Proposed Industrial Development
Kineticor North Calgary Site
Rocky View County, Alberta

Kineticor c/o Cassa Development Services
Preliminary Geotechnical Evaluation Report | Version 0
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April 25, 2025

ENGLOBE

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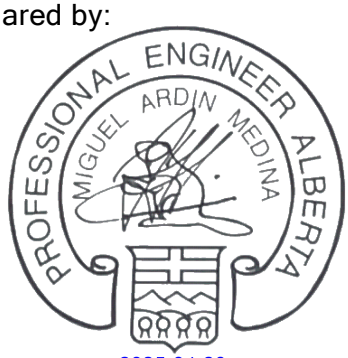
Prepared by:



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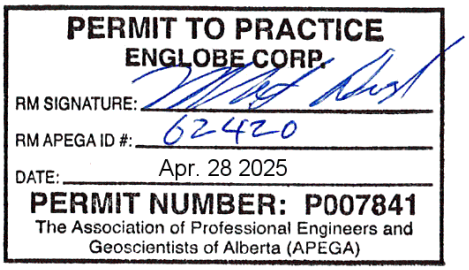

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Summary

Englobe Corp. was retained by Kineticor c/o Cassa Development Services to conduct a geotechnical evaluation of an approximately 1,1000-Acre property in Rocky View County, Alberta, to support the design and construction of a new industrial development. Englobe completed this geotechnical evaluation, which included advancing sixty-three (63) boreholes targeted to a maximum depth of 9.1 meters below existing grade (mbeg), measuring groundwater levels, and conducting laboratory index testing on select samples. The project area is illustrated in Drawing 02500452.000.G01 in Appendix A.

A summary of the key geotechnical findings and considerations at the site is provided below:

— The subsurface stratigraphy encountered underneath topsoil in the boreholes advanced onsite comprised glacial till underlain by interbedded layers of sandstone and siltstone, which generally extended to the borehole termination depths and is considered suitable for the proposed industrial development.

— Grading plans were not available at the time of preparing this report. It is anticipated that cuts and fills will be required at the site to bring the existing grades to final road and building design elevations. Final grading plans should be submitted to Englobe for review.

— Sub-cuttings in loose or soft surficial soils, such as those encountered in Boreholes BH-05, BH-08, BH-22, BH-35, BH-49, BH-56 and BH-61 will be required during grading. Other low-lying areas may also consist of surficial loose or soft sediment, which will require soil cuttings. These soils are generally suitable for reuse in engineered fills.

— A separate deep fill report will be required for any fills placed with more than 1.2 metres in depth. Topsoil and any unsuitable saturated or loose soils will require removal prior to placing new fill. All new fills should be placed to meet general engineered fill standards.

— The native soils encountered onsite are suitable for shallow foundation systems, depending on the loads for the future proposed structures. More commonly, however, large loads for large industrial buildings would be founded on a deep-pile foundation system. This site is very suitable for a commonly used bored cast-in-place socketed pile system. Foundation systems should be analyzed for each proposed structure, but the onsite soils look favourable for these common systems used in the region.

— Groundwater levels were allowed to stabilize in the standpipes and were measured between March 12 and March 14, 2025. At that time, groundwater was detected in thirty-two (32) boreholes at depths ranging from approximately 1.9 to 7.2 meters below existing grades; sixteen (16) boreholes were found dry, and fifteen (15) were inaccessible for a pickup truck. Groundwater levels fluctuate seasonally and in response to extreme weather events. Groundwater levels will be monitored for six (6) months after standpipe installations. Monitoring results will be reported in a separate letter. If encountered during excavation, the groundwater can be dewatered using a system of ditches and sumps equipped with submersible pumps.

— The site soils are suitable for slab-on-grade support. However, cut and fill depths need to be considered, along with soil loads for each building proposed in the area. The soils below slabs-on-grade should be visually inspected prior to construction, and any loose or deleterious materials should be removed. Special attention should be given to the shallow, loose or soft soils encountered onsite, as mentioned above.

— It is anticipated that excavations for deep utilities installation will be required for the installation of utilities and the construction of the proposed developments. The presence of cobbles and boulders is typical in till deposits and should be expected during excavation. Shallow bedrock was encountered at depths less than 6 meters in thirty-nine (39) out of sixty-three (63) boreholes at the site. The strength of the shallow bedrock was described as weak to medium strong. Excavations in bedrock layers may require specialized excavation equipment such as pneumatic breakers and rippers. However, once these layers have been fractured, the bedrock should be excavatable by conventional means.

— It is also anticipated that cut and fill will be required for this project. Imported engineered fill in addition to approved native soils are suitable to support loads. Any imported material must be previously approved by a qualified geotechnical engineer.

— Temporary excavations in cohesionless material should be backsloped at a minimum gradient of 1 horizontal to 1 vertical (1H:1V) or 45° from the bottom of the excavation. Excavations within native silty clay till or competent bedrock may have a vertical 1.5 m tall cut from the base of the excavation (in areas where silty clay till is encountered along the bottom 1.5 m of excavation), followed by a 1H:1V slope. If excessive sloughing is encountered, additional side sloping may be necessary. All excavations should be conducted in accordance with Alberta Occupational Health and Safety (OH&S) Regulations.

— Prior to construction, any organic soil, vegetation, and poor-quality fill material encountered should be removed from areas under the proposed building or parking areas. Backfill to bring the site to subgrade level should be “general engineered fill” as defined in Appendix C. Backfill to replace over-excavations beneath foundations should be "structural fill" as defined in Appendix C.

This list should not be considered all-inclusive and should be read in conjunction with the remainder of this report. The recommendations in this report are provided for site servicing, grading and general residential construction at the outline plan level. Commercial, multi-family, institutional and other buildings falling under part 4 of the NBCC 2023 require site-specific evaluation for geotechnical parameters, including but not limited to consideration of suitable foundation types, shoring, deep fills, excavations, dewatering, slope stability and bearing capacity.

Recommended general design and construction guidelines are provided in Appendix C. These guidelines are intended to present standards of good practice and should be interpreted as part of the report. Design recommendations presented in the report are based on the premise that these guidelines will be followed. The design and construction guidelines are not intended to represent detailed specifications for the work, although they prove useful in the preparation of such specifications. In the event of any discrepancy between the main text of this report and Appendix C, the main text should govern.

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Subcontractors of Englobe who may have performed laboratory work are duly evaluated according to the purchasing procedure of our quality system. For further information or details, please contact your project manager.”

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1 Introduction

Englobe Corp. was retained by Kineticor c/o Cassa Development Services to conduct a geotechnical evaluation of a property located in Rocky View County, Alberta, to support the design and construction of a future industrial development. The project area layout is illustrated in drawing 02500452.000.G01 in Appendix A. This investigation consisted of advancing sixty-three (63) boreholes targeted to a depth of approximately 9.1 meters below existing grades (mbeg), conducting soil sampling, installing standpipe piezometers, and conducting groundwater readings and field and lab testing on select soil samples. The evaluation was requested by Catherine Agar of Cassa Development Services.

The objective of this evaluation was to assess the general subsurface soil and groundwater conditions at the site to provide geotechnical recommendations for the design and construction of the proposed industrial development. The recommendations, comments and preliminary geotechnical engineering recommendations in this report are provided for site grading, installation of utilities, construction of roadways, as well as preliminary design recommendations for future foundation options. Commercial, industrial, institutional and other buildings falling under part 4 of the NBCC 2023 require site-specific evaluation for geotechnical parameters, including but not limited to consideration of suitable foundation types, deep fills, excavations, dewatering, slope stability and bearing capacity.

1.1 References

The geotechnical evaluation report has been prepared in accordance with industry practice and with reference to the following:

- *Canadian Foundation Engineering Manual (2023). Fifth Edition. Canadian Geotechnical Society. (CFEM 2023)*
- *National Building Code of Canada, Alberta Edition (2023). National Research Council Canada. (NBCC 2023)*
- *Moran, S. (1986) Surficial Geology of the Calgary Urban Area. Alberta Research Council, ARC/AGS Bulletin 53.*
- *County Servicing Standards (2013). Rocky View County. Approved by Resolution No. 188-13 on May 28th, 2013.*

1.2 Site and Project Description

It is our understanding that the project will include the design and construction of a proposed industrial development. General road and storm infrastructure is anticipated. However, design and layout drawings were not available at this time. The site approximately encompasses 1,100 acres across seven (7) quarter sections of land east of High Plains Industrial Park and within Rocky View County, Alberta. The site legal land descriptions are SW-23-26-28-W4, SE-23-26-28-W4, NE-15-26-28-W4, NW-14-26-28-W4, NE-14-26-28-W4, SW-14-26-28-W4 and SE-14-26-28-W4.

The eastern six (6) quarters of the lands are bounded by Highway 566 to the south, Range Road 282 to the east, Range Road 281 to the west and agricultural lands to the north. The western quarter of the lands is bounded by Range Road 281 to the east and agricultural lands to the north, south and west. The project lands are currently being used as agricultural lands.

The site has undulating topography, generally sloping gently to the northeast with some low-lying areas. Grading plans were not available at the time of preparing this report. Final grading plans, when available, should be submitted to Englobe to complete a review of the present recommendations.

1.3 Scope

To assess the geotechnical site conditions, including soil stratigraphy, groundwater conditions and soil properties, Englobe completed a program of borehole drilling and installation of standpipe wells combined with laboratory index testing. The borehole locations were selected by representatives of Englobe, subject to utility locates and suitable access for the drill rig. The locations of the boreholes are illustrated in Drawing 02500452.000.G02 in Appendix A, and the borehole logs are presented in Appendix B.

1.3.1 Soils Investigation

The subsurface investigation was conducted between February 20 and March 10, 2025, using a truck-mounted drilling rig equipped with a solid-stem auger and standard penetration test (SPT) auto-hammer.

The investigation included:

— Sixty-three (63) boreholes (Identified as BH-01 to BH-63) targeted to a depth of 9.1 mbeg and spaced at approximately three hundred (300) meters throughout the property. Fifty-three (53) of the boreholes achieved the targeted depth.

