plastic			
Rolling			Hand			
Tested By			Karen Jackson			
Date Tested			5/9/2022			
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					78	
Percent Fines (Silt/Clay)					22	
Group Symbol					SM	
Group Name					Silty sand	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0624
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0624-S01	22-0624-S02	22-0624-S03	22-0624-S04
Client Sample ID	TH-18 S1	TH-18 S2A	TH-18 S2B	TH-18 S3
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	131	138	19	18	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Group Code	ASTM D2487					
Group Name						
Percent Gravel	LMA (Internal Method)		1	0		
Percent Sand			54	10		
Percent Fines (Silt/Clay)			45	90		
Group Symbol			SM	ML		
Group Name			Silty Sand	Silt		
Tested By			John Platt	John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0624
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0624-S05	22-0624-S06	22-0624-S07	22-0624-S08
Client Sample ID	TH-18 S4	TH-18 S5	TH-18 S6	TH-18 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	17	17	22	19	
Date Tested		4/28/2022	4/28/2022	4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0	0			
Percent Sand		72	77			
Percent Fines (Silt/Clay)		28	23			
Group Symbol		SM	SM			
Group Name		Silty Sand	Silty Sand			
Tested By		John Platt	John Platt			
Group Code	ASTM D2487			CL-ML		
Group Name				Silty clay		
Material Proportions Estimated				Yes		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Karen Jackson		
Liquid Limit	ASTM D4318			26		
Plastic Limit				21		
Plasticity Index				5		
Preparation Method				Air Dry		
Oversize Removed By				Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Karen Jackson		
Date Tested				5/9/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0624
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/11/2022

Sample Details

Sample ID	22-0624-S09	22-0624-S10
Client Sample ID	TH-18 S8	TH-18 S9
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D2216	19	21	
Date Tested		4/28/2022	4/28/2022	
Tested By		Karen Jackson	Karen Jackson	
Percent Gravel	LMA (Internal Method)	0		
Percent Sand		10		
Percent Fines (Silt/Clay)		90		
Group Symbol		ML		
Group Name		Silt		
Tested By		John Platt		
Group Code	ASTM D2487		ML	
Group Name			Silt	
Liquid Limit			0	
Plasticity Index			0	
Material Proportions Estimated	ASTM D2487		Yes	
Gravel (%)			0	
Sand (%)			0	
Fines (%)			100	
Tested By	ASTM D2487		Cindy Zickefoose	
Liquid Limit	ASTM D4318		Not Obtainable	
Plastic Limit			NP (Non-Plastic)	
Plasticity Index			NP (Non-Plastic)	
Tested By			Cindy Zickefoose	
Date Tested			5/9/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0480
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0480-S01	22-0480-S02	22-0480-S03	22-0480-S04
Client Sample ID	TH-19 S1	TH-19 S2	TH-19 S3	TH-19 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	42	22	25	26	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				12		
Percent Fines (Silt/Clay)				88		
Group Symbol				ML		
Group Name				Silt		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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4040 B Street, Suite 102
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Material Test Report

Report No: ASM:22-0480
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0480-S05	22-0480-S06	22-0480-S07	22-0480-S08
Client Sample ID	TH-19 S5	TH-19 S6	TH-19 S7	TH-19 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	22	26	19	25	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			3			
Percent Fines (Silt/Clay)			97			
Group Symbol			ML			
Group Name			Silt			
Tested By			John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0480
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0480-S09	22-0480-S10	22-0480-S11	22-0480-S12
Client Sample ID	TH-19 S9	TH-19 S10	TH-19 S11	TH-19 S12
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	19	21	16	11	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0		0	0	
Percent Sand		10		28	49	
Percent Fines (Silt/Clay)		90		72	51	
Group Symbol		ML		ML	ML	
Group Name		Silt		Silt with sand	Sandy silt	
Tested By		John Platt		John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0368
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0368-S01	22-0368-S02	22-0368-S03	22-0368-S04
Client Sample ID	TH-20 S1	TH-20 S2A	TH-20 S2B	TH-20 S3A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	20	13	18	16	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			3		
Percent Sand				22		
Percent Fines (Silt/Clay)				75		
Group Symbol				ML		
Group Name				Silt with Sand		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0368
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0368-S05	22-0368-S06	22-0368-S07	22-0368-S08
Client Sample ID	TH-20 S3B	TH-20 S4	TH-20 S5	TH-20 S6
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	38	30	14	20	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487	ML				
Group Name		Silt				
Liquid Limit		0				
Plasticity Index		0				
Gravel (%)		0				
Sand (%)		0				
Fines (%)		100				
Liquid Limit	ASTM D4318	Not Obtainable				
Plastic Limit		NP (Non-Plastic)				
Plasticity Index		NP (Non-Plastic)				
Preparation Method		Wet				
Oversize Removed By		Hand during mixing on glass plate				
Liquid Limit Apparatus		Mechanical				
Grooving Tool		Plastic				
Rolling		Hand				
Tested By		Karen Jackson				
Date Tested		4/25/2022				
Percent Gravel	LMA (Internal Method)		1	0		
Percent Sand			24	52		
Percent Fines (Silt/Clay)			75	48		
Group Symbol			ML	SM		
Group Name			Silt with Sand	Silty Sand		
Tested By			John Platt	John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0368
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0368-S09	22-0368-S10	22-0368-S11
Client Sample ID	TH-20 S7	TH-20 S8	TH-20 S9
Date Sampled			

Other Test Results

	Method	Results			Limits
Water Content (%)	ASTM D2216	17	11	42	
Date Tested		4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		36		
Percent Sand			25		
Percent Fines (Silt/Clay)			39		
Group Symbol			GM		
Group Name			Silty Gravel with Sand		
Tested By			John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0375
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0375-S01	22-0375-S02	22-0375-S03	22-0375-S04
Client Sample ID	TH-21 S1	TH-21 S2	TH-21 S3	TH-21 S4
Date Sampled				

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	65	17	20	23
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith
Group Code	ASTM D2487				
Group Name					
Percent Gravel	LMA (Internal Method)	1	0	0	
Percent Sand		15	6	5	
Percent Fines (Silt/Clay)		84	94	95	
Group Symbol		ML	ML	ML	
Group Name		Silt with Sand	Silt	SIlt	
Tested By		John Platt	John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0375
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0375-S05	22-0375-S06	22-0375-S07	22-0375-S08
Client Sample ID	TH-21 S5	TH-21 S6	TH-21 S7	TH-21 S8A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	22	15	25	27	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			1			
Percent Fines (Silt/Clay)			99			
Group Symbol			ML			
Group Name			Silt			
Tested By			John Platt			
Group Code	ASTM D2487			ML		
Group Name				Silt		
Liquid Limit				0		
Plasticity Index				0		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Cindy Zickefoose		
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Preparation Method				Wet		
Oversize Removed By				Hand during mixing on glass plate		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Karen Jackson		
Date Tested				4/26/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0375
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0375-S09	22-0375-S10	22-0375-S11	22-0375-S12
Client Sample ID	TH-21 S8B	TH-21 S9A	TH-21 S9B	TH-21 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	12	13	25	13	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0	0			
Percent Sand		46	69			
Percent Fines (Silt/Clay)		54	31			
Group Symbol		ML	SM			
Group Name		Sandy Silt	Silty Sand			
Tested By		John Platt	John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0375
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0375-S13	22-0375-S14	22-0375-S15
Client Sample ID	TH-21 S11	TH-21 S12A	TH-21 S12B
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	12	5	19	
Date Tested		4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0			
Percent Sand		69			
Percent Fines (Silt/Clay)		31			
Group Symbol		SM			
Group Name		Silty Sand			
Tested By		John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0481
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0481-S01	22-0481-S02	22-0481-S03	22-0481-S04
Client Sample ID	TH-22 S1	TH-22 S2	TH-22 S3	TH-22 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	55	13	13	12	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0		0	
Percent Sand			33		48	
Percent Fines (Silt/Clay)			67		52	
Group Symbol			ML		ML	
Group Name			Sandy silt		Sandy silt	
Tested By			John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0481
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0481-S05	22-0481-S06	22-0481-S07	22-0481-S08
Client Sample ID	TH-22 S5	TH-22 S6A	TH-22 S6B	TH-22 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	12	15	7	3	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0			36	
Percent Sand		37			56	
Percent Fines (Silt/Clay)		63			8	
Group Symbol		ML			SP-SM	
Group Name		Sandy sillt			Poorly graded sand with silt and gravel	
Tested By		John Platt			John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0481
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0481-S09	22-0481-S10	22-0481-S11	22-0481-S12
Client Sample ID	TH-22 S8A	TH-22 S8B	TH-22 S9	TH-22 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	5	10	5	19	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		1	1		
Percent Sand			62	93		
Percent Fines (Silt/Clay)			37	6		
Group Symbol			SM	SP-SM		
Group Name			Silty sand	Poorly graded sand with silt		
Tested By			John Platt	John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0481
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 5/2/2022

Sample Details

Sample ID	22-0481-S13	22-0481-S14	22-0481-S15	22-0481-S16
Client Sample ID	TH-22 S11A	TH-22 S11B	TH-22 S12	TH-22 S13
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	9	4	17	11	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0		0	
Percent Sand			90		12	
Percent Fines (Silt/Clay)			10		88	
Group Symbol			SP-SM		ML	
Group Name			Poorly graded sand with silt		Silt	
Tested By			John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0347
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Cindy Zickefoose
Title: Materials Technician
Date: 5/24/2022

Sample Details

Sample ID	22-0347-S01	22-0347-S02	22-0347-S03	22-0347-S04
Client Sample ID	TH23 S1	TH23 S2	TH23 S3A	TH23 S3B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	4	17	13	5	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487	GP-GM				
Group Name		Poorly graded gravel with silt and sand				
Atterberg Limits Estimated		Yes				
Tested By		Cindy Zickefoose				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Fractional Mass Retained (%)		0.00				
Cu	ASTM D2487	74.44				
Cc		7.24				
Percent Gravel	LMA (Internal Method)		30			
Percent Sand			44			
Percent Fines (Silt/Clay)			53			
Group Symbol			ML			
Group Name			Sandy silt with gravel			
Tested By			John Platt			

Comments

TH-23 Sa8C - Sample not present

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0347
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/27/2022

Sample Details

Sample ID	22-0347-S05	22-0347-S06	22-0347-S07	22-0347-S08
Client Sample ID	TH23 S4	TH23 S5A	TH23 S5B	TH23 S5C
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	5	13	5	15	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	1				
Percent Sand		89				
Percent Fines (Silt/Clay)		10				
Group Symbol		SP-SM				
Group Name		Poorly Graded Sand with Silt				
Tested By		John Platt				

Comments

TH-23 Sa8C - Sample not present

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4040 B Street, Suite 102
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Material Test Report

Report No: ASM:22-0347
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/27/2022

Sample Details

Sample ID	22-0347-S09	22-0347-S10	22-0347-S11	22-0347-S12
Client Sample ID	TH23 S6	TH23 S7	TH23 S8A	TH23 S8B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	15	22	27	11	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		25				
Percent Fines (Silt/Clay)		75				
Group Symbol		ML				
Group Name		Silt with Sand				
Tested By		John Platt				
Group Code	ASTM D2487		ML			
Group Name			Silt			
Liquid Limit			0			
Plasticity Index			0			
Material Proportions Estimated	ASTM D2487		Yes			
Gravel (%)			0			
Sand (%)			0			
Fines (%)			100			
Tested By	ASTM D2487		Cindy Zickefoose			
Liquid Limit	ASTM D4318		Not Obtainable			
Plastic Limit			NP (Non-Plastic)			
Plasticity Index			NP (Non-Plastic)			
Preparation Method			Wet			
Oversize Removed By			Mechanically pushed through No. 40 sieve			
Liquid Limit Apparatus			Mechanical			
Grooving Tool			Plastic			
Rolling			Hand			
Tested By			Karen Jackson			
Date Tested			4/15/2022			

Comments

TH-23 Sa8C - Sample not present

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Material Test Report

Report No: ASM:22-0347
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/27/2022

Sample Details

Sample ID	22-0347-S13	22-0347-S14	22-0347-S15	22-0347-S16
Client Sample ID	TH23 S8C	TH23 S9	TH23 S10A	TH23 S10B
Date Sampled				

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	23	14	4	
Date Tested		4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	0			
Percent Sand		33			
Percent Fines (Silt/Clay)		67			
Group Symbol		ML			
Group Name		Sandy Silt			
Tested By		John Platt			

Comments

TH-23 Sa8C - Sample not present

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Material Test Report

Report No: ASM:22-0347
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/27/2022

Sample Details

Sample ID	22-0347-S17	22-0347-S18	22-0347-S19	22-0347-S20
Client Sample ID	TH23 S11	TH23 S12	TH23 S13A	TH23 S13B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	16	4	5	4	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	17				
Percent Sand		39				
Percent Fines (Silt/Clay)		49				
Group Symbol		ML				
Group Name		Sandy Silt				
Tested By		John Platt				
Group Code	ASTM D2487		SW-SM			
Group Name			Well-graded sand with silt and gravel			
Atterberg Limits Estimated			Yes			
Method	ASTM D6913		A			
Preparation Method			Oven Dry			
Composite Sieving?			Yes			
Separating Sieve(s)			No. 4			
Fractional Mass Retained (%)			0.00			
Cu	ASTM D2487					
Cc						