The soils encountered in the boreholes were visually classified in accordance with field identification procedures discussed in CFEM 2023 from disturbed soil samples obtained from the auger flights and the split spoon sampler used for SPT during the borehole drilling, and from the excavator used during the test pitting. Blow counts from the SPT were used to aid in determining relative in-situ soil strength. Pocket penetrometer readings were conducted to assess the undrained shear strength (Su) of select cohesive soil samples.

1.3.2 Groundwater Monitoring

Upon borehole completion, the depth of the borehole was measured, including any slough, and the presence or absence of free water within the borehole was noted. A 25 mm diameter slotted PVC standpipe well was installed in each borehole to allow future measurement of groundwater level within the depth of the investigation. This type of installation assumes a simple groundwater regimen. The annulus around the standpipe was backfilled with drill cuttings from the drilling operation. Specifics of each well installation are illustrated on the borehole logs in Appendix B. Groundwater levels will be monitored onsite for six (6) months after standpipe installations.

1.3.3 Laboratory Testing

All laboratory testing is carried out in accordance with applicable ASTM International test methods in our fully certified soil testing laboratory. Select samples were subjected to determination of natural moisture content, Atterberg limits, and soluble sulphate content. Hydrometer grain-size analysis and determination of organic content for near-surface soil samples were also carried out for use in determining a k-factor for erosion and sediment control (ESC) design. Laboratory testing is currently ongoing and final lab results will be provided in a separate letter including any recommendations derived of the results.

2 Subsurface Conditions

At the time this report was prepared, information on subsurface stratigraphy was available only at discrete borehole locations. Conditions were extrapolated and interpolated from the borehole locations to develop recommendations. Adequate monitoring should be provided during construction to check that these assumptions are reasonable. The following summarizes the subgrade conditions encountered during the drilling program. A more detailed soil description is contained in the borehole logs in Appendix B.

2.1 Site Geology

Based on a review of available geological data, a majority of the surficial soils at this site consist of glacial till corresponding to the Crossfield Drift Unit, overlying sandstone, shale, and siltstone, corresponding to the Porcupine Hills Formation.

2.2 Soils

The subsurface stratigraphy encountered underneath topsoil in the boreholes advanced at the site comprised glacial till underlain by interbedded layers of sandstone, shale, and siltstone bedrock, which extended to borehole termination depths. The detailed stratigraphy of the soils encountered in the boreholes is tabulated in Table 1.

Table 1: Soil Stratigraphy (depths in mbeg)

Borehole	Depth	Northing (m)	Easting (m)	Elevation (masl)	Topsoil	Glacial Till	Bedrock
1	9.1	5677508.9	12768.7	1039.2	0 - 0.16	0.16 - 8.8	8.8 - 9.1
2	9.1	5677510.6	13066.1	1035.9	0 - 0.28	0.28 - 8.2	8.2 - 9.1
3	9.1	5677506.1	13366.9	1033.6	0 - 0.23	0.23 - 9.1	
4	9.1	5677206.7	12767.1	1043.0	0 - 0.16	0.16 – 5.0	5.0 - 9.1
5	9.1	5677207.4	13067.7	1040.8	0 - 0.23	0.23 - 5.8	5.8 - 9.1
6	9.1	5677190.3	13355.9	1037.6	0 - 0.25	0.25 - 4.3	4.3 - 9.1
7	7.3	5676903.3	12770.2	1047.7	0 - 0.18	0.18 - 4.1	4.1 - 7.3
8	9.1	5676905.7	13084.1	1041.8	0 - 0.20	0.2 - 3.4	3.4 - 9.1
9	9.1	5676903.7	13367.7	1043.5	0 - 0.20	0.2 - 5.2	5.2 - 9.1
10	9.1	5677509.2	13566.4	1028.4	0 - 0.25	0.25 - 9.1	
11	9.1	5677513.6	13865.6	1030.5	0 - 0.20	0.2 - 9.1	
12	7.0	5677519.5	14113.3	1025.8	0 - 0.16	0.16 – 7.0	
13	9.1	5677214.5	13554.1	1032.7	0 - 0.20	0.2 – 7.0	7.0 - 9.1
14	9.1	5677213.9	13865.2	1030.7	0 - 0.20	0.2 - 9.1	

Borehole	Depth	Northing (m)	Easting (m)	Elevation (masl)	Topsoil	Glacial Till	Bedrock
15	9.1	5677222.3	14171.2	1024.6	0 - 0.20	0.2 - 9.1	
16	7.9	5676910.7	13571.6	1034.7	0 - 0.20	0.2 - 5.3	5.3 - 7.9
17	9.1	5676919.1	13877.8	1032.7	0 - 0.20	0.2 - 8.2	8.2 - 9.1
18	9.1	5676914.0	14164.0	1025.1	0 - 0.20	0.20 - 9.1	
19	9.1	5676681.2	11947.8	1065.0	0 - 0.18	0.18 - 4.3	4.3 - 9.1
20	9.1	5676683.7	12247.7	1059.7	0 - 0.20	0.20 - 4.1	4.1 - 9.1
21	9.1	5676682.0	12558.3	1056.1	0 - 0.25	0.25 - 5.3	5.3 - 9.1
22	9.1	5676375.7	11944.3	1066.4	0 - 0.20	0.20 - 3.2	3.2 - 9.1
23	9.1	5676377.3	12257.6	1064.5	0 - 0.20	0.20 – 4.0	4 .0- 9.1
24	8.2	5676384.2	12556.1	1062.4	0 - 0.26	0.26 - 3.7	3.7 - 8.2
25	9.1	5676078.8	11953.3	1069.7	0 - 0.18	0.18 - 3.7	3.7 - 9.1
26	9.1	5676081.7	12248.6	1068.4	0 - 0.16	0.16 - 2.7	2.7 - 9.1
27	9.1	5676088.2	12551.3	1066.5	0 - 0.26	0.26 – 5.0	5.0- 9.1
28	9.1	5676686.1	12769.1	1051.9	0 - 0.16	0.16 - 3.7	3.7 - 9.1
29	8.2	5676676.8	13069.3	1045.3	0 - 0.20	0.20 - 3.8	3.8 - 8.2
30	7.9	5676637.1	13368.1	1042.4	0 - 0.18	0.18 - 3.7	3.7 - 7.9
31	7.5	5676388.2	12771.1	1056.5	0 - 0.16	0.16 – 4.0	4 .0 – 7.5
32	9.1	5676401.9	13067.4	1049.1	0 - 0.24	0.24 - 5.2	5.2 - 9.1
33	9.1	5676386.1	13371.8	1046.4	0 - 0.20	0.20 - 4.9	4.9 - 9.1
34	9.1	5676072.6	12780.5	1063.8	0 - 0.20	0.20 - 4.1	4.1 - 9.1
35	9.1	5676085.2	13064.7	1053.9	0 - 0.20	0.20 - 5.6	5.6 - 9.1
36	9.1	5676098.5	13375.7	1047.3	0 - 0.20	0.20 - 9.1	
37	9.1	5676689.5	13572.0	1038.2	0 - 0.27	0.27 – 4.0	4 .0- 9.1
38	9.1	5676728.2	13873.6	1032.2	0 - 0.16	0.16 – 4.0	4 .0- 9.1
39	9.1	5676693.8	14173.2	1025.4	0 - 0.16	0.16 - 9.1	
40	9.1	5676430.7	13517.1	1041.2	0 - 0.18	0.18 - 3.4	3.4 - 9.1
41	9.1	5676388.8	13871.8	1035.6	0 - 0.20	0.20 - 7.9	7.9 - 9.1
42	9.1	5676394.6	14173.6	1025.9	0 - 0.20	0.20 - 9.1	
43	9.1	5676092.2	13656.9	1041.3	0 - 0.20	0.20 - 9.1	
44	7.6	5676094.6	13873.5	1035.5	0 - 0.16	0.16 - 7.6	
45	9.1	5676094.9	14174.1	1029.6	0 - 0.23	0.23 - 5.5	5.5 - 9.1
46	9.1	5675876.7	12775.9	1068.8	0 - 0.20	0.20 – 4.0	4.0 - 9.1
47	9.1	5675887.5	13077.6	1055.9	0 - 0.30	0.30 - 5.2	5.2 - 9.1

Borehole	Depth	Northing (m)	Easting (m)	Elevation (masl)	Topsoil	Glacial Till	Bedrock
48	9.1	5675889.6	13372.5	1048.2	0 - 0.30	0.30 -3.7 4.0 - 9.1	3.7 – 4.0
49	8.5	5675586.4	12787.2	1073.1	0 - 0.30	0.30 – 7.0	7 .0- 8.5
50	9.1	5675591.2	13087.3	1058.2	0 - 0.30	0.30 - 4.6	4.6 - 9.1
51	9.1	5675591.8	13376.4	1049.0	0 - 0.30	0.30 - 9.1	
52	9.1	5675288.8	12784.0	1077.9	0 - 0.30	0.30 - 9.1	
53	9.1	5675289.1	13073.7	1060.3	0 - 0.30	0.30 - 8.2	8.2 - 9.1
54	9.1	5675298.6	13370.7	1052.7	0 - 0.30	0.30 – 6.7	4.6 - 9.1
55	5.5	5675878.0	13577.5	1042.4	0 - 0.20	0.20 - 5.5	
56	9.1	5675898.2	13871.3	1034.7	0 - 0.25	0.25 - 9.1	
57	9.1	5675895.6	14178.2	1034.2	0 - 0.20	0.20 - 4.9	4.9 - 9.1
58	9.1	5675592.5	13578.2	1044.6	0 - 0.25	0.25 - 5.3	5.3 - 9.1
59	9.1	5675595.9	13880.2	1040.7	0 - 0.25	0.25 - 3.7	3.7 - 9.1
60	9.1	5675599.2	14173.2	1040.4	0 - 0.20	0.20 - 3.7	3.7 - 9.1
61	9.1	5675289.3	13576.9	1050.5	0 - 0.20	0.20 - 7.9	7.9 - 9.1
62	9.1	5675288.3	13894.1	1046.7	0 - 0.16	0.16 - 3.4	3.4 - 9.1
63	9.1	5675299.6	14176.0	1044.6	0 - 0.15	0.15 - 4.9	4.9 - 9.1

Depths in Table 1 are approximate. Since the thickness of the surficial organic soils is constantly affected by the erosive forces of wind and precipitation, the thicknesses of the topsoil layers can vary widely. As such, the thickness of topsoil organic browns as measured in the boreholes should not be relied upon to estimate stripping quantities. A series of shallow test pits would be suitable to provide topsoil volumes.

2.2.1 Topsoil

Topsoil was encountered at the ground surface in all the boreholes completed at this site. The material contained organics and rootlets and was described as damp and brown black to black. The topsoil thicknesses varied between approximately 150 and 300 mm. The thicknesses of the topsoil as measured in the boreholes should not be relied upon to estimate stripping quantities. A series of shallow test pits would be suitable to provide topsoil volumes.

2.2.2 Silty Clay (Till)

Silty clay (till) was encountered in sixty (60) boreholes during this investigation. The material was encountered at depths ranging from 0.2 to 5.8 mbeg (approximately) and extended to depths of approximately 2.7 to 9.1 mbeg (end of the investigation). The material typically contained trace to some fine gravel, trace gravel, trace to some sand, occasional oxides and precipitates and coal spots.

The silty clay (till) was typically described as stiff to hard, low to medium plastic, dry to damp and medium to dark brown or light grey.

Groundwater seepage was encountered within silty clay till silt layers in BH-01 during the investigation at a depth of 8.2 mbeg (approximately). It is anticipated that this seepage was originated from perched water retained in sandy and silty lenses within the silty clay till layer.

2.2.3 Silt (Till)

Silt till was encountered in sixteen (16) boreholes during this investigation at depths ranging between 0.2 and 2.3 mbeg (approximately) and extended to depths between approximately 0.9 and 5.2 mbeg. The material contained trace gravel, trace fine gravel, trace to some sand, trace to some clay, and occasional trace oxides, precipitates, and coal spots, and was described as compact to very dense, dry to damp, and light to medium brown.

Loose silt till deposits were encountered in Boreholes BH-05 and BH-08 at depths ranging between approximately 0.2 and 2.4 mbeg.

2.2.4 Sandy Silt

Silt till was encountered in twenty-eight (28) boreholes during this investigation at depths ranging between 0.2 and 8.2 mbeg (approximately) and extended to depths between approximately 1.5 and 9.1 mbeg (end of the investigation). The material contained trace gravel, trace fine sand, trace clay, and occasional trace oxides precipitates and coal spots, and was described as compact to dense, dry, and light to medium brown.

Loose sandy silt deposits were encountered in Boreholes BH-22, BH-35, BH-49, BH-51, and BH-61 at depths ranging between approximately 0.2 and 2.1 mbeg.

2.2.5 Sand

Sand was encountered in eighteen (18) boreholes during this investigation at depths ranging between 0.2 and 6.7 mbeg (approximately) and extended to depths between approximately 1.8 and 8.2 mbeg. The material contained trace gravel to gravelly, trace silt to silty, and occasional trace oxides, precipitates, and coal spots, and was described as compact to very dense, dry to damp and light to medium brown. or brown grey.

Loose sand deposits were encountered in Borehole BH-56 at a depth between approximately 0.2 and 1.8 mbeg.

2.2.6 Bedrock

Bedrock was encountered in forty-seven (47) boreholes during this investigation at depths from 2.7 to 8.8 mbeg (approximately) and extended to the end of the investigation at approximately 9.1 mbeg or to refusal, except for Boreholes BH48 and BH54, where the bedrock was interrupted by a silty clay till layer in BH48 and by a sand layer in BH54.

The material consisted of interbedded layers of sandstone, shale and siltstone and was generally described as weak to medium strong, dry to damp and light to medium brown/grey. Refusal was encountered within the bedrock layers in six (6) boreholes) at depths between approximately 7.3 and 8.5 mbeg. Groundwater seepage was encountered within the bedrock in twelve (12) boreholes at depths ranging from 4.3 to 7.9 mbeg (approximately).

2.3 Groundwater

Groundwater seepage was encountered during the drilling in thirteen (13) boreholes at this site, at depths between approximately 4.3 and 8.2 mbeg.

To monitor actual groundwater levels at these lands, the site was visited between March 12 and March 14, and on April 8, 2025, to measure the stabilized groundwater level in the standpipes installed in the boreholes. Groundwater readings are shown in Table 2.

Table 2: Groundwater Data

Borehole ID	Geodetic Ground Elevations (masl)	GWL Readings 03-12-2025 to 03-14-2025		GWL Readings 04-08-2025	
		Depth Below Existing Grade (mbeg)	Geodetic Elevation (masl)	Depth Below Existing Grade (mbeg)	Geodetic Elevation (masl)
BH01	1039.154	4.50	1034.65	4.10	1035.05
BH02	1035.859	2.70	1033.16	2.38	1033.48
BH03	1033.571	2.50	1031.07	2.29	1031.28
BH04	1042.969	inaccessible		3.69	1039.28
BH05	1040.801	inaccessible		3.86	1036.94
BH06	1037.62	1.93	1035.69	1.88	1035.74
BH07	1047.749	inaccessible		3.18	1044.57
BH08	1041.761	3.07	1038.69	2.98	1038.78
BH09	1043.541	5.23	1038.31	5.15	1038.39
BH10	1028.404	4.20	1024.20	4.13	1024.27
BH11	1030.503	Dry		Dry	
BH12	1025.785	Dry		Dry	
BH13	1032.728	1.90	1030.83	1.80	1030.93
BH14	1030.744	Dry		Dry	
BH15	1024.563	Dry		Dry	
BH16	1034.701	3.40	1031.30	3.38	1031.32
BH17	1032.699	6.24	1026.46	6.20	1026.50
BH18	1025.119	Dry		Dry	
BH19	1065.008	6.94	1058.07	6.81	1058.20
BH20	1059.658	4.07	1055.59	3.93	1055.73
BH21	1056.145	4.53	1051.62	4.47	1051.68
BH22	1066.363	4.80	1061.56	4.76	1061.60
BH23	1064.495	5.30	1059.20	5.39	1059.11
BH24	1062.383	Dry		Dry	
BH25	1069.714	5.48	1064.23	5.37	1064.34
BH26	1068.44	inaccessible		4.63	1063.81
BH27	1066.537	5.07	1061.47	4.93	1061.61
BH28	1051.947	6.83	1045.12	6.88	1045.07
BH29	1045.331	inaccessible		4.59	1040.74
BH30	1042.442	inaccessible		4.96	1037.48
BH31	1056.5	Dry		Dry	
BH32	1049.05	6.28	1042.77	6.36	1042.69
BH33	1046.397	Dry		Dry	
BH34	1063.789	6.60	1057.19	6.51	1057.28

Borehole ID	Geodetic Ground Elevations (masl)	GWL Readings 03-12-2025 to 03-14-2025		GWL Readings 04-08-2025	
		Depth Below Existing Grade (mbeg)	Geodetic Elevation (masl)	Depth Below Existing Grade (mbeg)	Geodetic Elevation (masl)
BH35	1053.925	inaccessible		2.99	1050.94
BH36	1047.265	inaccessible		Dry	
BH37	1038.187	inaccessible		5.77	1032.42
BH38	1032.182	6.73	1025.45	6.50	1025.68
BH39	1025.357	Dry		Dry	
BH40	1041.244	4.70	1036.54	4.78	1036.46
BH41	1035.62	Dry		Dry	
BH42	1025.916	Dry		Dry	
BH43	1041.336	inaccessible		Dry	
BH44	1035.5	Dry		Dry	
BH45	1029.604	7.20	1022.40	6.99	1022.61
BH46	1068.752	Dry		Dry	
BH47	1055.874	4.60	1051.27	4.15	1051.72
BH48	1048.223	7.20	1041.02	4.56	1043.66
BH49	1073.066	Dry		Dry	
BH50	1058.233	inaccessible		5.92	1052.31
BH51	1049.006	inaccessible		Dry	
BH52	1077.889	2.45	1075.44	2.60	1075.29
BH53	1060.341	4.58	1055.76	4.65	1055.69
BH54	1052.687	2.90	1049.79	3.08	1049.61
BH55	1042.39	Dry		Dry	
BH56	1034.662	Dry		Dry	
BH57	1034.187	3.85	1030.34	3.90	1030.29
BH58	1044.612	inaccessible		4.42	1040.19
BH59	1040.671	inaccessible		4.41	1036.26
BH60	1040.427	inaccessible		7.20	1033.23
BH61	1050.499	3.69	1046.81	3.53	1046.97
BH62	1046.741	3.45	1043.29	3.58	1043.16
BH63	1044.606	4.15	1040.46	4.23	1040.38
Groundwater encountered in Boreholes		32.00	32.00	44.00	44.00
Boreholes not accessible during readings		15.00			
Boreholes Encountered Dry during monitoring		16.00		19.00	

According to the Alberta Water Wells Database, the static water levels in water wells advanced within the perimeter, or in the vicinity of the proposed development lands, vary between approximately 10.9 and 29.0 mbeg. These depths are located below the maximum borehole depths achieved during the field investigation.

The results from the groundwater readings shown in Table 2 (ranging from approximately 1.9 to 7.2 mbeg), the depths in which seepage was found during drilling operations (between approximately 4.3 and 8.2 mbeg), and the static level of the water wells completed within property limits or in the site adjacencies, indicate the presence of a shallow groundwater system (majorly containing perched water) located within the till material and the shallow bedrock encountered during the field investigation and a deeper groundwater table within bedrock.

The shallow perched groundwater system encountered onsite is likely to be fed by runoff precipitation collecting in site low-lying areas and infiltrating into more permeable silt and sand layers or lenses of permeable soils located within the silty clay till material or discontinuities in shallow bedrock.

Groundwater levels fluctuate seasonally and due to climatic influences. Groundwater levels in mid-March are expected to be up to 1.2 metres below their seasonal peak in an average year.

2.4 Laboratory Testing Results

The following sections provide a discussion of certain laboratory test results and their implications for design and construction. Atterberg Limits, natural moisture contents, as well as organic contents, are presented on the attached borehole logs in Appendix C.