Comments

TH-23 Sa8C - Sample not present

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Material Test Report

Report No: MAT:22-0347-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

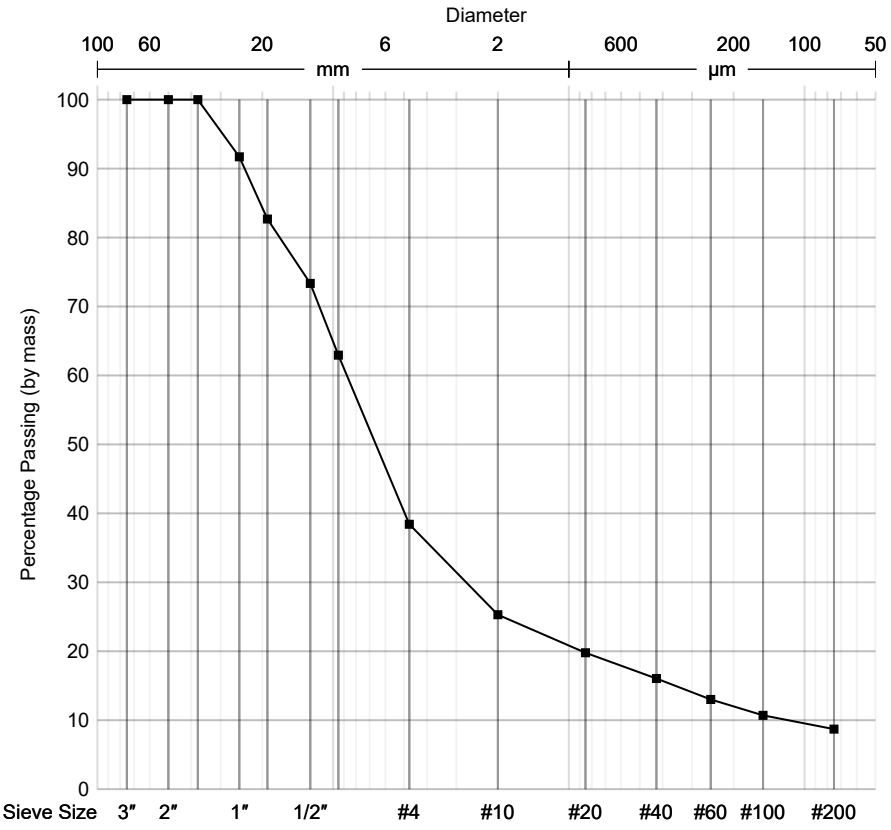
Sample Details

Sample ID	22-0347-S01
Client Sample ID	TH23 S1

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/16/2022	
Tested By		Cindy Zickefoose	
Group Code	ASTM D2487	GP-GM	
Group Name		Poorly graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		4/16/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/15/2022
Tested By: Jeff Smith

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	92	
¾in	83	
½in	73	
3/8in	63	
No.4	38.4	
No.10	25	
No.20	20	
No.40	16	
No.60	13	
No.100	11	
No.200	9	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0347-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	74.44	
Cc		7.24	
Date Tested		4/15/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0347-S18
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

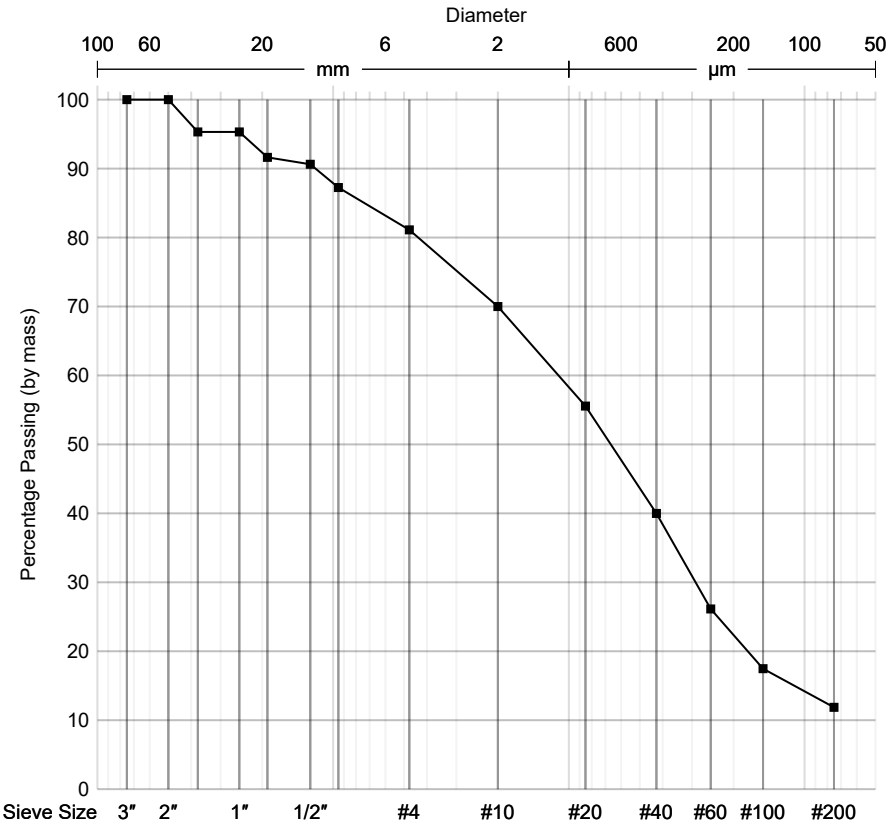
Sample Details

Sample ID	22-0347-S18
Client Sample ID	TH23 S12

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/16/2022	
Tested By		Cindy Zickefoose	
Group Code	ASTM D2487	SW-SM	
Group Name		Well-graded sand with silt and gravel	
Atterberg Limits Estimated		Yes	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/16/2022
Tested By: Jeff Smith

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	95	
1in	95	
¾in	92	
½in	91	
3/8in	87	
No.4	81.1	
No.10	70	
No.20	56	
No.40	40	
No.60	26	
No.100	17	
No.200	12	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0347-S18
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Other Test Results

Description	Method	Result	Limits
Cu	ASTM D2487		
Cc			
Date Tested		4/16/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: ASM:22-0344
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0344-S01	22-0344-S02	22-0344-S03	22-0344-S04
Client Sample ID	TH-24 S1	TH-24 S2A	TH-24 S2B	TH-24 S23
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	7	4	21	18	
Date Tested		4/14/2022	4/14/2022	4/14/2022	4/14/2022	
Tested By		Karen Jackson	Karen Jackson	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487	GW-GM				
Group Name		Well-graded gravel with silt and sand				
Atterberg Limits Estimated		Yes				
Tested By		Cindy Zickefoose				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Fractional Mass Retained (%)		0.00				
Cu	ASTM D2487	67.84				
Cc		1.46				
Percent Gravel	LMA (Internal Method)				1	
Percent Sand					20	
Percent Fines (Silt/Clay)					79	
Group Symbol					ML	
Group Name					Silt with Sand	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0344
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0344-S05	22-0344-S06	22-0344-S07	22-0344-S08
Client Sample ID	TH-24 S24	TH-24 S5A	TH-24 S5B	TH-24 S6
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	16	17	17	23	
Date Tested		4/14/2022	4/14/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)				1	
Percent Sand					39	
Percent Fines (Silt/Clay)					60	
Group Symbol					ML	
Group Name					Sandy Silt	
Tested By					John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0344
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0344-S09	22-0344-S10	22-0344-S11	22-0344-S12
Client Sample ID	TH-24 S7	TH-24 S8	TH-24 S9	TH-24 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	16	17	22	25	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487	CL-ML				
Group Name		Silty clay				
Material Proportions Estimated		Yes				
Fines (%)		100				
Tested By	ASTM D2487	Cindy Zickefoose				
Liquid Limit	ASTM D4318	24				
Plastic Limit		19				
Plasticity Index		5				
Preparation Method		Wet				
Oversize Removed By		Mechanically pushed through No. 40 sieve				
Liquid Limit Apparatus		Manual				
Grooving Tool		Plastic				
Rolling		Hand				
Tested By		Cindy Zickefoose				
Date Tested		4/23/2022				
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				22		
Percent Fines (Silt/Clay)				78		
Group Symbol				ML		
Group Name				Silt with Sand		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0344
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0344-S13	22-0344-S14	22-0344-S15	22-0344-S16
Client Sample ID	TH-24 S11A	TH-24 S11B	TH-24 S12	TH-24 S13
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	25	30	21	4	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Liquid Limit	ASTM D4318			Not Obtainable		
Plastic Limit				NP (Non-Plastic)		
Plasticity Index				NP (Non-Plastic)		
Tested By						
Date Tested						
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				11		
Percent Fines (Silt/Clay)				89		
Group Symbol				ML		
Group Name				Silt		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0344-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
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Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

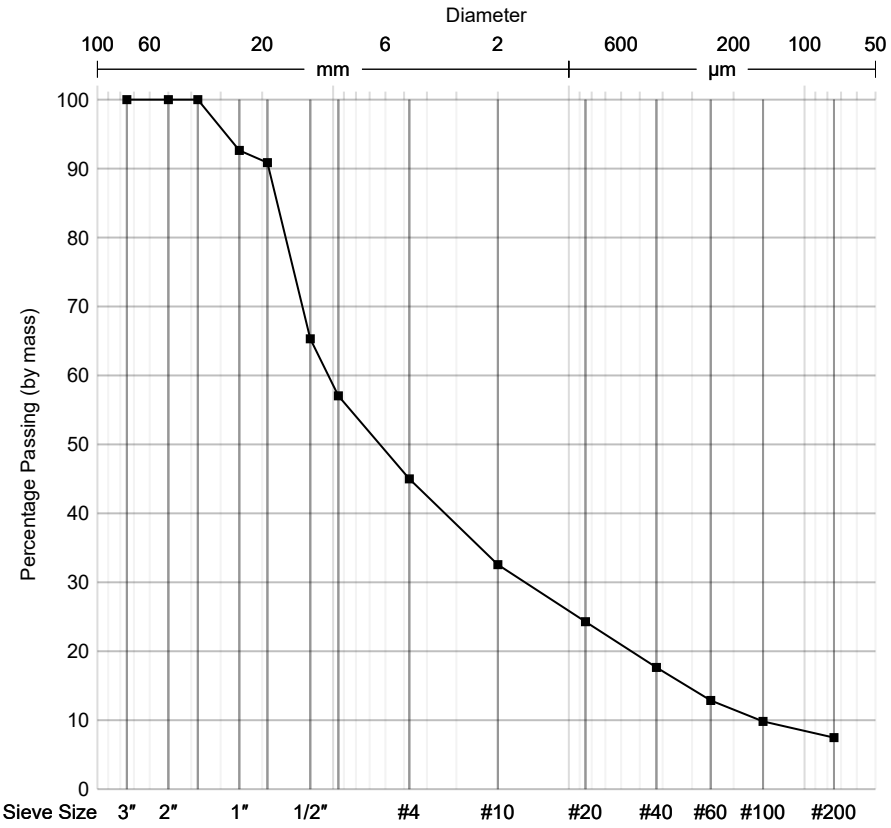
Sample Details

Sample ID	22-0344-S01
Client Sample ID	TH-24 S1

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	7	
Date Tested		4/14/2022	
Tested By		Karen Jackson	
Group Code	ASTM D2487	GW-GM	
Group Name		Well-graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		Cindy Zickefoose	
Date Tested		4/16/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/12/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	93	
¾in	91	
½in	65	
3/8in	57	
No.4	45.0	
No.10	33	
No.20	24	
No.40	18	
No.60	13	
No.100	10	
No.200	7	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0344-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	67.84	
Cc		1.46	
Date Tested		4/12/2022	

Comments

Sample Size Does Not Meet ASTM Requirements
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: ASM:22-0345
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0345-S01	22-0345-S02	22-0345-S03	22-0345-S04
Client Sample ID	TH-25 S1	TH-25 S2	TH-25 S3A	TH-25 S3B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	58	12	12	12	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)		0		2	
Percent Sand			18		48	
Percent Fines (Silt/Clay)			82		50	
Group Symbol			ML		ML	
Group Name			Silt with Sand		Sandy Silt	
Tested By			John Platt		John Platt	

Comments

Soil Classification of Fines (-No.200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0345
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0345-S05	22-0345-S06	22-0345-S07	22-0345-S08
Client Sample ID	TH-25 S4	TH-25 S5	TH-25 S6	TH-25 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	9	9	8	12	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					19	
Percent Fines (Silt/Clay)					81	
Group Symbol					ML	
Group Name					Silt with Sand	
Tested By					John Platt	

Comments

Soil Classification of Fines (-No.200) in LMAs Assumed Unless Verified by Additional Testing

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Anchorage, AK 99503
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Material Test Report

Report No: ASM:22-0345
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0345-S09	22-0345-S10	22-0345-S11	22-0345-S12
Client Sample ID	TH-25 S8A	TH-25 S8B	TH-25 S9	TH-25 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	29	4	13	11	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					14	
Percent Fines (Silt/Clay)					86	
Group Symbol					ML	
Group Name					Silt with Sand	
Tested By					John Platt	

Comments

Soil Classification of Fines (-No.200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0376
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0376-S01	22-0376-S02	22-0376-S03	22-0376-S04
Client Sample ID	TH-26 S1	TH-26 S2	TH-26 S3	TH-26 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	29	17	15	20	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		7				
Percent Fines (Silt/Clay)		93				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				
Group Code	ASTM D2487				ML	
Group Name					Silt	
Liquid Limit					0	
Plasticity Index					0	
Material Proportions Estimated	ASTM D2487				Yes	
Gravel (%)					0	
Sand (%)					0	
Fines (%)					100	
Tested By	ASTM D2487				Cindy Zickefoose	
Liquid Limit	ASTM D4318				Not Obtainable	
Plastic Limit					NP (Non-Plastic)	
Plasticity Index					NP (Non-Plastic)	
Preparation Method					Wet	
Oversize Removed By					Hand during mixing on glass plate	
Liquid Limit Apparatus					Mechanical	
Grooving Tool					Plastic	
Rolling					Hand	
Tested By					Cindy Zickefoose	
Date Tested					4/26/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0376
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0376-S05	22-0376-S06	22-0376-S07	22-0376-S08
Client Sample ID	TH-26 S5	TH-26 S6A	TH-26 S6B	TH-26 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	20	16	33	35	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	1				
Percent Sand		12				
Percent Fines (Silt/Clay)		87				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0376
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0376-S09	22-0376-S10	22-0376-S11
Client Sample ID	TH-26 S8A	TH-26 S8B	TH-26 S9
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	21	15	26	
Date Tested		4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487		ML		
Group Name			Silt		
Liquid Limit			0		
Plasticity Index			0		
Material Proportions Estimated	ASTM D2487		Yes		
Gravel (%)			0		
Sand (%)			0		
Fines (%)			100		
Tested By	ASTM D2487		Cindy Zickefoose		
Liquid Limit	ASTM D4318		Not Obtainable		
Plastic Limit			NP (Non-Plastic)		
Plasticity Index			NP (Non-Plastic)		
Preparation Method			Wet		
Oversize Removed By			Hand during mixing on glass plate		
Liquid Limit Apparatus			Mechanical		
Grooving Tool			Plastic		
Rolling			Hand		
Tested By			Karen Jackson		
Date Tested			4/26/2022		
Percent Gravel	LMA (Internal Method)			1	
Percent Sand				8	
Percent Fines (Silt/Clay)				91	
Group Symbol				ML	
Group Name				Silt	
Tested By				John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: ASM:22-0348
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID		22-0348-S01	22-0348-S02	22-0348-S03	22-0348-S04	22-0348-S05
Client Sample ID		TH-27 S1	TH-27 S2A	TH-27 S2B	TH-27 S3A	TH-27 S3B
Date Sampled						

Other Test Results

Description	Method	Results					Limits
Specific Gravity (at 20°C)	ASTM D 854						
Method							
Passing 4.75mm (No.4) (%)							
Test temperature (°C)							
Water Content (%)	ASTM D2216	5	34	22	24	19	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	52					
Percent Sand		43					
Percent Fines (Silt/Clay)		5					
Group Symbol		GP-GM					
Group Name		Poorly Graded Gravel with Silt and Sand					
Tested By		John Platt					
Group Code	ASTM D2487			CL-ML			
Group Name				Silty clay			
Material Proportions Estimated				Yes			
Fines (%)				100			
Tested By	ASTM D2487			Cindy Zickefoose			
Liquid Limit	ASTM D4318			25			
Plastic Limit				21			
Plasticity Index				4			
Preparation Method				Wet			
Oversize Removed By				Mechanically pushed through No. 40 sieve			
Liquid Limit Apparatus				Manual			
Grooving Tool				Plastic			
Rolling				Hand			
Tested By				Cindy Zickefoose			
Date Tested				4/23/2022			

Comments

N/A

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Material Test Report

Report No: ASM:22-0348
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0348-S06	22-0348-S07	22-0348-S08	22-0348-S09	22-0348-S10
Client Sample ID	TH-27 S4	TH-27 S5	TH-27 S6	TH-27 S7	TH-27 S8
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	9	8	3	7	9	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)	0	0		0	0	
Percent Sand		79	72		75	61	
Percent Fines (Silt/Clay)		21	28		25	39	
Group Symbol		SM	SM		SM	SM	
Group Name		Silty Sand	Silty Sand		Silty Sand	Silty Sand	
Tested By		John Platt	John Platt		John Platt	John Platt	

Comments

N/A

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info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0348
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0348-S11	22-0348-S12	22-0348-S13
Client Sample ID	TH-27 S9A	TH-27 S9B	TH-27 S10
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	7	7	9	
Date Tested		4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487			ML	
Group Name				Silt	
Liquid Limit				0	
Plasticity Index				0	
Fines (%)				100	
Tested By	ASTM D2487			Karen Jackson	
Liquid Limit	ASTM D4318			Not Obtainable	
Plastic Limit				NP (Non-Plastic)	
Plasticity Index				NP (Non-Plastic)	
Tested By				Karen Jackson	
Date Tested				4/15/2022	

Comments

N/A

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0346
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0346-S01	22-0346-S02	22-0346-S03	22-0346-S04
Client Sample ID	TH-28 S1	TH-28 S2A	TH-28 S2B	TH-28 S3
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	6	31	20	18	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487	SW				
Group Name		Well-graded sand with gravel				
Atterberg Limits Estimated		Yes				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Fractional Mass Retained (%)		0.00				
Cu	ASTM D2487	13.83				
Cc		1.23				
Percent Gravel	LMA (Internal Method)				0	
Percent Sand					5	
Percent Fines (Silt/Clay)					95	
Group Symbol					ML	
Group Name					Silt	
Tested By					John Platt	

Comments

N/A

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0346
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0346-S05	22-0346-S06	22-0346-S07	22-0346-S08
Client Sample ID	TH-28 S4	TH-28 S5	TH-28 S6	TH-28 S7
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	20	19	13	16	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Code	ASTM D2487		ML			
Group Name			Silt with sand			
Liquid Limit			0			
Plasticity Index			0			
Tested By	ASTM D2487		John Platt			
Method	ASTM D6913		A			
Preparation Method			Oven Dry			
Composite Sieving?			Yes			
Separating Sieve(s)			No. 4			
Fractional Mass Retained (%)			0.00			
Cu	ASTM D2487					
Cc						
Liquid Limit	ASTM D4318				Not Obtainable	
Plastic Limit					NP (Non-Plastic)	
Plasticity Index					NP (Non-Plastic)	
Tested By						
Date Tested						

Comments

N/A

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0346
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0346-S09	22-0346-S10	22-0346-S11	22-0346-S12
Client Sample ID	TH-28 S8	TH-28 S9	TH-28 S10A	TH-28 S10B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	17	10	20	16	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)		0			
Percent Sand		15	77			
Percent Fines (Silt/Clay)		85	23			
Group Symbol		ML	Silty Sand			
Group Name		Silt	SM			
Tested By		John Platt	John Platt			

Comments

N/A

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info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0346
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Sample Details

Sample ID	22-0346-S13	22-0346-S14
Client Sample ID	TH-28 S10C	TH-28 S11
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D2216	25	7	
Date Tested		4/16/2022	4/16/2022	
Tested By		Cindy Zickefoose	Cindy Zickefoose	
Percent Gravel	LMA (Internal Method)		1	
Percent Sand			94	
Percent Fines (Silt/Clay)			5	
Group Symbol			SP-SM	
Group Name			Poorly Graded Sand with Silt	
Tested By			John Platt	

Comments

N/A

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Material Test Report

Report No: MAT:22-0346-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

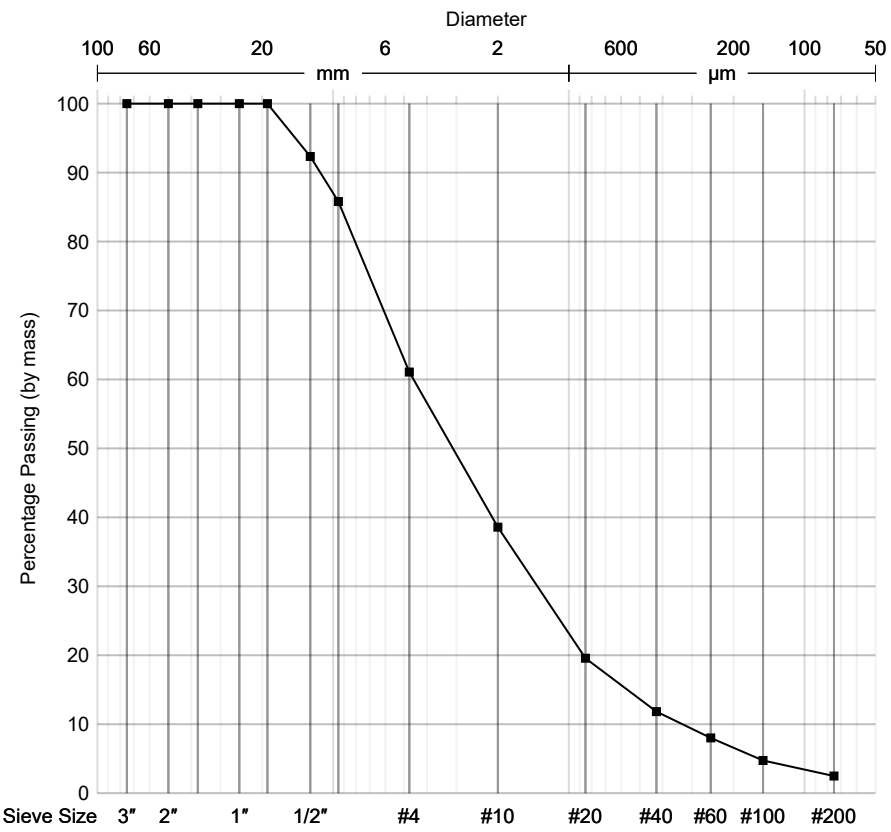
Sample Details

Sample ID	22-0346-S01
Client Sample ID	TH-28 S1

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	6	
Date Tested		4/16/2022	
Tested By		Cindy Zickefoose	
Group Code	ASTM D2487	SW	
Group Name		Well-graded sand with gravel	
Atterberg Limits Estimated		Yes	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/7/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	92	
3/8in	86	
No.4	61.1	
No.10	39	
No.20	20	
No.40	12	
No.60	8	
No.100	5	
No.200	2	

Comments

N/A

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Material Test Report

Report No: MAT:22-0346-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Other Test Results

Description	Method	Result	Limits
Cu	ASTM D2487	13.83	
Cc		1.23	
Date Tested		4/7/2022	

Comments

N/A

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0346-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

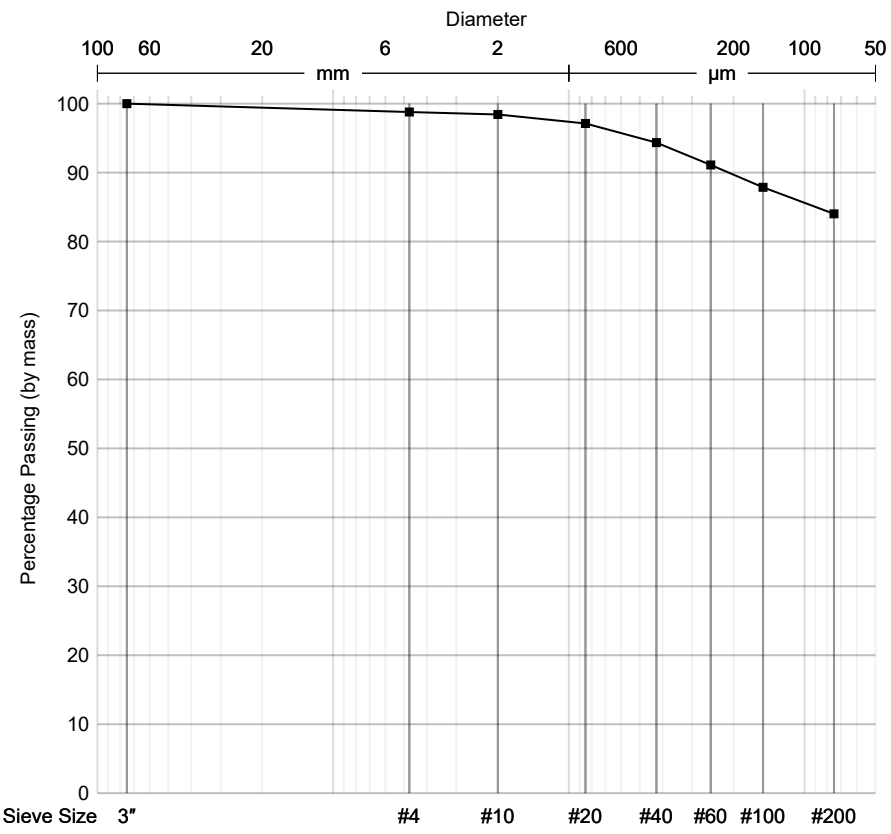
Sample Details

Sample ID	22-0346-S06
Client Sample ID	TH-28 S5

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	19	
Date Tested		4/16/2022	
Tested By		Cindy Zickefoose	
Group Code	ASTM D2487	ML	
Group Name		Silt with sand	
Liquid Limit		0	
Plasticity Index		0	
Tested By	ASTM D2487	John Platt	
Date Tested		4/1/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/8/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
No.4	98.8	
No.10	98	
No.20	97	
No.40	94	
No.60	91	
No.100	88	
No.200	84	