2.4.1 Soluble Sulphate Attack Potential.

Testing has been completed on select samples within the subject property. Testing for soluble sulphate content has revealed ‘Very Severe” sulphate levels of up to 2.74 per cent. Therefore, all concrete elements in contact with soils must meet the requirements of CSA-A23.1 4.1.1.6 for a S-1 exposure class, which includes use of Type HS (Sulphate Resistant) cement, a minimum 56-day compressive strength of 35 MPa, a maximum water to cement ratio of 0.40 and air entrainment of 5 to 8 percent by volume (based on 14-20mm aggregate).

Additional sulphate testing may be conducted for each lot of this development to confirm the exposure to sulphate attack for all native soils to be in contact with concrete on this land. All fill material imported to the site must also be tested for soluble sulphate attack potential. Sulphate Testing results are included in Table 3.

Table 3: Soluble Sulphate Content of Soils

Area	Borehole	Sample	Depth (m)	Soluble Sulphate Content (%)	Degree of Exposure
1	1	1-1	0.76	0.04	Negligible
1	3	3-1	0.76	0.08	Negligible
1	5	5-3	2.59	1.40	Severe
1	8	8-4	3.28	0.04	Negligible
2	11	11-1	0.76	0.04	Negligible
2	12	12-2	1.75	0.08	Negligible
2	14	14-3	2.59	1.94	Severe
2	18	18-4	3.28	0.07	Negligible
3	21	21-5	4.11	0.51	Severe
3	22	22-2	1.75	0.04	Negligible
3	23	23-3	2.59	1.13	Severe
3	24	24-4	3.28	0.04	Negligible
4	29	29-1	0.76	0.23	Severe
4	31	31-2	1.75	0.04	Negligible
4	33	33-3	2.29	2.18	Very Severe
4	35	35-4	3.28	1.36	Severe
5	38	38-1	0.76	2.74	Very Severe
5	40	40-2	1.75	0.04	Negligible
5	43	43-3	2.29	0.08	Negligible
5	44	44-4	3.28	2.07	Very Severe
6	47	47-1	0.76	0.41	Severe
6	49	49-3	2.59	1.21	Severe
6	50	50-2	1.75	0.04	Negligible
6	53	53-4	3.28	1.42	Severe
7	55	55-1	0.76	0.08	Negligible
7	57	57-2	1.75	0.56	Severe
7	61	61-3	2.29	2.24	Very Severe
7	63	63-4	3.28	1.78	Severe

2.4.2 Soil Erodibility

Englobe has completed laboratory testing and calculated soil erodibility factors (K-values) for the surficial soils within the subject development for use in an Erosion and Sedimentation Control (ESC) plan. The K-values were calculated in accordance with the RUSLEFAC guidelines1 using thirteen (13) pairs of hydrometer and organic content test results obtained on the boreholes included in Table 4. The samples were obtained from the native soils at depths ranging between 0.30 and 0.76 m.

The particle size distribution of the soils was obtained using the hydrometer method. The hydrometer results are included in Appendix B and the borehole logs in Appendix C. The USDA classification scheme was used to differentiate silts and sands when determining the soil structure and permeability classes from the Erodibility Worksheet. The percentage of very fine sands (0.05 - 0.10 mm) was added to the per cent of silt for application to the Soil Erodibility Nomograph shown in Figure A-7 of the nomograph included in the City of Calgary Water Resources - Erosion and Sediment Control guidelines, 2017.

The soil erodibility K-values for select samples collected at this site are shown in Table 4. The erodibility factor (K-value) calculations for select samples collected at the proposed development site are included in Drawings 02500452.000.E01 to E07 in Appendix A.

Table 4: Erodibility Factor Calculations

Borehole	Sample	Depth (m)	Clay (%)	Silt and Very Fine Sand (%)	Sand (%)	Gravel (%)	Organics (%)	Soil Structure	Soil Permeability	Soil Classification	Erodibility Factor
1	1-1	2.50	28.00	36.2	31.50	4.30	3.00	4	4	Clay Loam	0.031
3	3-2	5.75	30.00	38.4	27.7	3.9	2.6	4	4	Clay Loam	0.033
12	12-1	2.50	20.00	37.2	28.40	14.40	3.10	3	3	Silt Loam	0.021
14	14-1	1	23.00	44.5	28.6	3.9	2.7	3	3	Clay Loam	0.028
19	19-1	2.50	27.00	36.6	26.60	9.80	2.20	4	4	Clay Loam	0.031
21	21-1	2.5	28.00	40.5	28.3	3.2	2.1	4	4	Clay Loam	0.035
23	23-1	2.50	28.00	39.4	26.40	6.20	2.70	4	4	Clay Loam	0.034
25	25-1	2.5	30.00	34.8	33.5	1.7	2.8	4	4	Clay Loam	0.032
27	27-1	2.50	29.00	41.4	27.20	2.40	2.20	4	4	Clay Loam	0.035
32	32-1	2.5	27.00	41.9	28.7	2.4	2.2	4	4	Clay Loam	0.036
41	41-1	2.50	17.00	34.8	42.60	5.60	2.30	2	3	Loam	0.022
52	52-1	2.5	24.00	38.1	33.7	4.2	2.8	2	3	Loam	0.021
54	54-1	2.50	18.00	30	28.00	24.00	2.20	3	3	(Silt Loam)	0.017
63	63-1	2.5	26.00	43.4	26.9	3.7	2.5	3	3	(Loam)	0.027

The graphically determined K-values are considered to represent the most erodible soil types on site, likely to be exposed during rough grading. Furthermore, these soils are considered suitable as engineered fill soils for rough grading.

[2] Wall, G.J., D.R. Coote, E.A. Pringle and I.J. Shelton (editors). 2002. RUSLEFAC – Revised Universal Soil Loss Equation for Application in Canada: A Handbook for Estimating Soil Loss from Water Erosion in Canada. Research Branch, Agriculture and Agri-Food Canada. Ottawa. Contribution No. AAFC/AAC2244E. 117 pp.

3 Discussion & Recommendations

Based on our observations of the soil and groundwater conditions, the subject site is suitable for the proposed development, provided that the recommendations within this report are incorporated into the design of buildings and associated works. Recommendations relevant to construction are also included.

The recommendations in this report are provided for site servicing, grading and general building construction at the outline plan level. Commercial, industrial, multi-family, institutional and other buildings falling under part 4 of the NBCC 2023 require site-specific evaluation for geotechnical parameters, including but not limited to consideration of suitable foundation types, deep fills, excavations, dewatering, slope stability and bearing capacity.

3.1 SITE GRADING AND DRAINAGE

Cut and fill drawings for this development were not available at the time of this report. When available, grading and cut-and-fill drawings of this development should be reviewed by Englobe. It is anticipated that cuts and fills will be required at the site to bring the existing grades to final road and building design elevations. Site grading is expected to include cuts and fills to allow stormwater management and appropriate grades for roadways, utilities, and development lots.

Prior to grading, all organic topsoil, deleterious soils, and vegetation should be removed. The removal should extend beyond the perimeter of the proposed developments a distance equal to the total vertical depth of the material being removed. Topsoil and organic browns should be stockpiled separately for reuse or disposal.

During the grading, it is anticipated that some sub-cuttings will be required to replace loose or soft surficial soils such as those encountered in Boreholes BH-05, BH-08, BH-22, BH-35, BH-49, BH-56 and BH-61, at depths ranging between approximately 0.2 and 2.1 mbeg. These boreholes are located in the proximity of water courses and low-lying zones in the project area. The soils in other low-lying areas may also consist of surficial loose or soft soils that will require additional soil cuttings. The soils encountered in these areas are generally suitable for reuse in engineered fills.

The native soils encountered onsite below topsoil are suitable for reuse as general engineered fill, subject to inspection and approval by a qualified geotechnical engineer, and appropriate moisture conditioning. All imported material should be tested and approved by a geotechnical engineer prior to delivery to the site.

Grading fills must be placed in uniform lifts compacted to a minimum of 98 percent of Standard Proctor Density at a moisture content in the range of optimum to 3 percent above optimum. The maximum lift thickness is generally 300 mm but is also subject to soil conditions and compaction equipment being used and should be verified by Englobe on site. Deep fills, defined as those having thicknesses greater than 1.2 metres, should be reviewed in a Deep Fills Analysis Report. This is typically done during the level planning stage or phase of the project.

For sloping land with grades steeper than 20 percent, the slope must be cut back at 5H:1V prior to placement of any fill. Upon determination of a site grading plan, Englobe should be consulted to review the stripping requirements for the site. Englobe should be notified to inspect all soil surfaces prior to the placement of fill soils to verify that the organic and deleterious soils have been removed.

It is recommended that final site grading in development lots be provided to direct water to areas remote from all proposed structures. Minimum landscape gradients of 2 percent are recommended to reduce the risk of run-off ponding in localized areas. Furthermore, downspouts should be positively directed away from the buildings.

3.2 Temporary Construction Excavations

Typical utility installations will require trench cuts with depths of up to 3 to 6 metres. Considering potential cuts and fills performed during site grading, the soils within this depth are expected to generally consist of fine-grained soils that will be removable by a conventional hydraulic excavator. Glacial till soils typically include cobble- and boulder-sized rocks. Bedrock was encountered in thirty-nine (39) boreholes at the above-mentioned depth at this site.

The strength of the bedrock encountered at depths up to 6 meters at this site was described as weak to medium strong. Excavations in medium-strong bedrock layers may require specialized excavation equipment such as pneumatic breakers and rippers. However, once these layers have been fractured, the bedrock should be excavatable by conventional means.

Minor groundwater seepage into excavations should be expected, particularly during and following periods of inclement weather. It should be possible to dewater the anticipated seepage flow using a system of ditches and sumps equipped with pumps.

Temporary excavations in cohesionless material should be backsloped at a minimum gradient of 1 horizontal to 1 vertical (1H:1V) or 45° from the bottom of the excavation. Excavations within native silty clay till or competent bedrock may have a vertical 1.5 m tall cut from the base of the excavation (in areas where silty clay is encountered along the bottom 1.5 m of excavation), followed by a 1H:1V slope. If excessive sloughing is encountered, additional side sloping may be necessary. All excavations should be conducted in accordance with Alberta Occupational Health and Safety (OH&S) Regulations.

Where there is limited space for excavations, for example, where the excavation will extend into building envelopes on adjacent lots, shoring or trench boxes should be employed to prevent the excavations from extending into these future building footprints. Any trench bracing or shoring should be designed by a qualified engineer and submitted to Englobe for design review.

3.3 PIPE SUPPORT & BACKFILL PROCEDURES

Fine-grained silt and clay soils are present onsite. To prevent erosion of the bedding soils by water flowing through the bedding gravel, compacted clay or lean-mix concrete plugs should be constructed at regular intervals along utility lines, as per the City of Calgary detail (Drawing 59 in the Standard Specifications for Sewer Construction 2022), on the downstream side of manholes. Drains should be installed on the upstream side of the manholes to drain groundwater into the storm system.

The location of clay plugs and drains should be determined during detailed design in consultation with Englobe. Geotextile placed on top of the bedding gravel will be necessary where fine-grained soil is used as fill directly on top of the bedding gravel. The geotextile will prevent migration of fine-grained soil into the gravel, which would result in future settlement. The requirements for geotextile should be assessed during construction by a qualified geotechnical engineering firm.

Shallow utility trenches, including catch basin barrels and duct trenches also need to consider proper backfill procedures to prevent surface settlements. Appropriate compaction meeting engineered fill standards is necessary to prevent settlement. In addition, whenever a washed gravel fill is used, particularly in a trap low, such as around a catch basin barrel, a geotextile wrap around all drainage gravel is necessary to prevent migration of fine-grained soils, which results in settlements. Clay plugs in these shallow utility trenches will also limit the water flow and potential settlement concerns. Englobe should be notified to inspect the geotextile placement on site.

3.4 Foundation Design Resistance Factors

Load and Resistance Factor Design (LRFD) parameters are presented below for shallow foundation design. Ultimate Limit State (ULS) resistances are presented, and should be utilized with the following design formula, as per the Canadian Foundation Manual Fifth Edition 2023:

$$\Phi R_n \geq \Sigma \alpha_i S_{ni}$$

Where:

Φ = Geotechnical resistance factor

R_n = Nominal (ultimate) geotechnical resistance

α_i = Load safety factor determined by structural engineer

S_{ni} = Specified load component

i = Represents various types of loads

The values for load factors (α_i), geotechnical resistance factor (Φ) and load combinations are specified by applicable codes e.g., NBCC. As per the NBCC, we recommend use of the following Φ:

Table 5: Geotechnical Resistance Factors for Foundations

Description	Resistance Factor (Φ)
Shallow Foundations - Vertical bearing resistance, semi-empirical analysis	0.5
Shallow Foundations - Sliding	0.8
Deep Foundations - Resistance to Axial Load based on semi-empirical analysis using laboratory and in-situ test data	0.4
Deep Foundations - Resistance to Axial Load based on analysis using static loading test results	0.6
Deep Foundations - Resistance to Axial Load based on analysis using dynamic monitoring results	0.5
Deep Foundations – Uplift Resistance by semi-empirical analysis	0.3
Deep Foundations – Uplift Resistance by loading test results	0.4
Deep Foundations – Horizontal Load Resistance	0.5

3.5 FOUNDATION DESIGN

The native glacial till soils encountered onsite are suitable bearing materials for a shallow strip and spread foundation system. This is subject to site-specific design and feasibility for the proposed building loads. This would generally be feasible for light loads since glacial tills are suitable for unfactored Ultimate Limit States (ULS) bearing values of 300 to 400 kPa.

The shallow foundation should be placed on the undisturbed stiff to very stiff silty clay till or compact to very dense sand or silt encountered onsite or on approved engineered fill that meets the requirements in this report. A geotechnical resistance factor of 0.5 may be used in conjunction with this ULS value. If fills of more than 1.2 metres are proposed within the development, bearing capacity for footings must be reviewed in a deep fills analysis. Contractors should have all prepared bearing surfaces inspected by a qualified geotechnical engineering company prior to concrete or gravel placement to verify that

acceptable soil bearing capacity is achieved at the design footing elevation. All foundation excavation should be protected from meteorological elements such as rain, snow, freezing and excessive drying. A concrete mud slab may be required to protect the bearing surface immediately after excavation, depending on weather conditions and the time the excavation will be exposed until concrete placement. Concrete foundations should be placed soon after excavation.

Larger commercial/industrial building loads will generally require high bearing capacities and would be more feasible to be founded on a deep pile foundation system. A common foundation system used in the region consists of bored cast-in-place concrete (CIP) piles. This site is very suitable for a bored cast-in-place concrete pile system socketed into encountered bedrock. The encountered bedrock ranges in depth from as shallow as 2.7 mbeg to deeper than 9.1 mbeg in some boreholes. A bored CIP concrete pile can be founded on the encountered glacial till, or into the bedrock for higher skin friction and end bearing capacities. Pile end bearing capacities in the encountered bedrock can range from 3,000 to 4,000 kPa and should be confirmed in site-specific investigations.

3.6 SLAB ON GRADE

The site soils are suitable for slab-on-grade support. However, cut and fill depths need to be considered, along with soil loads for each building proposed in the area. The soils below slabs-on-grade should be visually inspected prior to construction, and any loose or deleterious materials should be removed. Special attention should be given to the shallow, loose or soft soils encountered onsite, as mentioned above.

3.7 GROUNDWATER CONSIDERATIONS

The site was visited between March 12 to March 14, 2025, to measure the stabilized groundwater level in the standpipes installed during drilling operations. At that time, groundwater was detected in thirty-one (32) boreholes at depths ranging from 1.9 to 7.2 mbeg (approximately). Sixteen (16) boreholes were dry, and fifteen (15) were inaccessible due to soil conditions. Cut and fill drawings for this development were not available at the time of this report. When available, cut and fill drawings should be reviewed by Englobe to determine potential requirements for dewatering measures. These considerations are discussed further in Section 3.8.

3.8 WEEPING TILE

For below-grade levels, it is recommended to install a permanent dewatering system to prevent flooding of the structure after construction. A review of these recommendations should be done once final grading and layout plans are available.

Due to the presence of shallow perched groundwater levels encountered onsite, weeping tile is required for all below-grade development. Proper installation of weeping tile with direct weeping tile connection between exterior weeping tile and sumps is required to prevent exterior water pooling on the interior subgrade soils. Perimeter weeping tile is required for all foundations.

Weeping tile drains should consist of a minimum of 100 mm diameter perforated pipe around the perimeter of below-grade structures at the bottom of the footing elevation. The pipe should be backfilled with free-draining, washed gravel and positively drained to a storm sewer, possibly through a sump and pump system. A non-woven geotextile filter fabric should cover the top of the drainage gravel to prevent siltation of the gravel. A sump to pump this water up to the storm sewer would be required in case any footings are at elevations below the storm service connection.

All backfill around the foundation walls of residential structures must be compacted to mitigate water infiltration. Ensure water does not back up in any below-grade trenches as this would back up and surcharge the building weeping tile. Clay plugs in shallow utility trenches should be installed to ensure that water migration cannot flow toward residential lots.

3.9 Frost Protection

The surficial silt and silty clay till encountered throughout the site should be considered frost susceptible, which will result in frost heave displacement in the soil when frozen. For protection against frost action, perimeter footings in heated structures should be extended to such depths as to provide a minimum soil cover of 1.4 metres. Exterior footings in unheated structures should have a minimum soil cover of 2.1 metres, unless provided with equivalent insulation. Any portion of the foundation that extends more than 1.0 metres from the heated structure should be considered to be an unheated foundation. Use of underslab insulation may impact the foundation depth required for frost protection and must be reviewed by the geotechnical engineer.

3.10 LATERAL EARTH PRESSURE PARAMETERS

The following Table presents coefficients of lateral earth pressure and unit weights for different types of soils. Information on the application of these coefficients is included in Appendix C.

Table 6: Coefficient of Lateral Earth Pressure

	K_a	K_o	K_p	γ (kN/m^3)
Engineered Fill	0.38	0.55	2.66	22.0
Structural Fill	0.31	0.47	3.25	23.0
Native soils	0.39	0.56	2.56	22.5

3.11 BACKFILL MATERIALS AND COMPACTION

The on-site materials may be suitable for use as general engineered or structural fill, subject to material evaluation and removal of deleterious materials. Imported fill should be approved for use as structural or general engineered fill. Recommended compaction specifications and materials are as follows:

- Structural fill - 100 percent Standard Proctor maximum dry density, maximum compacted lift thickness 250 mm, maximum grain size 200 mm. Structural fill materials should comprise clean, well-graded inorganic granular soils.
- General engineered fill - 98 percent Standard Proctor maximum dry density, 0 to +3 percent of optimum moisture content, maximum compacted lift thickness 300 mm. General engineered fill materials should comprise clean, well-graded granular soils or inorganic, medium to low plastic cohesive soils.
- Drainage gravel - 100 percent maximum index density, maximum compacted lift thickness 250 mm, maximum grain size 40 mm. Drainage gravel must be washed and open-graded with few fines. This material is commonly used for pipe bedding, granular filters, backfill around weeping tile and gas depressurization systems.

Where washing of fines is possible, fill material placed should be separated from coarser or finer material by a suitable geotextile. Backfill comprising cohesive soils should be considered frost susceptible and should not be used in areas where it may become frozen and where frost heaving would be unacceptable.

3.12 Inspection and Testing

The geotechnical engineer of record (EOR) must review proposed grading as it may have an impact on the design of shallow and deep foundation systems, piping and utilities and surface works for the proposed development. Site-specific evaluation is required for all commercial and industrial lots within the development. For storm pond design, the design depth and geometry of the pond must be reviewed, including the impact upon any major slopes. During construction, the schedule of work must be communicated with sufficient notice to allow adequate monitoring as follows:

- Site Grading: full-time compaction testing for fills placed within the building area. Compaction testing in paved areas is also required.
- Excavation: All excavations should be inspected prior to worker entry. Excavations not in compliance with the requirements of Alberta OH&S are not acceptable. Site conditions may necessitate alternate requirements to those stated in this report.
- Bearing Inspection: All bearing surfaces must be inspected prior to the placement of concrete. Ideally, this is performed prior to formwork being constructed so that any deficiencies can be remedied without rework.
- Weeping Tile: Once installed, the weeping tile placement should be reviewed by the EOR.
- Backfill: all backfill around the foundation walls and under-slab must be compacted, and compaction testing is required.