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0346-S06
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/8/2022	

Comments

N/A

Alaska Testlab - Anchorage
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Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0377
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0377-S01	22-0377-S02	22-0377-S03	22-0377-S04
Client Sample ID	TH-29 S1	TH-29 S2A	TH-29 S2B	TH-29 S3A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	4	4	17	13	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487	GW-GM				
Group Name		Well-graded gravel with silt and sand				
Atterberg Limits Estimated		Yes				
Tested By		John Platt				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Fractional Mass Retained (%)		0.00				
Cu	ASTM D2487	54.00				
Cc		2.74				

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0377
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0377-S05	22-0377-S06	22-0377-S07	22-0377-S08
Client Sample ID	TH-29 S3B	TH-29 S4	TH-29 S5	TH-29 S6
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	15	15	19	32	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	1	3			
Percent Sand		18	7			
Percent Fines (Silt/Clay)		81	90			
Group Symbol		ML	CL-ML			
Group Name		Silt with Sand	Silty clay			
Tested By		John Platt	John Platt			
Liquid Limit	ASTM D4318		23		Not Obtainable	
Plastic Limit			18		NP (Non-Plastic)	
Plasticity Index			5		NP (Non-Plastic)	
Preparation Method			Wet		Wet	
Oversize Removed By			Hand during mixing on glass plate		Hand during mixing on glass plate	
Liquid Limit Apparatus			Mechanical		Mechanical	
Grooving Tool			Plastic		Plastic	
Rolling			Hand		Hand	
Tested By			Cindy Zickefoose		Karen Jackson	
Date Tested			4/26/2022		4/26/2022	
Group Code	ASTM D2487				ML	
Group Name					Silt	
Liquid Limit					0	
Plasticity Index					0	
Gravel (%)					0	
Sand (%)					0	
Fines (%)					100	
Tested By	ASTM D2487				Cindy Zickefoose	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0377
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0377-S09	22-0377-S10	22-0377-S11	22-0377-S12
Client Sample ID	TH-29 S7	TH-29 S8	TH-29 S9A	TH-29 S9B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	9	17	21	4	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	1	0			
Percent Sand		45	3			
Percent Fines (Silt/Clay)		55	97			
Group Symbol		ML	ML			
Group Name		Sandy Silt	Silt			
Tested By		John Platt	John Platt			
Group Code	ASTM D2487				ML	
Group Name					Sandy silt	
Liquid Limit					0	
Plasticity Index					0	
Tested By	ASTM D2487				John Platt	
Method	ASTM D6913				A	
Preparation Method					Oven Dry	
Composite Sieving?					Yes	
Separating Sieve(s)					No. 4	
Fractional Mass Retained (%)					0.00	
Cu	ASTM D2487					
Cc						

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0377
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0377-S13	22-0377-S14	22-0377-S15	22-0377-S16
Client Sample ID	TH-29 S10	TH-29 S11	TH-29 S12A	TH-29 S12B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	2	2	23	16	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487	SP-SM				
Group Name		Poorly graded sand with silt and gravel				
Atterberg Limits Estimated		Yes				
Tested By		John Platt				
Method	ASTM D6913	A				
Preparation Method		Oven Dry				
Composite Sieving?		Yes				
Separating Sieve(s)		No. 4				
Fractional Mass Retained (%)		0.00				
Cu	ASTM D2487	6.66				
Cc		0.42				
Percent Gravel	LMA (Internal Method)		0			
Percent Sand			93			
Percent Fines (Silt/Clay)			7			
Group Symbol			SP-SM			
Group Name			Poorly Graded Sand with Silt			
Tested By			John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Phone: 907-205-1987
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Material Test Report

Report No: ASM:22-0377
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0377-S17
Client Sample ID	TH-29 S13
Date Sampled	

Other Test Results

Description	Method	Results	Limits
Water Content (%)	ASTM D2216	7	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	GM	
Group Name		Silty gravel with sand	
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

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Material Test Report

Report No: MAT:22-0377-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

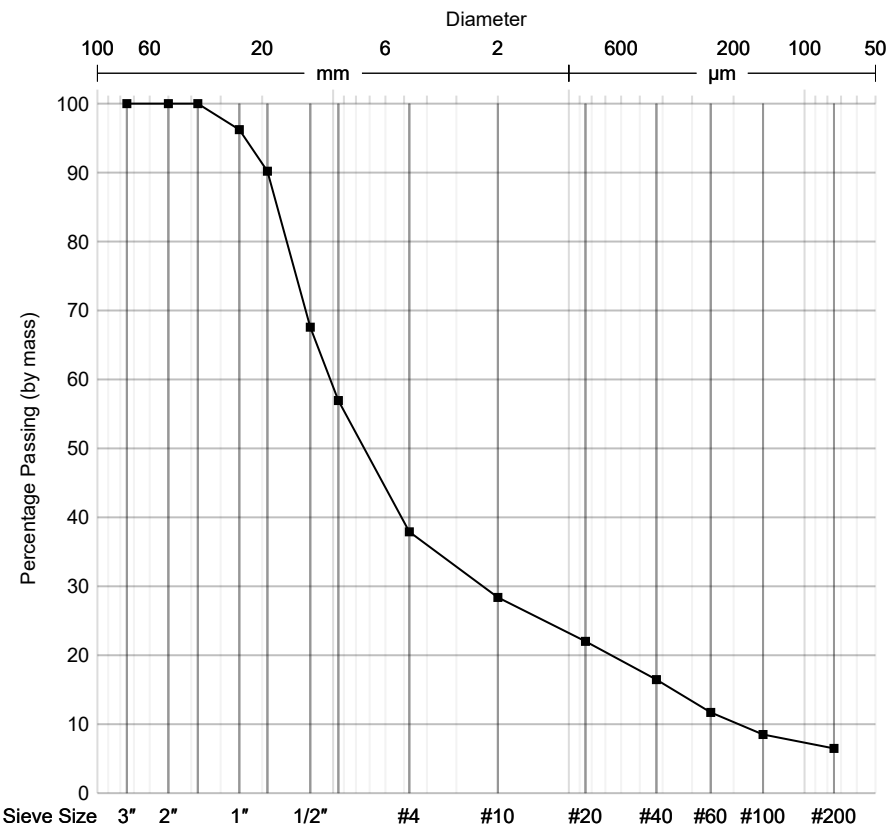
Sample Details

Sample ID	22-0377-S01
Client Sample ID	TH-29 S1

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	GW-GM	
Group Name		Well-graded gravel with silt and sand	
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Date Tested		4/15/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/15/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	96	
¾in	90	
½in	68	
3/8in	57	
No.4	37.9	
No.10	28	
No.20	22	
No.40	16	
No.60	12	
No.100	9	
No.200	6	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: MAT:22-0377-S01
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	54.00	
Cc		2.74	
Date Tested		4/15/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0377-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

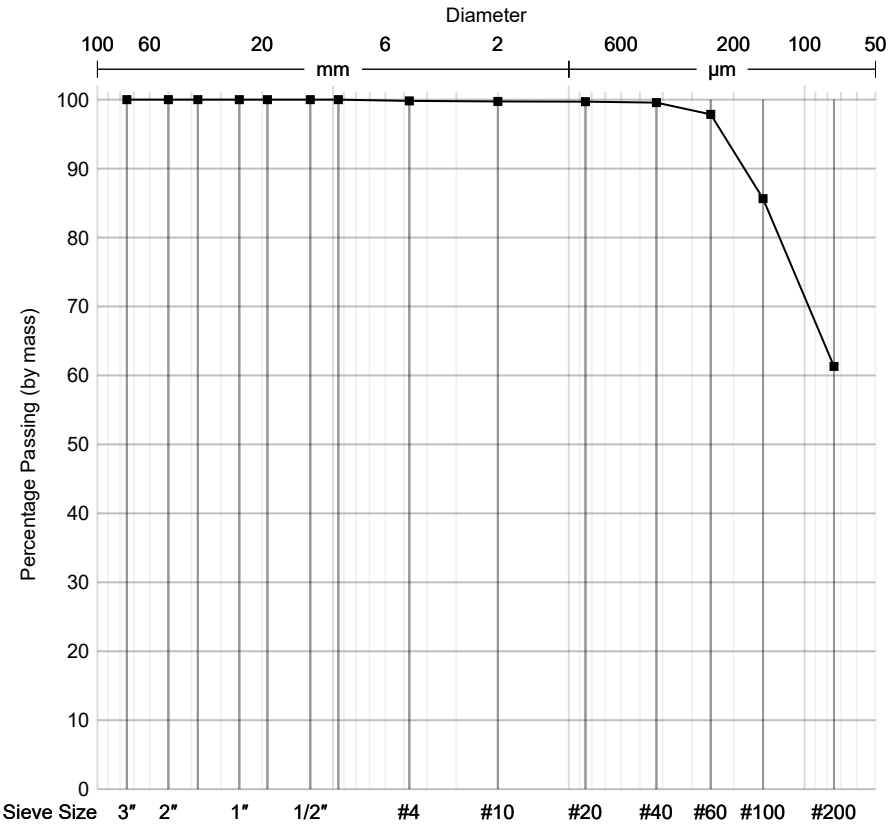
Sample Details

Sample ID	22-0377-S12
Client Sample ID	TH-29 S9B

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	ML	
Group Name		Sandy silt	
Liquid Limit		0	
Plasticity Index		0	
Tested By	ASTM D2487	John Platt	
Date Tested		4/15/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/15/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	99.8	
No.10	100	
No.20	100	
No.40	100	
No.60	98	
No.100	86	
No.200	61	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0377-S12
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/15/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
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Material Test Report

Report No: MAT:22-0377-S13
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

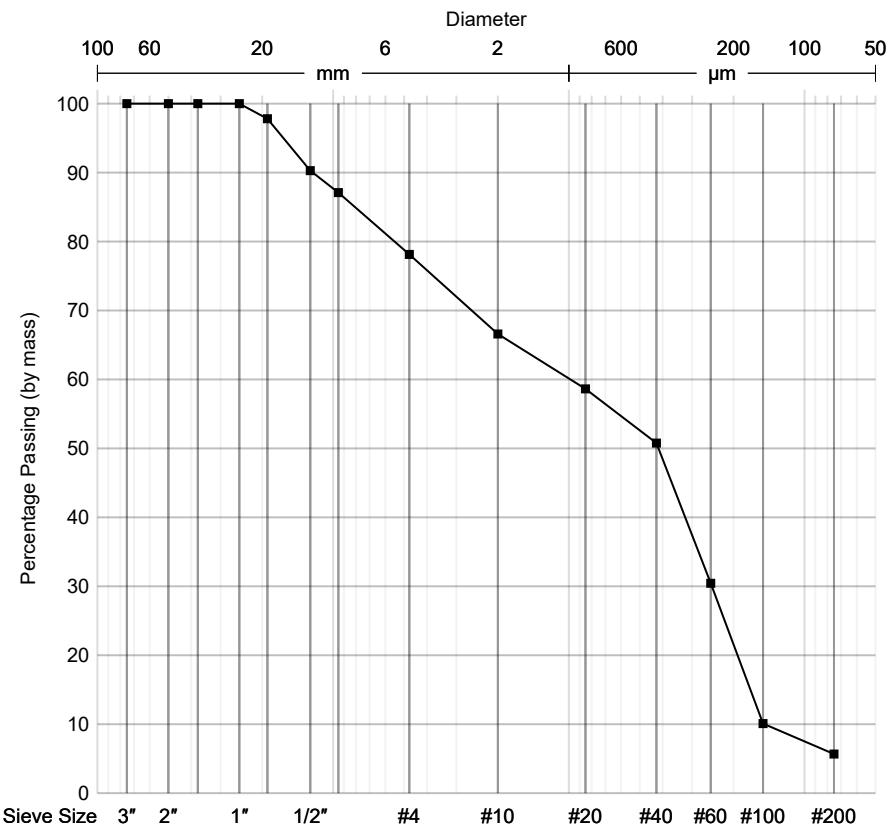
Sample Details

Sample ID	22-0377-S13
Client Sample ID	TH-29 S10

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	2	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SP-SM	
Group Name	Poorly graded sand with silt and gravel		
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Date Tested		4/15/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/15/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	98	
½in	90	
3/8in	87	
No.4	78.1	
No.10	67	
No.20	59	
No.40	51	
No.60	30	
No.100	10	
No.200	6	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

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Material Test Report

Report No: MAT:22-0377-S13
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487	6.66	
Cc		0.42	
Date Tested		4/15/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Phone: 907-205-1987
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Material Test Report