4 Limitations and Closure

Recommendations presented herein are based on a geotechnical evaluation of the findings in sixty-three (63) boreholes. The conditions encountered during the fieldwork are considered to be reasonably representative of the site. If, however, conditions other than those reported are noted during subsequent phases of the project, Englobe should be notified and given the opportunity to review our current recommendations in light of new findings. This report does not include any recommendations related to contaminants in soil or groundwater. Should there be any other documentation indicating any excavation or land disturbance, such as environmental reports, Englobe would require these reports prior to site development to confirm the recommendations within this report are suitable in light of new information.

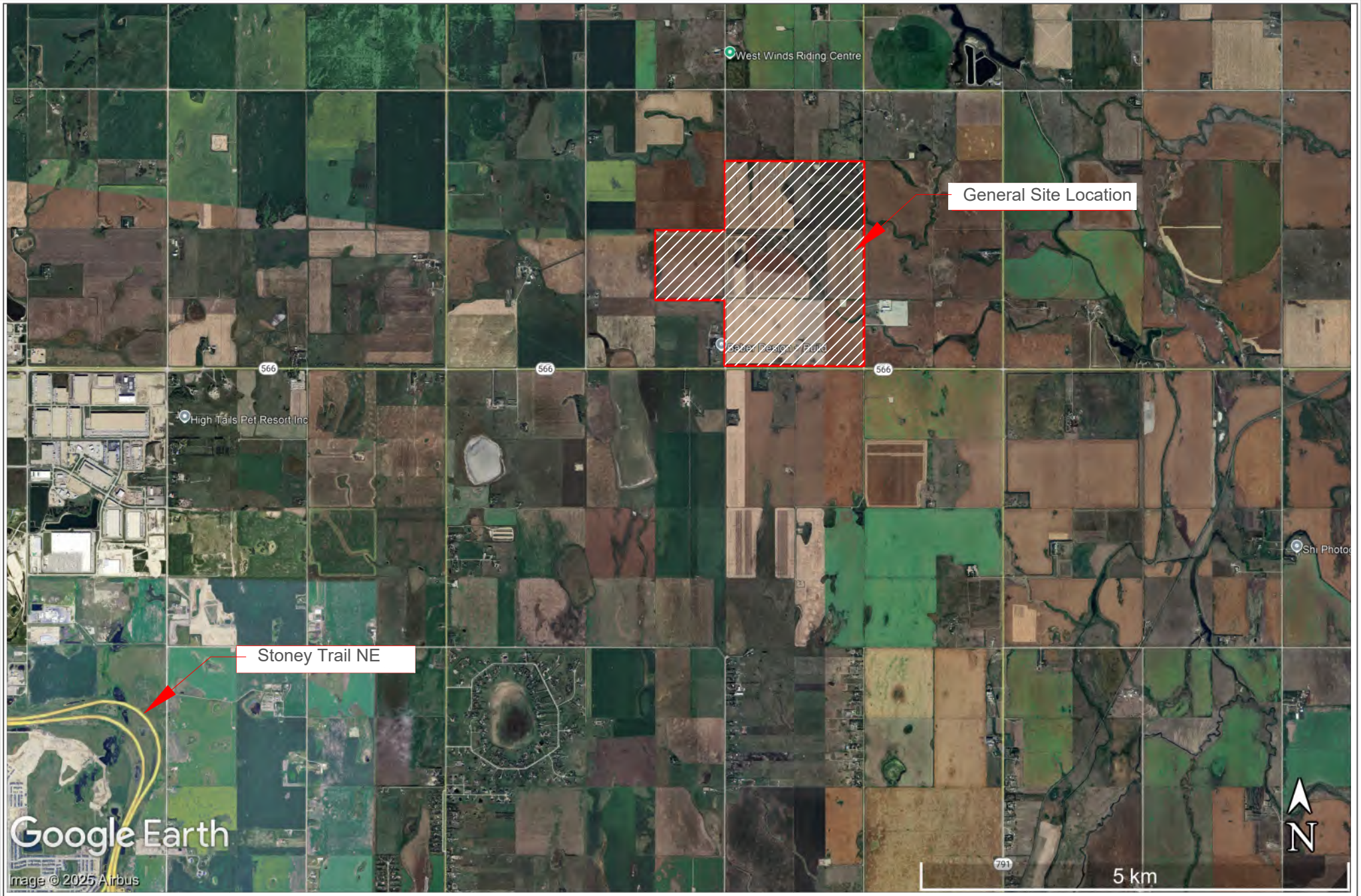
This report has been prepared for the exclusive use of Kineticor c/o Cassa Development Services and their agents for specific application to the development described in this report. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No warranty is expressed or implied.

Rocky View County shall at all times be irrevocably and unconditionally entitled to fully rely on this report as an addressee and party to the report, including all attachments, drawings, and schedules, in each case notwithstanding any provision, disclaimer or waiver in the report to the contrary.

Rocky View County shall be entitled to provide copies of the report to Rocky View County Council and Rocky View County regulatory boards, affiliates, advisors, consultants, lenders, and assignees, each of whom shall also be similarly entitled to fully rely on the report in their official capacities for the specific purpose for which the report was prepared.

Rocky View County is at all times entitled to provide copies of the report to Alberta Environment and any other governmental authorities and regulatory bodies having jurisdiction. Rocky View County may also contact the author or other parties to the report to obtain further information respecting the report or to discuss the report further.

Appendix A
Drawings & Figures



Client: Kineticor c/o Cassa Development Services		Job Number: 02500452.000	Date: April 2025
Project: Kineticor North Calgary Site		Drawing Number: 02500452.000.G01	Scale: N.T.S.
Title: Site Map			

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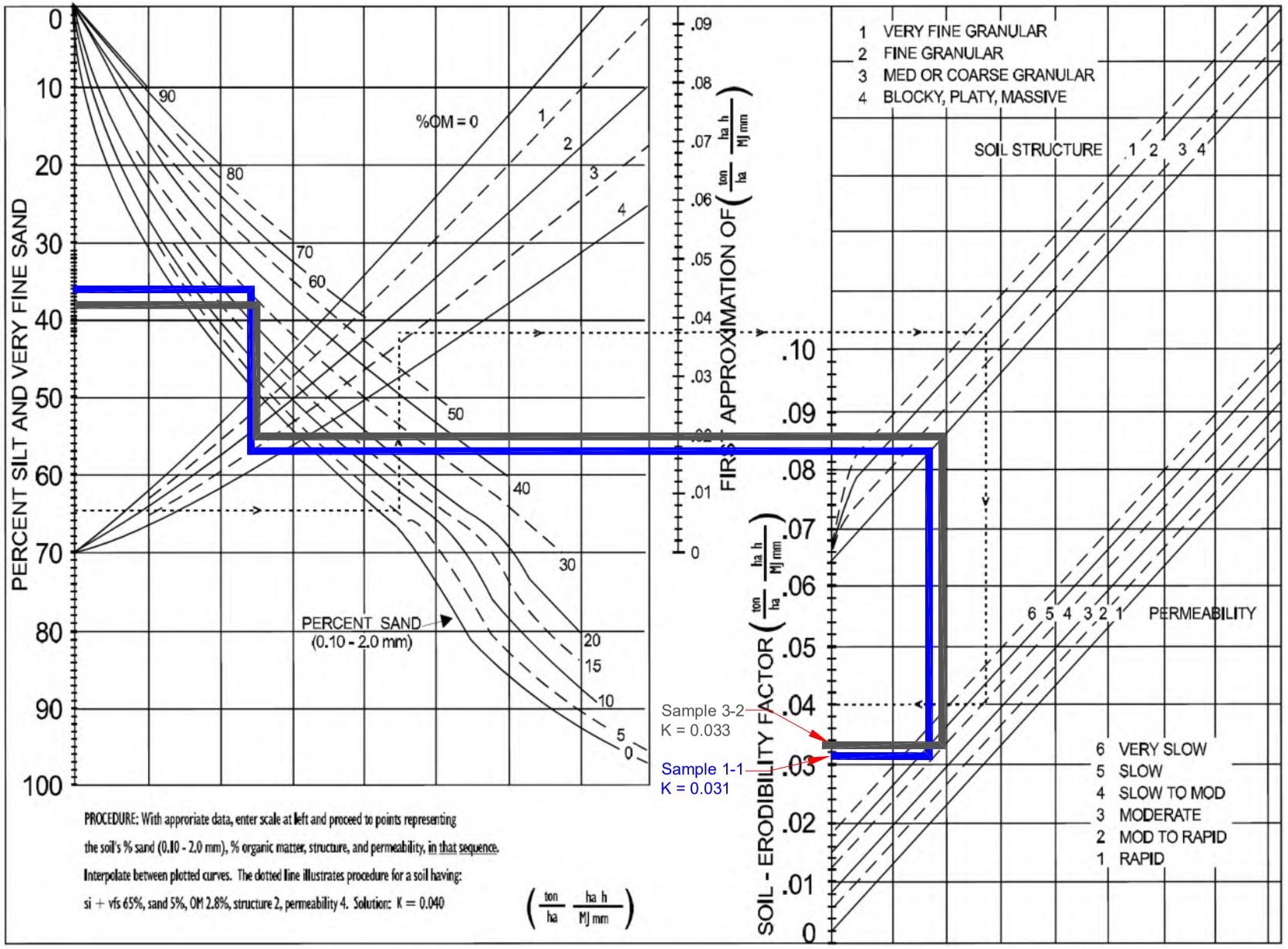
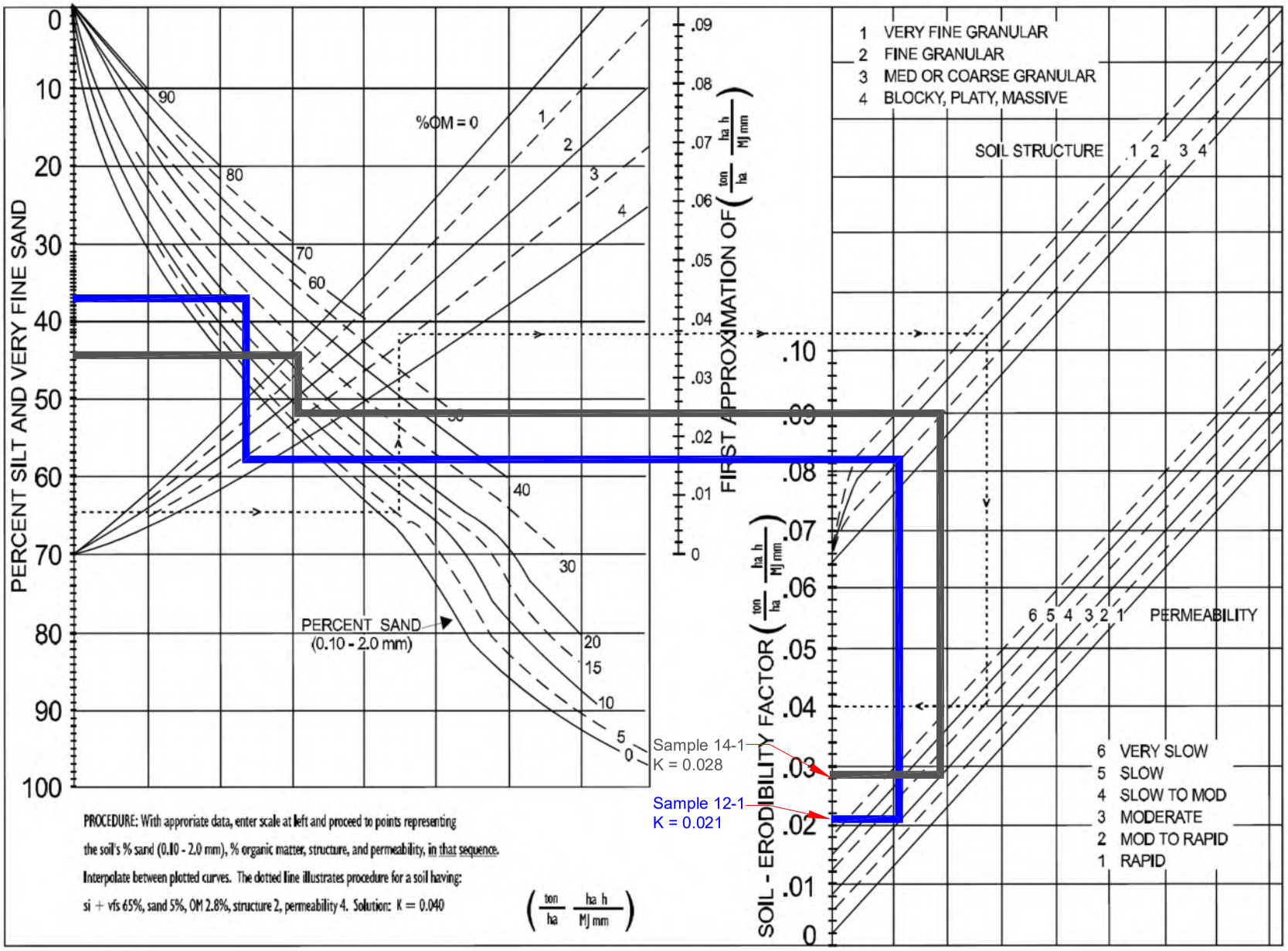
ORIGINAL PAPER SIZE: 11"x17"