Report No: MAT:22-0377-S17
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

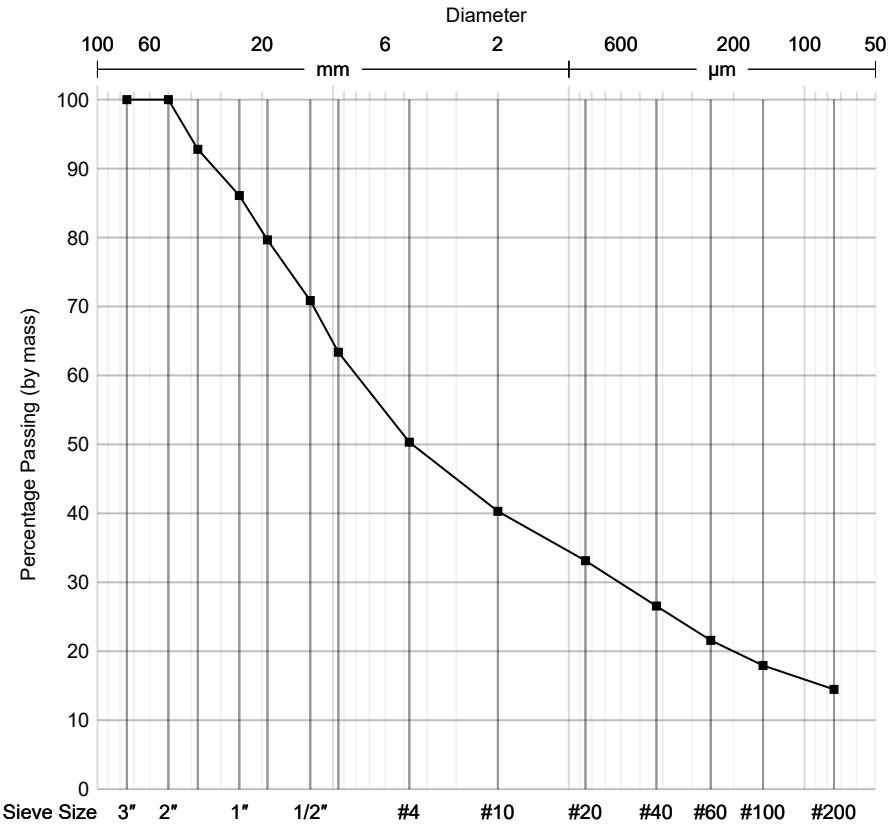
Sample Details

Sample ID	22-0377-S17
Client Sample ID	TH-29 S13

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	7	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	GM	
Group Name		Silty gravel with sand	
Atterberg Limits Estimated		Yes	
Tested By		John Platt	
Date Tested		4/14/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/15/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	93	
1in	86	
¾in	80	
½in	71	
3/8in	63	
No.4	50.3	
No.10	40	
No.20	33	
No.40	27	
No.60	22	
No.100	18	
No.200	14	

Comments

N/A

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Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0377-S17
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/15/2022	

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
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info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0385
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0385-S01	22-0385-S02	22-0385-S03	22-0385-S04	22-0385-S05
Client Sample ID	TH-30 S1	TH-30 S2	TH-30 S3	TH-30 S4	TH-30 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	46	16	14	20	21	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			0		0	
Percent Sand				38		35	
Percent Fines (Silt/Clay)				62		65	
Group Symbol				ML		ML	
Group Name				Sandy Silt		Sandy Silt	
Tested By				John Platt		John Platt	
Liquid Limit	ASTM D4318					17	
Plastic Limit						14	
Plasticity Index						3	
Preparation Method						Wet	
Oversize Removed By						Hand during mixing on glass plate	
Liquid Limit Apparatus						Mechanical	
Grooving Tool						Plastic	
Rolling						Hand	
Tested By						Cindy Zickefoose	
Date Tested						4/26/2022	

Comments

TH-30 Sample 9 - not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
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Material Test Report

Report No: ASM:22-0385
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0385-S06	22-0385-S07	22-0385-S08	22-0385-S09	22-0385-S10
Client Sample ID	TH-30 S6A	TH-30 S6B	TH-30 S7	TH-30 S8A	TH-30 S8B
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	17	5	4	7	13	
Date Tested		4/11/2022	4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0				
Percent Sand			36				
Percent Fines (Silt/Clay)			64				
Group Symbol			ML				
Group Name			Sandy Silt				
Tested By			John Platt				
Group Code	ASTM D2487			SM			
Group Name				Silty sand			
Liquid Limit				0			
Plasticity Index				0			
Tested By	ASTM D2487			John Platt			
Method	ASTM D6913			A			
Preparation Method				Oven Dry			
Composite Sieving?				Yes			
Separating Sieve(s)				No. 4			
Fractional Mass Retained (%)				0.00			
Cu	ASTM D2487						
Cc							

Comments

TH-30 Sample 9 - not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0385
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0385-S11	22-0385-S12	22-0385-S13	22-0385-S14
Client Sample ID	TH-30 S9	TH-30 S9A	TH-30 S9B	TH-30 S10
Date Sampled				

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	10	29	4	
Date Tested		4/11/2022	4/11/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	
Group Code	ASTM D2487		CL		
Group Name			Lean clay		
Gravel (%)			0		
Sand (%)			0		
Fines (%)			100		
Tested By	ASTM D2487		Cindy Zickefoose		
Liquid Limit	ASTM D4318		29		
Plastic Limit			19		
Plasticity Index			10		
Preparation Method			Wet		
Oversize Removed By			Hand during mixing on glass plate		
Liquid Limit Apparatus			Mechanical		
Grooving Tool			Plastic		
Rolling			Hand		
Tested By			Karen Jackson		
Date Tested			4/25/2022		
Percent Gravel	LMA (Internal Method)			0	
Percent Sand				49	
Percent Fines (Silt/Clay)				51	
Group Symbol				ML	
Group Name				Sandy Silt	
Tested By				John Platt	

Comments

TH-30 Sample 9 - not present
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0385-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

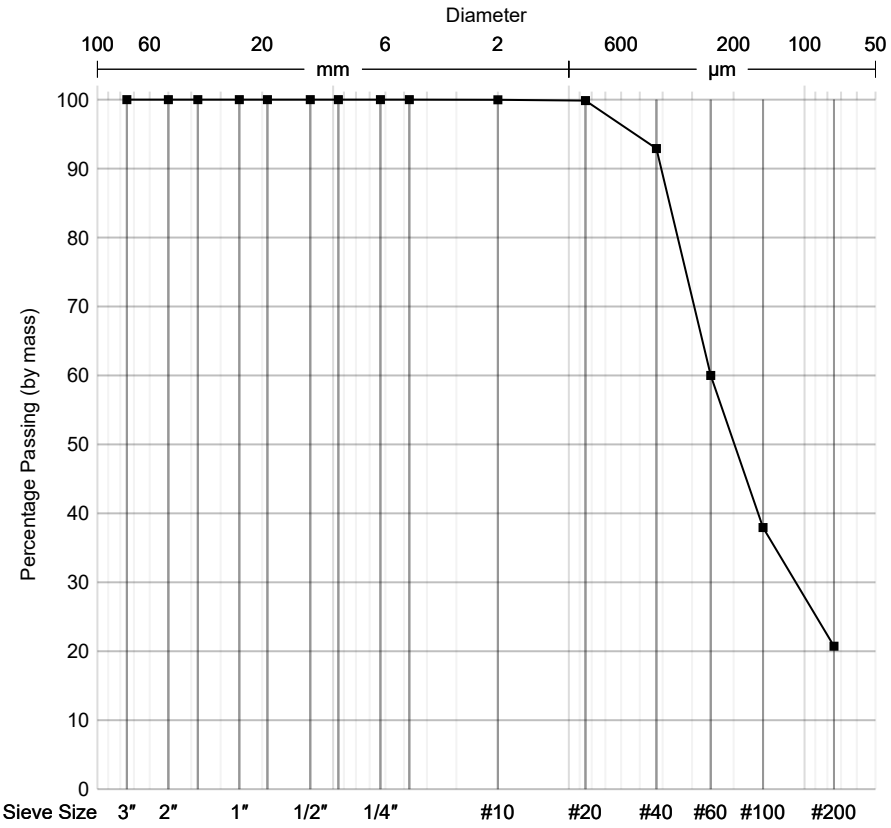
Sample Details

Sample ID	22-0385-S08
Client Sample ID	TH-30 S7

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	4	
Date Tested		4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
Tested By	ASTM D2487	John Platt	
Date Tested		4/24/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/23/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
¼in	100	
No.4	100.0	
No.10	100	
No.20	100	
No.40	93	
No.60	60	
No.100	38	
No.200	21	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0385-S08
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/23/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0386
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0386-S01	22-0386-S02	22-0386-S03	22-0386-S04
Client Sample ID	TH-31 S1	TH-31 S2	TH-31 S3	TH-31 S4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	40	20	20	16	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				8		
Percent Fines (Silt/Clay)				92		
Group Symbol				ML		
Group Name				Silt		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0386
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0386-S05	22-0386-S06	22-0386-S07	22-0386-S08
Client Sample ID	TH-31 S5	TH-31 S6	TH-31 S7	TH-31 S8A
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	17	20	5	9	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)	0		0	44	
Percent Sand		6		61	20	
Percent Fines (Silt/Clay)		94		39	36	
Group Symbol		ML		SM	GM	
Group Name		Silt		Silty Sand	Silty Gravel with Sand	
Tested By		John Platt		John Platt	John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Phone: 907-205-1987
Fax: 907-782-4409
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Material Test Report

Report No: ASM:22-0386
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0386-S09	22-0386-S10	22-0386-S11	22-0386-S12
Client Sample ID	TH-31 S8B	TH-31 S8C	TH-31 S9	TH-31 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	19	8	13	3	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			3		
Percent Sand				40		
Percent Fines (Silt/Clay)				57		
Group Symbol				ML		
Group Name				Sandy Silt		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0387
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0387-S01	22-0387-S02	22-0387-S03	22-0387-S04	22-0387-S05	22-0387-S06
Client Sample ID	TH-32 S1	TH-32 S2	TH-32 S3	TH-32 S4	TH-32 S5	TH-32 S6
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	19	23	21	23	19	21	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/11/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)		0		0		0	
Percent Sand			12		6		5	
Percent Fines (Silt/Clay)			88		94		95	
Group Symbol			ML		ML		ML	
Group Name			Silt		Silt		Silt	
Tested By			John Platt		John Platt		John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0387
Issue No: 1

Client: CRW Engineering Group, LLC
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Anchorage, AK, 99503

Project Code: 220475

CC: CRW
Maria Kampsen

Project: South Airpark

73130

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/28/2022

Sample Details

Sample ID	22-0387-S07	22-0387-S08	22-0387-S09	22-0387-S10	22-0387-S11
Client Sample ID	TH-32 S7	TH-32 S8	TH-32 S9	TH-32 S10A	TH-32 S10B
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	17	20	24	12	25	
Date Tested		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method)			0			
Percent Sand				2			
Percent Fines (Silt/Clay)				98			
Group Symbol				ML			
Group Name				Silt			
Tested By				John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Appendix C

Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

Included in this section:

1) Memo from CRW summarizing the Test Pit Findings and Preliminary Geotechnical Recommendations

Memorandum

Date: December 2, 2021
To: Matt Van Goethem, MCG Explore Design
From: Steven Halcomb, PE, GE, D.GE (CRW)
Project: ANC South Airpark
Project No: CRW #73130.00
Subject: Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

Introduction

CRW Engineering Group, LLC (CRW) is pleased to present this memo of our limited geotechnical investigation at the proposed lease lot at ANC (Figure 1). We understand that future infrastructure includes aircraft ramps, paved vehicle travel ways and parking areas, a vehicle wash facility, and a multi-purpose building. This memo presents a summary of our field activities, test pit logs (Attachment 1), results of laboratory analysis of soil samples collected from test pits (Attachment 2), and preliminary geotechnical recommendations. A full geotechnical investigation is planned to address future infrastructure needs.

Field Investigation

Test pits were completed on November 10, 2021 to evaluate subsurface conditions in the upper 10 feet below ground surface (BGS) across the site. The investigation program was developed to provide initial information for the purpose of applying for a Municipality of Anchorage (MOA) Fill and Grade Permit in addition to informing the future geotechnical investigation. Additional geotechnical investigations should be performed prior to design to ensure that sufficient geotechnical information is available to support all site plan and foundation design decisions.

Test pits were excavated with a Kubota U55-4 owned and operated by Pioneer Earthworks, LLC. Logging and sampling of soils was performed by engineers Ali Sacks and Dillon Noad of CRW. Chris Dearing of GMC Contracting, Inc. also observed excavation of the test pits. Prior to commencement of field activities, utility locates were coordinated by CRW through the utility locate service “811”. ANC Operations were notified when field work started and stopped.

Ten test pit locations were selected based on the preliminary site plan and located in the field using handheld mobile devices with publicly available location services.

At each test pit location, the excavation was advanced using a toothed bucket to the maximum depth the excavator was capable without benching, approximately 10 to 11 feet BGS. Test pits were backfilled with excavated soil and smoothed to preserve original slope and drainage. The presence of fill, surface water, and groundwater were noted on field test pit logs. Test pit locations were surveyed during the topographic survey conducted by CRW.

Site Conditions

The proposed site is predominately forested with birch and spruce, except in areas previously cleared or filled. Several areas have been built up with fill of varying types. In the center of the area, a large circular pad has been built up of fill, and is covered only with grass, shrubs, and young spruce. Slopes at the edge of this pad range from 1H:1V to less than 4H:1V. The eastern side of the lease lot has been filled and/or leveled in the past. The northeast corner appears to have been filled fairly recently, while the central portion of the east end of the lot is a gravel pad that reportedly was used to stage and operate a hot mix

plant. The natural terrain is rolling, generally climbing as it approaches the east-west runways at ANC, though the center of the lease area contains some of the highest elevations.