Client: Kineticor c/o Cassa Development Serv.	Scale: N.T.S.	Date: April 2025	
Project: Kineticor North Calgary Site	Job Number: 02500452.000	Drawing Number: 02500452.000.G02	
Title: Approximate Borehole Location			

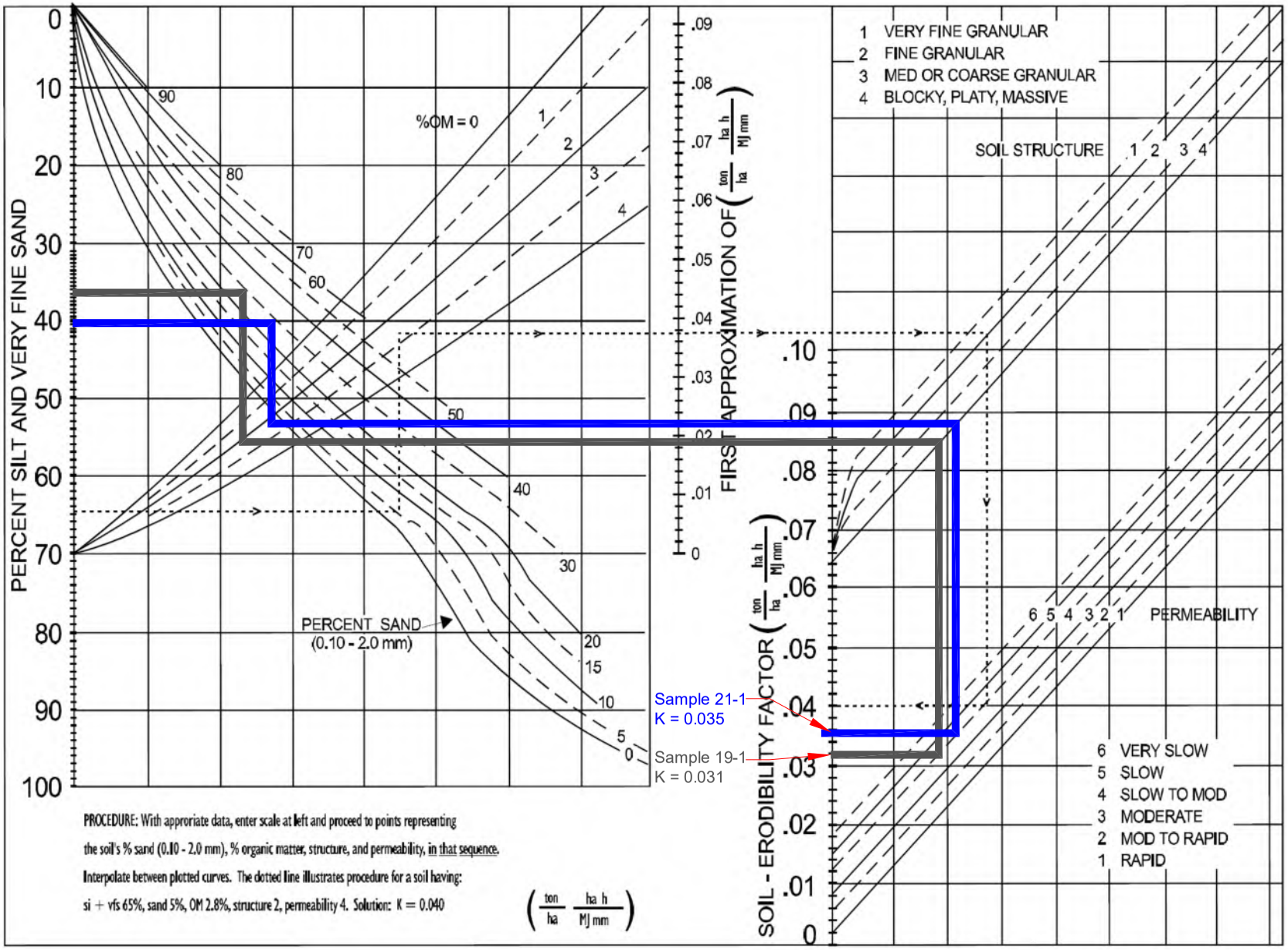
ENGLOBE



Client: Kineticor c/o Cassa Development Services	Job Number: 02500452.000	Date: April, 2025	
Project: Kineticor North Calgary Site			
Title: Erodibility Nomograph - Area 01.	Drawing Number: 02500452.000.E01	Scale: N.T.S.	