While most of the site is currently unused and undeveloped, there is an active FAA fiber-optic cable buried within the lease boundaries along the north side of the lease area.

Historical Geotechnical Information and General Geology

Historical geotechnical investigations noted predominantly silt and silty sand in areas with native soil. The silt can be up to 20 feet thick. Granular soils are present at varying depths.

Maps of surficial geology in Anchorage (USGS, 2021; Schmoll and Dobrovolny, 1972) show the surface soils as Quaternary-age unconsolidated sediments described as predominantly fine sand and some clay. Adjacent areas are designated as geologic units that include sand and gravel or Bootlegger Cove clays, and may occur beneath or interbedded with the silt identified as the predominant surface deposit in the lease area (Schmoll and Dobrovolny, 1972).

Laboratory Testing and Results

Soil laboratory tests to evaluate index properties of representative samples were performed by Alaska Testlab at their Anchorage facility. The laboratory tests were performed in accordance with the test methods of ASTM International or laboratory procedures, as summarized in Table 1. In total, 33 samples were submitted for testing.

The laboratory testing consisted of soil index tests for water content, Atterberg limits, and Limited Mechanical Analysis (LMA) to determine percentages of gravel, sand, and fines content. LMA consists of washing a sample over the Number 200 mesh sieve. The coarse fraction of the remaining soil is then dried and sieved through the Number 4 sieve to determine the sand and gravel content. The LMA is a means to determine the percentage of coarse and fine soil in a sample without having to perform full gradations. Because LMAs are not full gradations, all classifications of clean granular soils are “poorly graded” even though the soil may, in fact, be well graded. Qualitative observations of grain sizes are included in the soil descriptions on the logs, see Attachment 1.

Results of the laboratory testing are presented in Attachment 2.

Table 1 – Laboratory Tests

Analysis	Method	Number of Samples
Water Content	ASTM D2216	33
Atterberg Limits	ASTM D4318	5
Limited Mechanical Analysis	Laboratory procedure	10

Findings

Near surface conditions at test pit locations across the site consisted of 3 to 12 inches of a brown organic mat at all but one location (TP-08). The mat included grasses, roots, leaves, and other organic material. TP-08 was clear of organic mat, and the top 3.5 feet comprised of gravel with silt and sand with few cobbles and RAP up to 7 inches in diameter.

Soil lithologies below the organic mat were variable across the site. In general, test pits located near the center of site (TP-04, TP-05, TP-06, and TP-07) contained mainly brown/tan moist silts immediately below the organic mat that extended to the bottom of the test pits. During laboratory testing, moisture contents of these silts ranged from 11 to 22 percent, and one sample in TP-05 contained 99 percent fines. In TP-04, TP-06, and TP-07, the silt layer was underlaid by sands with silt, silty sands with gravel, and gravels with silt and sand that continued to the depth of excavation.

TP-10 was also found to be mostly silt beginning at 2 feet BGS and gradually transitioning to silty sands with gravel by 8.5 feet BGS. 5 percent cobbles up to 9 inches in diameter were observed below 8.5 feet BGS.

TP-01, TP-02, and TP-09 contained diverse soil lithologies with several transitions and layers identified during excavation. Layers ranged from 1 to 4 feet in thickness and included silts, gravels with silt and/or sand, sands with gravel, silty sands with or without gravel, sandy silts with gravel, and silty gravel. Notably, TP-01 contained only trace amounts of gravel from 1.5 to 4.5 feet BGS, and TP-09 contained 5 percent cobbles up to 5 inches below 9 feet BGS. Laboratory testing of soil samples in TP-01, TP-02, and TP-09 resulted in moisture contents ranging from 7 to 30 percent.

TP-03 and TP-08 appear to be partly comprised of non-native soils. TP-03 was found to have gray/brown silt with sand to 9.5 feet BGS, and silt with gravel from 9.5 ft BGS to the bottom of excavation. TP-08 was predominantly silts and silty clays with sand that may have been previously consolidated, though excavations revealed some organics and roots as deep as 10 feet BGS. Subrounded to rounded cobbles were observed in both TP-03 and TP-08, up to 7 inches in diameter. Laboratory testing on samples in TP-03 and TP-08 resulted in moisture contents ranging from 4 to 24 percent. Fines content testing on one sample from both TP-03 and TP-08 resulted in 77 and 94 percent, respectively.

Groundwater level was not identified in any test pit, except for TP-09 in which groundwater was observed at 10.5 feet BGS. Soil samples at this depth were found to be wet, however the test pit did not noticeably fill with water during excavation.

Frozen ground was noted in TP-03, TP-09, and TP-10 to a maximum thickness of 6 inches BGS.

Preliminary Geotechnical Recommendations

We have developed the following preliminary geotechnical recommendations based on our findings from materials in the test pits and current understanding of the site development.

Site Preparation, Excavation, and Drainage

We recommend the site be cleared of trees and brush and grubbed of the organic mat prior to starting earthwork operations. All earthwork should be performed in accordance with project specifications and with local, state, and federal laws and regulations, including those in 29 Code of Federal Regulations (CFR) Part 1926 Occupational Safety and Health Standards Subpart P – Excavations (Occupational Safety and Health Administration [OSHA], 2020). We recommend the exposed subgrade be smoothed prior to placement of any geotextile or fill.

Excavations above the water table may stand relatively steeply initially but fail suddenly without warning. The contractor is responsible for trench stability, worker safety, and regulation compliance as he will be present on a day-to-day basis and can adjust efforts to obtain the needed stability. As the in-situ soils dry they will tend to ravel and slough to their natural angle of repose which we estimate to range from 1.9 to 2.0H:V (horizontal to vertical). Below the water table, or if surface water is allowed to enter the trench, soils may soften, squeeze, slump over time or due to disturbance, to slopes of 2.5 to 3.0H:1V or flatter.

Excavations should be performed by a backhoe with a smooth-bladed bucket from outside the excavation to minimize disturbance of the moisture-sensitive mineral subgrade soils.

Excavations may experience seepage due to shallow, perched water or surface runoff, and should be monitored during construction. Measures should be taken to prevent surface water runoff from entering the excavation including the ground around open excavations should be contoured to direct

surface water away from the excavations. Grading should be designed to prevent ponding of surface water except where retention ponds or similar devices are intended.

Subgrade Preparation

We recommend a Class 2 woven separation geotextile consistent with the Municipality of Anchorage (MOA) Standard Specification (M.A.S.S.) be placed directly on top of the subgrade soils prior to classified fill placement. This geotextile will provide reinforcement and minimize migration of fine-grained subgrade soils into placed fill. The geotextile should be placed and joined according to the manufacturer's recommendations. If no manufacturer's recommendations are provided, the geotextile should be placed in accordance with guidance provided in the Federal Highway Administration (FHWA), *Geosynthetic Design and Construction Guidelines*, Publication No. FHWA-HI-95-038, as applicable.

The first lift above the separator fabric should be compacted by tracking with equipment or non-vibratory rollers to minimize disturbance of the sensitive subgrade soils. Subgrade soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill. Equipment should not track over or result in pumping the bottom of the excavation before imported fill is placed.

Subgrade soils and imported fill should be protected from freezing during construction. No frozen soil should be used as fill, nor should any fill be placed over frozen soil. Any frozen soil should be removed and replaced with appropriate fill prior to construction.

Reuse of Material, Classified Fill, and Compaction

We understand the contractor may choose to use the existing on-site material as backfill to aid with cut and fill volumes. Existing soils at the site consist of predominantly silt, sandy silt, and silty sand with a low plastic index indicating dramatic changes in soil behavior with minor variations in water content. Existing soils may be re used to fill and grade the site, however the contractor should be prepared to properly handle the silty soils including keeping them dry during earthwork operations and compaction. The natural water content of the silts ranged from 18 to 30 percent which we estimate to be in excess of optimum water content for compaction. We expect this silt to have optimum water contents from 15 to 18 percent and dry densities from 107 to 112 pounds per cubic feet (PCF) though actual compaction testing is required to confirm these values. We expect mechanical mixing or windrowing will be required to reduce the natural water content to achieve compaction. Additional methods, such as chemical stabilization, can be considered on request.

We recommend reused silty soils be placed in loose lifts not exceeding 6 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Typical equipment for low plasticity soils consist of sheepsfoot or pad foot rollers which is recommended to achieve compaction, in addition to control of water content. In general, each lift of silty soils should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density, determined per ASTM D1557, for areas where buildings and heavy aircraft will traverse. Areas where light vehicular traffic or landscaping occurs, the compaction can be decreased to a minimum of 85 percent. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

We recommend classified fill be clean, well-graded sand and gravel with a frost classification of non-frost susceptible (NFS). The gradation of the classified fill should be consistent with M.A.S.S. Type II and II-A material. Classified fill should be placed in loose lifts not exceeding 12 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Each lift of classified fill should be compacted to 95 percent of its Modified Proctor Maximum Density, determined

per ASTM D1557. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

All native silty soils and classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound.

The number of passes required to meet the compaction requirement will depend on the size of compaction equipment used. Each layer should be compacted as recommended in the report and field verification of compaction requirements is recommended. No hauling or grading equipment should be used in lieu of standard compaction equipment. Any loosening of compacted material should be replaced and or re-compacted.

Cut and Fill Slopes

We recommend cut and fill slopes be no steeper than 2H:1V (horizontal to vertical) for classified fill assuming the fill is compacted following our recommendations and 3H:1V for native silty soils. Specific analysis and recommendations can be provided on request if other materials are used during design or construction.

We recommend native silty soils have a minimum of 20 foot horizontal bench approximately every 15 feet of vertical height of slope to improve the seismic performance during strong ground motions. The bench should be graded to still provide drainage and not pond water.

Cut and fill slopes at these recommended angles will perform well though some minor sloughing and rills will likely occur over time due to runoff/infiltration under static conditions. During strong ground motions, minor displacements are expected with the primary effect anticipated to be rotational failures of the slope edges. More detailed seismic slope stability analyses can be performed on request.

Limitations and Closure

The information submitted in this report is based on our interpretation of data from a limited geotechnical investigation performed for this project. The observations and conclusions contained in this report are based on site conditions as they were observed at the time of the field work and data acquisition. It is presumed that the data collected is representative of the subsurface conditions as described in this memorandum. If conditions are found to differ, we should be notified immediately to review any recommendations in light of additional information.

If there is substantial lapse of time between the submittal of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions considering the changed conditions and time lapse. Unanticipated soil conditions are commonly encountered and cannot fully be determined by collecting field data, discrete samples, or advancing borings/test pits. The client and contractor should be aware of this risk and account for contingency accordingly.

This report was prepared by CRW Engineering Group, LLC for use on this project only, and may not be used in any manner that would constitute a detriment to CRW. CRW is not responsible for conclusions, opinions, or recommendations made by others based on data presented in this memo.

Attachments

- Figures – (1) Site Map
- Attachment 1 – Test Pit Logs and Log Legend

- Attachment 2 – Laboratory Reports

References

Schmoll, H.R. and Dobrovolny, E. 1972. *Generalized Geologic Map of Anchorage and Vicinity, Alaska*.

USGS Geologic map of Alaska. Retrieved November 2021: https://alaska.usgs.gov/science/geology/state_map/interactive_map/AKgeologic_map.html

Figures

CRW ENGINEERING GROUP, LLC
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ANCHORAGE, ALASKA 99503
PHONE (907) 562-3252
#AECL882-AK

MCG EXPLORE DESIGN

ANC SOUTH AIRPARK

TEST PIT LOCATIONS

Project:	73130.00
Drawn By:	DSN
Scale:	Not to Scale
Date:	12/1/2021
Figure:	1

File Path: Z:\GIS\73130 Fresh Start\73130 Fresh Start.aprx

Attachment 1

Test Pit Logs

Included in this section:

1) Legend
2) Test Pit Logs

UNIFIED SOIL CLASSIFICATION (ASTM D 2487)

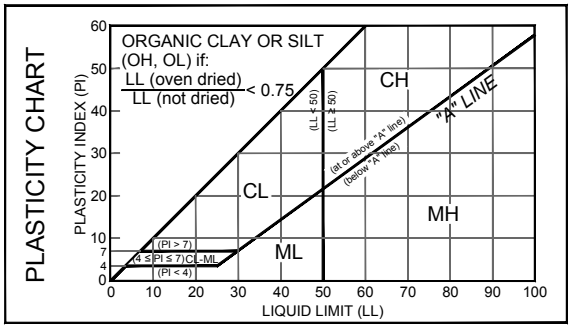
GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
GW	WELL-GRADED GRAVEL	if soil contains ≥ 15% sand, add "with sand"
GP	POORLY GRADED GRAVEL	
GM	SILTY GRAVEL	
GC	CLAYEY GRAVEL	
SW	WELL-GRADED SAND	if soil contains ≥ 15% gravel, add "with gravel"
SP	POORLY GRADED SAND	
SM	SILTY SAND	
SC	CLAYEY SAND	
CL	LEAN CLAY	if soil contains coarse-grained soil from 15% to 29%, add "with sand" or "with gravel" for whichever type is prominent, or for ≥ 30%, add "sandy" or "gravelly"
ML	SILT	
OL	ORGANIC CLAY OR SILT	
CH	FAT CLAY	
MH	ELASTIC SILT	
OH	ORGANIC CLAY OR SILT	
PT	PEAT	

Gravels or sands with 5% to 12 % fines require dual symbols (GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC) and add "with clay or "with silt" to group name. If fines classify as CL-ML for GM or SM, use dual symbol GC-GM or SC-SM.

Optional Abbreviations: Lower case "s" after USCS group symbol denotes either "sandy or "with sand" and "g" denotes either "gravelly" or "with gravel."

COMPONENT DEFINITIONS BY GRADATION

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 IN.
COBBLES	3 IN. TO 12 IN.
GRAVEL	3 IN. TO NO. 4 (4.76 mm)
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 (4.76 mm)
SAND	NO. 4 (4.76 mm) TO NO. 200 (0.074 mm)
COARSE SAND	NO. 4 (4.76 mm) TO NO. 10 (2.0 mm)
MEDIUM SAND	NO 10 (2.0 mm) TO NO. 40 (0.42 mm)
FINE SAND	NO. 40 (0.42 mm) TO NO. 200 (0.074 mm)
SILT AND CLAY	SMALLER THAN NO. 200 (0.074 mm)
SILT	0.074 mm TO 0.005 mm
CLAY	LESS THAN 0.005 mm



OTHER SYMBOLS

SYMBOL	NAMES & LEGEND	
BLDR	COBBLES AND BOULDERS	overlay
FILL	GRANULAR FILL	man-made or placed
WD	WOODY DEBRIS	
RAP	RECLAIMED ASPHALT PAVEMENT	

RELATIVE DENSITY / CONSISTENCY ESTIMATE USING STANDARD PENETRATION TEST (SPT) VALUES (FROM TERZAGHI & PECK 1996)

COHESIONLESS SOILS[a]		COHESIVE SOILS[b]		
RELATIVE DENSITY	N_{60} (BLOWS/FOOT)[c]	CONSISTENCY	N_{60} (BLOWS/FOOT)[c]	UNCONFINED COMPRESSIVE STRENGTH (TSF)[d]
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MED DENSE	10 - 30	MEDIUM	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

(a) Soils consisting of gravel, sand and silt, either separately or in combination possessing no characteristics of plasticity, and exhibiting drained behavior.
(b) Soils possessing the characteristics of plasticity, and exhibiting undrained behavior.
(c) Refer to ASTM D 1586-99 for a definition of N.
(d) Undrained shear strength, s_u = 1/2 unconfined compression strength, U_c. Note that Torvane measures s_u and Pocket Penetrometer measures U_c.

CRITERIA FOR DESCRIBING MOISTURE CONDITION (ASTM D 2488)

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE

SAMPLER ABBREVIATIONS

SS	SPT Sampler (2 in. OD, 140 lb hammer)	C	Core (Rock)
SSO	Oversize Spit Spoon (2.5 in. OD, 140 lb typ.)	TW	Thin Wall (Shelby Tube)
HD	Heavy Duty Split Spoon (3 in. OD, 300/340 lb typ.)	MS	Modified Shelby
BD	Bulk Drive (4 in. OD, 300/340 lb hammer typ.)	GP	Geoprobe
CA	Continuous Core (Soil in Hollow-Stem Auger)	AR	Air Rotary Cuttings
G	Grab Sample from surface / testpit	AG	Auger Cuttings

DESCRIPTIVE TERMINOLOGY FOR PERCENTAGES (ASTM D 2488)

DESCRIPTIVE TERMS	RANGE OF PROPORTION
TRACE	0 - 5%
FEW	5 - 10%
LITTLE	10 - 25%
SOME	30 - 45%
MOSTLY	50 - 100%

LABORATORY TEST ABBREVIATIONS

AL	Atterberg Limit	PI	Plastic Index	TS	Thaw Consolidation
Consol	Consolidation	PID	Photoionization Detector	TV	Torvane
LMA	Limited Mechanical Analysis	Proc	Proctor	TXCD	Consolidated Drained Triaxial
MA	Sieve and Hydrometer Analysis	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial
MC	Moisture Content	P200	Percent Fines (Silt & Clay)	TXUU	Unconsolidated Undrained Triaxial
NP	Non-plastic	SA	Sieve Analysis	VS	Vane Shear
OLI	Organic Loss on Ignition	SpG	Specific Gravity	Ω	Soil Resistivity

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#AECL882-AK

LEGEND: FIELD AND LABORATORY TEST ABBREVIATIONS

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FROZEN SOIL CLASSIFICATION (ASTM D 4083)

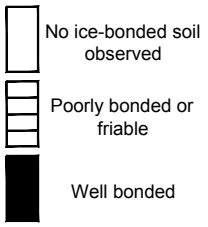
1. DESCRIBE SOIL INDEPENDENT OF FROZEN STATE	CLASSIFY SOIL BY THE UNIFIED SOIL CLASSIFICATION SYSTEM				
	MAJOR GROUP		SUBGROUP		
	DESCRIPTION	DESIGNATION	DESCRIPTION		DESIGNATION
2. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF FROZEN SOIL	Segregated ice not visible by eye	N	Poorly bonded of friable		N_f
			Well bonded	No excess ice	Nbn
				Excess ice	Nbe
	Segregated ice visible by eye (ice less than 25 mm thick)	V	Individual ice crystals or inclusions		V_x
			Ice coatings on particles		V_c
			Random or irregularly oriented ice formations		V_r
			Stratified or distinctly oriented ice formations		V_s
			Uniformly distributed ice		V_u
3. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF SUBSTANTIAL ICE STRATA	Ice greater than 25 mm thick	ICE	Ice with soil inclusions		ICE+soil type
			Ice without soil inclusions		ICE

FROST DESIGN SOIL CLASSIFICATION[1]

FROST GROUP[2]	GENERAL SOIL TYPE	% FINER THAN 0.02 mm BY WEIGHT	TYPICAL USCS SOIL CLASS
NFS[3]	(a) Gravels Crushed stone Crushed rock	0 - 1.5	GW, GP
	(b) Sands	0 - 3	SW, SP
PFS[4] [MOA NFS] [FAA NFS]	(a) Gravels Crushed stone Crushed rock	1.5 - 3	GW, GP
[MOA F2] [FAA FG-2]	(b) Sands	3 - 10	SW, SP
S1 [MOA F1] [FAA FG-1]	Gravelly soils	3 - 6	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
S1 [MOA F2] [FAA FG-2]	Sandy soils	3 - 6	SW, SP, SW-SM, SP-SM, SW-SC, SP-SC
F1[5] [FAA FG-1]	Gravelly soils	6 - 10	GM, GC, GM-GC, GW-GM, GP-GM, GW-GC, GP-GC
F2[5] [FAA FG-2]	(a) Gravelly soils	10 - 20	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
	(b) Sands	6 - 15	SM, SW-SM, SP-SM, SC, SW-SC, SP-SC, SM-SC
F3[5] [FAA FG-2] [For Clays, FAA FG-3]	(a) Gravelly soils	10 -20	GM, GC, GM-GC
	(b) Sands, except very fine silty sands	6 - 15	SM, SC, SM-SC
	(c) Clays, PI>12	--	CL, CH
F4[5] [FAA FG-4]	(a) Silts	--	ML, MH, ML-CL
	(b) Very fine silty sands	Over 15	SM, SC, SM-SC
	(c) Clays, PI<12	--	CL, ML-CL
	(d) Varved clays or other fine-grained banded sediments	--	CL or CH layered with ML, MH, ML-CL, SM, SC, or SM-SC

(1) From the U.S. Army Corps of Engineers (USACE), EM 1110-3-138, "Pavement Criteria for Seasonal Frost Conditions", April 1984
(2) USACE frost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM). Federal Aviation Administration (FAA) frost groups come from Table 2-2 in Section 2.7 of Advisory Circular (AC) 150/5320-6F, Airport Pavement Design and Evaluation.
(3) Non-frost susceptible
(4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.
(5) Consistent with MOA Definition.

ICE BONDING SYMBOLS



DEFINITIONS

Candled Ice is ice which has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

Clear Ice is transparent and contains only a moderate number of air bubbles.

Cloudy Ice is translucent, but essentially sound and non-pervious.

Friable denotes a condition in which material is easily broken up under light to moderate pressure.

Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.

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.

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.

Massive Ice is a large mass of ice, typically nearly pure and relatively homogeneous.

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.

Porous Ice contains numerous void, 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.

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.

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.

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LEGEND: FROZEN SOIL CLASSIFICATION

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Telephone: (907) 562-3252

TEST PIT TP-01

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION
0			ORG		0.5	ORGANIC MAT, (ORG) Organic mat and roots.
			ML		1.5	SILT, (ML) 0% gravel, 10% sand, 90% fines Brown/red with roots.
	G S1	MC = 14.1%	SM		4.5	SILTY SAND, (SM) 5% gravel, 60% sand, 35% fines Brown, moist, no odor. Trace gravel observed.
5	G S2	MC = 21.8%	ML		5.5	SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, no odor.
	G S3	MC = 6.9% LMA	SM		9.5	SILTY SAND, (SM) 0% gravel, 74% sand, 26% fines Brown, moist, no odor. Fine to coarse sand.
10	G S4	MC = 12.6%	ML		10.0	SILT, (ML) 0% gravel, 10% sand, 90% fines Gray/brown, moist, no odor.

Bottom of test pit at 10.0 feet.

Notes:
Backfilled with excavated soil.

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TEST PIT TP-02

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		ORGANIC MAT, (ORG) Organic mat and roots.
0.5					SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/red/tan, moist, no odor, some organic content.
	G S1	MC = 25.2%	ML		
4.5					
5	G S2	MC = 11.1% LMA	SM		SILTY SAND, (SM) 2% gravel, 57% sand, 41% fines Brown, moist, no odor. Trace gravel up to 3/8", subangular.
6.0					
	G S3	MC = 7.8%	GM		SILTY GRAVEL, (GM) 50% gravel, 10% sand, 40% fines Brown/tan, moist, no odor. Gravel up to 1", subangular.
10					
10.0					
	G S4	MC = 16.4%	MLs		SANDY SILT WITH GRAVEL, (MLs) 20% gravel, 20% sand, 60% fines Brown, moist, no odor. Trace gravel up to 1", subrounded to well-rounded.
10.5					Bottom of test pit at 10.5 feet.

Notes:
Backfilled with excavated soil.

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TEST PIT TP-03

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		0.3 ORGANIC MAT, (ORG) Grass. Frozen to 4" BGS. (Visible ice).
					SILT WITH SAND, (ML) 5% gravel, 18% sand, 77% fines Gray/brown, moist, no odor. 5% cobbles up to 4", rounded. Contains blackened organics, possibly fill.
	G S1	MC = 13.0% LMA			
5			ML		
					9.5
10	G S2	MC = 24.4%	ML		10.0 SILT WITH GRAVEL, (ML) 20% gravel, 0% sand, 80% fines Brown, moist, no odor. Stiff.
					Bottom of test pit at 10.0 feet.

Notes:
Backfilled with excavated soil.

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TEST PIT TP-04

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		0.3 ORGANIC MAT, (ORG) Organic mat.
	G S1	MC = 22.4%	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Tan/brown, moist, no odor.
5					
	G S2	MC = 2.2% LMA	SP-SM		9.0 9.5 POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 95% sand, 5% fines Brown, moist, no odor. Fine to medium grained sand.

Bottom of test pit at 9.5 feet.

Notes:
Backfilled with excavated soil.

TEST PIT ONLY - CRW_DATATEMPLATE_20190115.GDT - 11/23/21 11:55 - 73130_WOSA.GPJ

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Anchorage, Alaska 99503
Telephone: (907) 562-3252

TEST PIT TP-05

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		0.3 ORGANIC MAT, (ORG) Organic mat.
			ML		1.0 SILT, (ML) 0% gravel, 5% sand, 95% fines Red soil with roots.
	G S1	MC = 15.3%			SILT, (ML) 0% gravel, 1% sand, 99% fines Brown/tan, moist, no odor. Blocky.
	G S2	MC = 11.2% LL = 27 PL = 22 LMA, AL			
5			ML		
10					Trace gravel up to 1/4", subangular.
	G S3	MC = 12.0%			11.0

Bottom of test pit at 11.0 feet.

Notes:
Backfilled with excavated soil.

TEST PIT ONLY - CRW_DATATEMPLATE_20190115.GDT - 11/23/21 11:55 - 73130_WOSA.GPJ

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Anchorage, Alaska 99503
Telephone: (907) 562-3252

TEST PIT TP-06

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		0.3 ORGANIC MAT, (ORG) Organic mat.
	G S1	MC = 20.5% LL = 27 PL = 24 AL	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Tan, moist, no odor. Trace amounts of sand.
5					
10					
	G S2	MC = 6.0% LMA	SMg		10.5 11.0 SILTY SAND WITH GRAVEL, (SMg) 22% gravel, 61% sand, 17% fines Brown, moist, no odor. Gravel up to 3", subrounded.

Bottom of test pit at 11.0 feet.

Notes:
Backfilled with excavated soil.

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TEST PIT TP-07

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		ORGANIC MAT, (ORG) Organic mat.
0.5					SILT, (ML) 0% gravel, 5% sand, 95% fines Tan/gray, moist, no odor. Small roots near surface. Nonplastic during Atterberg Limit testing.
	G S1	MC = 21.0% AL			
5			ML		
10					
10.0					
	G S2	MC = 5.8% LMA	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 57% gravel, 31% sand, 12% fines Brown, moist, no odor. Gravel up to 1.5", subrounded to subangular.
10.5					Bottom of test pit at 10.5 feet.

Notes:
Backfilled with excavated soil.

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TEST PIT TP-08

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	G S1	MC = 4.4%	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 50% gravel, 40% sand, 10% fines Brown, moist, no odor. Few cobbles and RAP pieces up to 7". Gravel subrounded to rounded. Frozen to 1ft BGS.
3.5	G S2	MC = 17.7% LL = 26 PL = 21 AL	CL-ML		SILTY CLAY WITH SAND, (CL-ML) 0% gravel, 15% sand, 85% fines Tan/brown, moist, no odor, friable.
5	G S3	MC = 17.7% LMA	ML		SILT, (ML) 0% gravel, 6% sand, 94% fines Brown/tan, moist, no odor, nonplastic. Stiffer than above. Roots present at ~7ft BGS.
6.8	G S4	MC = 14.5%	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, no odor, nonplastic, friable. Contains organics, roots, and sticks.
9.0					
10					Bottom of test pit at 10.0 feet.
10.0					

Notes:
Backfilled with excavated soil. Cobbles up to 9" and 12" pieces of asphalt observed in pile during backfill.

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TEST PIT TP-09

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
▽ **AT TIME OF EXCAVATION** 10.50 ft
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG	0.3	ORGANIC MAT, (ORG) Organic mat, frozen.
	G S1	MC = 8.4% LMA	SMg	1.0	SILTY SAND WITH GRAVEL, (SMg) 31% gravel, 55% sand, 14% fines Brown, moist, no odor. Cobbles up to 4", subround to round. ~5% cobbles between 1ft to 2.5ft BGS.
	G S2	MC = 22.0%	ML	4.0	SILT, (ML) 0% gravel, 10% sand, 90% fines Tan, moist, no odor, friable. Contains organics.
5	G S3	MC = 6.6% LMA	SP	7.5	POORLY GRADED SAND WITH GRAVEL, (SP) 37% gravel, 62% sand, 1% fines Brown, moist, no odor. Gravel up to 2", rounded to well-rounded. Medium to coarse grained sand.
	G S4	MC = 29.9% LL = 29 PL = 24 AL	ML	9.0	SILT, (ML) 0% gravel, 5% sand, 95% fines Tan, moist, no odor, friable. Trace sand observed, possibly from uphole.
	G S5	MC = 2.6%	GP	10.5 ▽	POORLY GRADED GRAVEL WITH SAND, (GP) 70% gravel, 30% sand, 0% fines Brown, moist, no odor. Gravel up to 3", rounded to well-rounded. Gradational transition to siltier gravel below.
10	G S6	MC = 13.8%	GP-GM	11.0	POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 70% gravel, 20% sand, 10% fines Tan/brown, moist to wet, no odor. Cobbles up to 5", 5% cobbles. Medium to coarse sand.
					Bottom of test pit at 11.0 feet.

Notes:
Backfilled with excavated soil.

CRW Engineering Group, LLC
3940 Arctic Blvd Ste 300
Anchorage, Alaska 99503
Telephone: (907) 562-3252

TEST PIT TP-10

CLIENT MCG Explore Design
PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 **COMPLETED** 11/10/21
GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY AFS/DSN **CHECKED BY** SMH
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0			ORG		ORGANIC MAT, (ORG) 0% gravel, 5% sand, 95% fines Organic mat, silty soil with roots. Frozen to 0.5ft BGS.
1.0	G S1	MC = 14.1%	SM		SILTY SAND WITH GRAVEL, (SM) 30% gravel, 30% sand, 40% fines Tan, moist, no odor. Gravel up to 1", rounded.
2.0			ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Tan, moist, no odor, friable, nonplastic. Gradational transition to soil below.
5	G S2	MC = 20.6%			
	G S3	MC = 21.9%			
8.5			SM		SILTY SAND WITH GRAVEL, (SM) 25% gravel, 35% sand, 40% fines Tan, moist, no odor. Gravel up to 3", angular to rounded. ~5% cobbles up to 9", subangular.
10	G S4	MC = 15.0%			
11.0					Bottom of test pit at 11.0 feet.

Notes:
Backfilled with excavated soil.

TEST PIT ONLY - CRW_DATATEMPLATE_20190115.GDT - 11/23/21 11:55 - 73130_WOSA.GPJ

Attachment 2

Laboratory Results

Included in this section:

1) Laboratory Results from Alaska Testlab

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

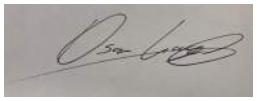
Report No: ASM:21-3358
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3358-S01	21-3358-S02	21-3358-S03	21-3358-S04
Client Sample ID	TP-01 Sample 1	TP-01 Sample 2	TP-01 Sample 3	TP-01 Sample 4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D 2216	14.1	21.8	6.9	12.6	
Method		B	B	B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487			SM		
Group Name				Silty sand		
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				74		
Percent Fines (Silt/Clay)				26		
Group Symbol				SM		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

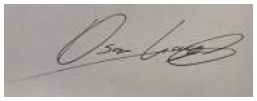
Report No: ASM:21-3359
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3359-S01	21-3359-S02	21-3359-S03	21-3359-S04
Client Sample ID	TP-02 Sample 1	TP-02 Sample 2	TP-02 Sample 3	TP-02 Sample 4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D 2216	25.2	11.1	7.8	16.4	
Method		B	B	B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487		SM			
Group Name			Silty sand			
Percent Gravel	LMA (Internal Method)		2			
Percent Sand			57			
Percent Fines (Silt/Clay)			41			
Group Symbol			SM			
Tested By			John Platt			

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

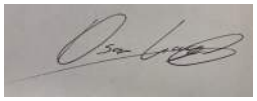
Report No: ASM:21-3360
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3360-S01	21-3360-S02
Client Sample ID	TP-03 Sample 1	TP-03 Sample 2
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D 2216	13.0	24.4	
Method		B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487	ML		
Group Name		Silt with sand		
Percent Gravel	LMA (Internal Method)	5		
Percent Sand		18		
Percent Fines (Silt/Clay)		77		
Group Symbol		ML		
Tested By		John Platt		

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

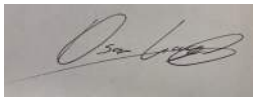
Report No: ASM:21-3361
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3361-S01	21-3361-S02
Client Sample ID	TP-04 Sample 1	TP-04 Sample 2
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D 2216	22.4	2.2	
Method		B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487		SP-SM	
Group Name			Poorly graded sand with silt	
Percent Gravel	LMA (Internal Method)		0	
Percent Sand			95	
Percent Fines (Silt/Clay)			5	
Group Symbol			SP-SM	
Tested By			John Platt	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

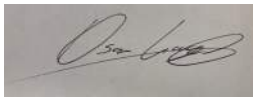
Report No: ASM:21-3362
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3362-S01	21-3362-S02	21-3362-S03
Client Sample ID	TP-05 Sample 1	TP-05 Sample 2	TP-05 Sample 3
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D 2216	15.3	11.2	12.0	
Method		B	B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487		ML		
Group Name			Silt		
Liquid Limit	ASTM D4318		27		
Plastic Limit			22		
Plasticity Index			5		
Preparation Method			Wet		
Oversize Removed By			Mechanically pushed through No. 40 sieve		
Liquid Limit Apparatus			Mechanical		
Grooving Tool			Plastic		
Rolling			Hand		
Tested By			Cindy Zickefoose		
Date Tested			11/18/2021		
Percent Gravel	LMA (Internal Method)		0		
Percent Sand			1		
Percent Fines (Silt/Clay)			99		
Group Symbol			ML		
Tested By			John Platt		

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

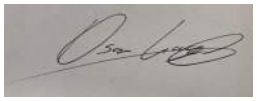
Report No: ASM:21-3363
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3363-S01	21-3363-S02
Client Sample ID	TP-06 Sample 1	TP-06 Sample 2
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D 2216	20.5	6.0	
Method		B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487	ML	SM	
Group Name		Silt	Silty sand with gravel	
Approximate maximum grain size	ASTM D 4318			
Material retained on 425µm (No. 40) (%)				
Method of Removal		Sieving		
Grooving Tool Type		Plastic		
Specimen preparation method		Wet		
Drying Method				
Special selection process		NA		
Rolling Method for PL		Hand		
As Received Water Content (%)		20.5		
Liquid Limit Device Type		Mechanical		
Liquid Limit		27		
Plastic Limit		24		
Plasticity Index		3		
Liquid Limit Procedure		Multipoint (A)		
Tested By		Cindy Zickefoose		
Percent Gravel	LMA (Internal Method)		22	
Percent Sand			61	
Percent Fines (Silt/Clay)			17	
Group Symbol			SM	
Tested By			Cindy Zickefoose	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

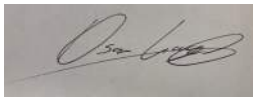
Report No: ASM:21-3364
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3364-S01	21-3364-S02
Client Sample ID	TP-07 S-1	TP-07 S-2
Date Sampled		

Other Test Results

Description	Method	Results		Limits
Water Content (%)	ASTM D 2216	21.0	5.8	
Method		B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487	ML	GP-GM	
Group Name		Silt	Poorly graded gravel with silt and sand	
Approximate maximum grain size	ASTM D 4318			
Material retained on 425µm (No. 40) (%)				
Method of Removal		Sieving		
Grooving Tool Type		Plastic		
Specimen preparation method		Wet		
Drying Method				
Special selection process		NA		
Rolling Method for PL		Hand		
As Received Water Content (%)		21.0		
Liquid Limit Device Type		Mechanical		
Liquid Limit		N/A		
Plastic Limit		NP		
Plasticity Index		NP		
Liquid Limit Procedure		Multipoint (A)		
Tested By		Cindy Zickefoose		
Percent Gravel	LMA (Internal Method)		57	
Percent Sand			31	
Percent Fines (Silt/Clay)			12	
Group Symbol			GP-GM	
Tested By			John Platt	

Comments

NP = Non Plastic
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

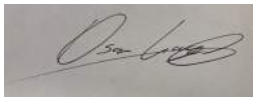
Report No: ASM:21-3365
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3365-S01	21-3365-S02	21-3365-S03	21-3365-S04
Client Sample ID	TP-08 Sample 1	TP-08 Sample 2	TP-08 Sample 3	TP-08 Sample 4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D 2216	4.4	17.7	17.7	14.5	
Method		B	B	B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487		CL-ML	ML		
Group Name			Silty clay	Silt		
Approximate maximum grain size	ASTM D 4318					
Material retained on 425µm (No. 40) (%)						
Method of Removal			Sieving			
Grooving Tool Type			Plastic			
Specimen preparation method			Wet			
Drying Method						
Special selection process			NA			
Rolling Method for PL			Hand			
As Received Water Content (%)			17.7			
Liquid Limit Device Type			Mechanical			
Liquid Limit			26			
Plastic Limit			21			
Plasticity Index			5			
Liquid Limit Procedure			Multipoint (A)			
Tested By			Cindy Zickefoose			
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				6		
Percent Fines (Silt/Clay)				94		
Group Symbol				ML		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
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Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

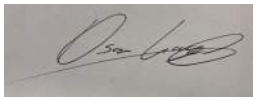
Material Test Report

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3366-S01	21-3366-S02	21-3366-S03	21-3366-S04	21-3366-S05	21-3366-S06
Client Sample ID	TP-09 Sample 1	TP-09 Sample 2	TP-09 Sample 3	TP-09 Sample 4	TP-09 Sample 5	TP-09 Sample 6
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D 2216	8.4	22.0	6.6	29.9	2.6	13.8	
Method		B	B	B	B	B	B	
Tested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol	ASTM D 2487	SM		SP	ML			
Group Name		Silty sand with gravel		Poorly graded sand with gravel	Silt			
Percent Gravel	LMA (Internal Method)	31		37				
Percent Sand		55		62				
Percent Fines (Silt/Clay)		14		1				
Group Symbol		SM		SP				
Tested By		John Platt		John Platt				
Approximate maximum grain size	ASTM D 4318							
Material retained on 425µm (No. 40) (%)								
Method of Removal					Sieving			
Grooving Tool Type					Plastic			
Specimen preparation method					Wet			
Drying Method								
Special selection process					NA			
Rolling Method for PL					Hand			
As Received Water Content (%)					29.9			
Liquid Limit Device Type					Mechanical			
Liquid Limit					29			
Plastic Limit					24			
Plasticity Index					5			
Liquid Limit Procedure					Multipoint (A)			
Tested By					Cindy Zickefoose			

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

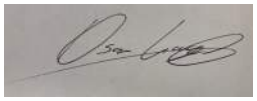
Report No: ASM:21-3367
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 210413

CC: CRW Geotech
Maria Kampsen
Steven Halcomb

Project: ICA South



Reviewed By: Oscar Lage
Title: Laboratory Supervisor
Date: 11/22/2021

Sample Details

Sample ID	21-3367-S01	21-3367-S02	21-3367-S03	21-3367-S04
Client Sample ID	TP-10 Sample 1	TP-10 Sample 2	TP-10 Sample 3	TP-10 Sample 4
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D 2216	14.1	20.6	21.9	15.0	
Method		B	B	B	B	

Comments

N/A