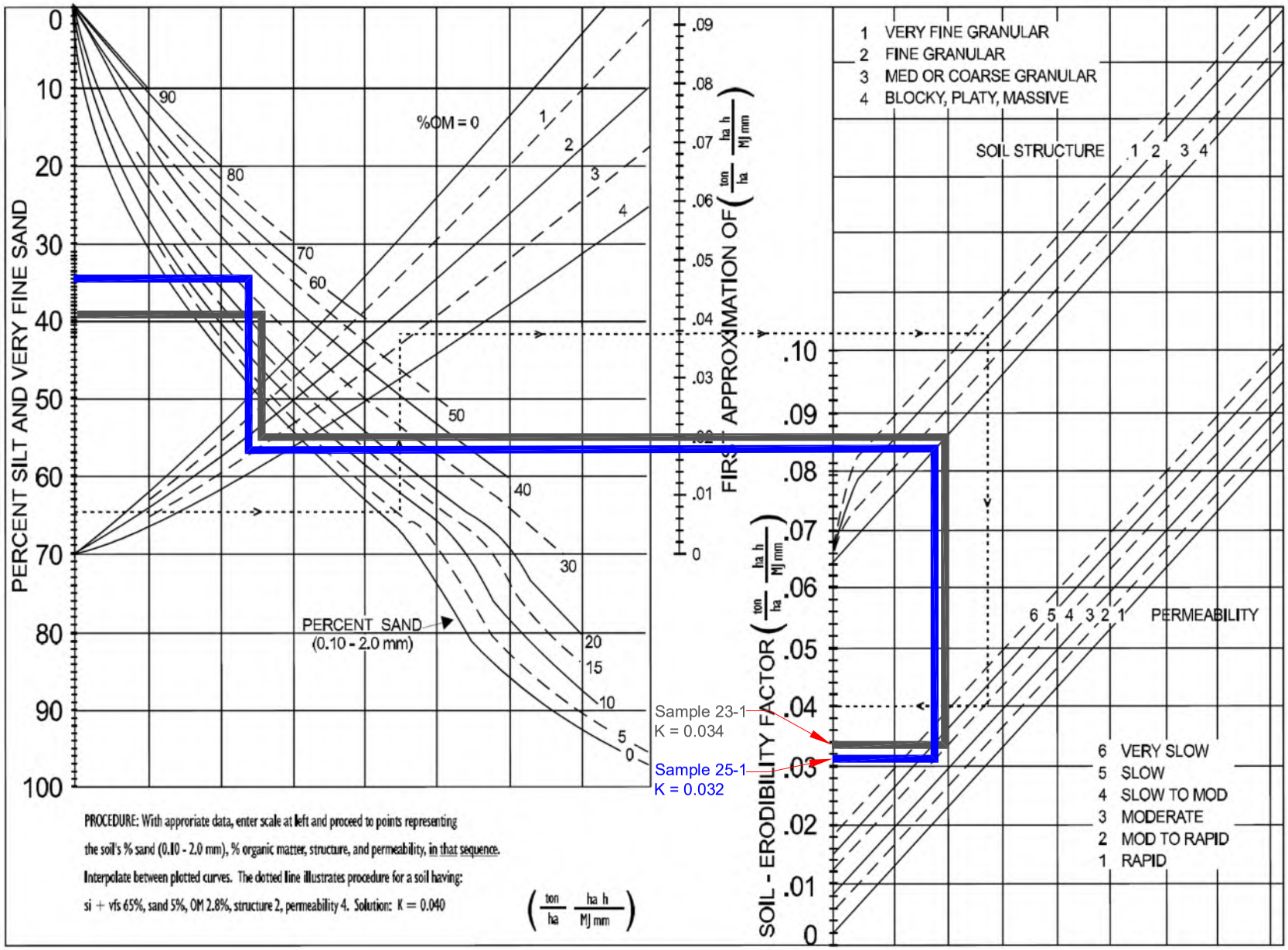


Client: Kineticor c/o Cassa Development Services	Job Number: 02500452.000	Date: April, 2025	
Project: Kineticor North Calgary Site			
Title: Erodibility Nomograph - Area 02.	Drawing Number: 02500452.000.E02	Scale: N.T.S.	



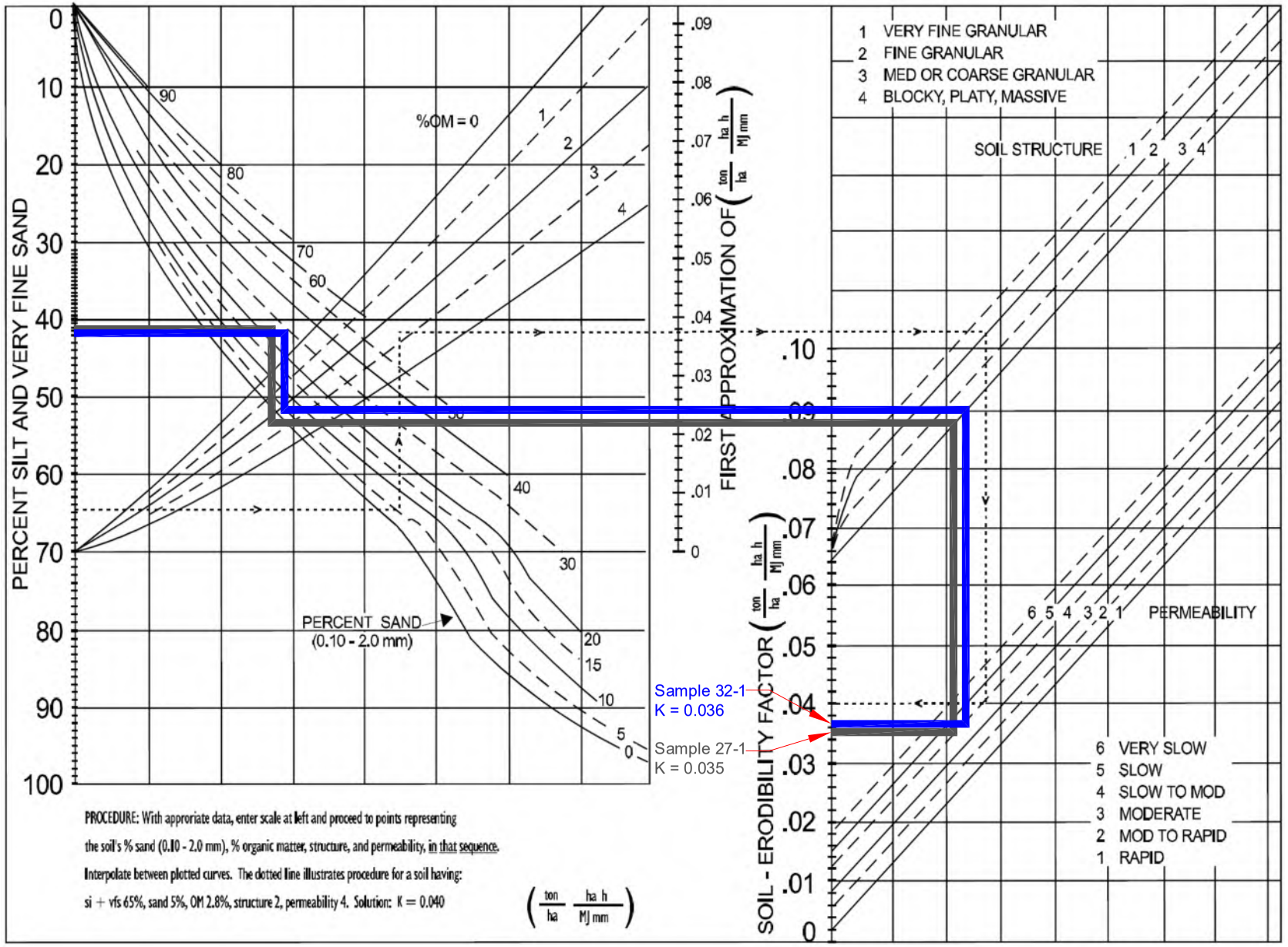
Client: Kineticor c/o Cassa Development Services		Job Number: 02500452.000	Date: April, 2025
Project: Kineticor North Calgary Site		Drawing Number: 02500452.000.E03	Scale: N.T.S.
Title: Erodibility Nomograph - Area 03.			

ENGLOBE

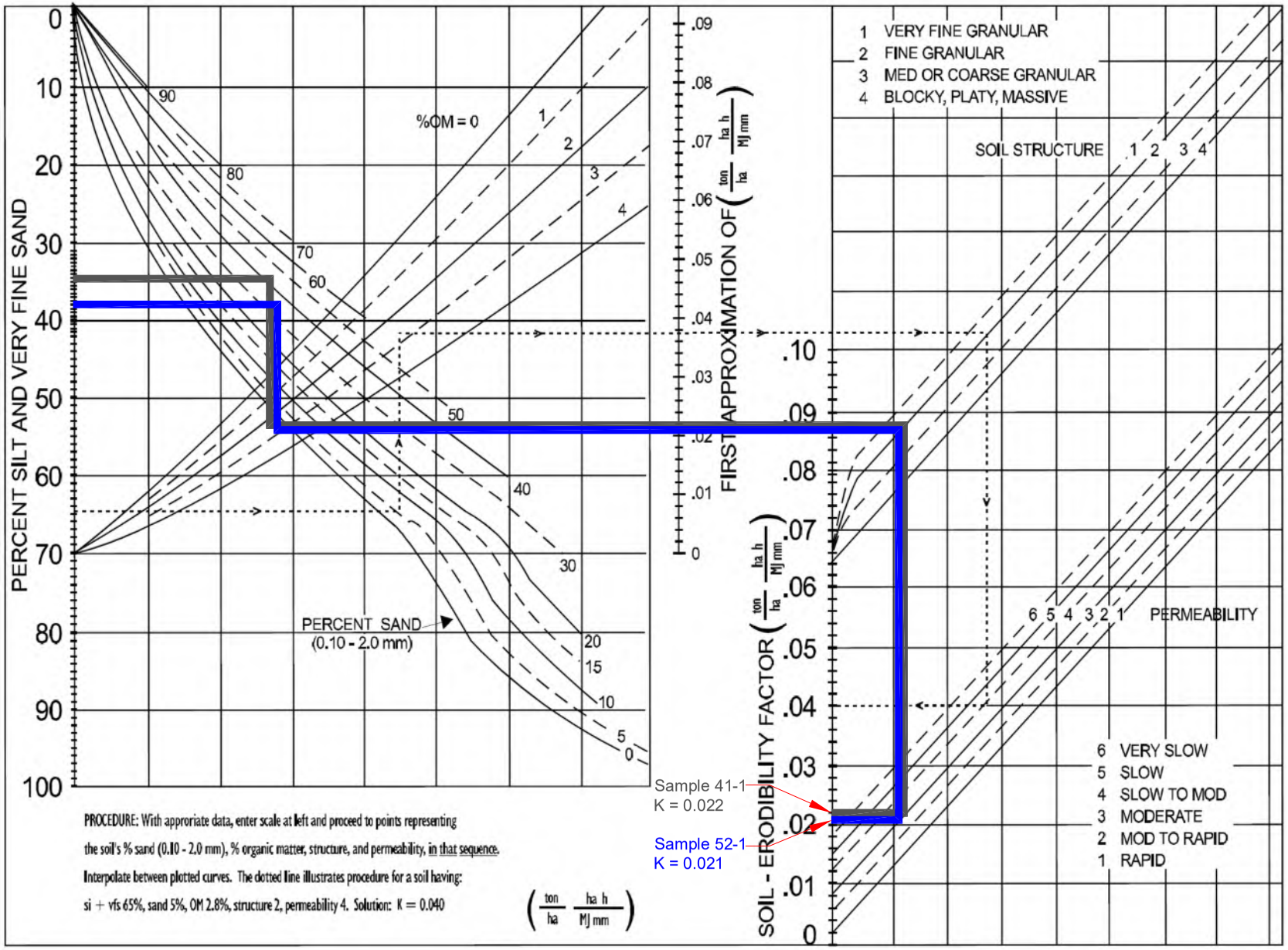


Client: Kineticor c/o Cassa Development Services	Job Number: 02500452.000	Date: April, 2025	
Project: Kineticor North Calgary Site			
Title: Erodibility Nomograph - Area 04.	Drawing Number: 02500452.000.E04	Scale: N.T.S.	

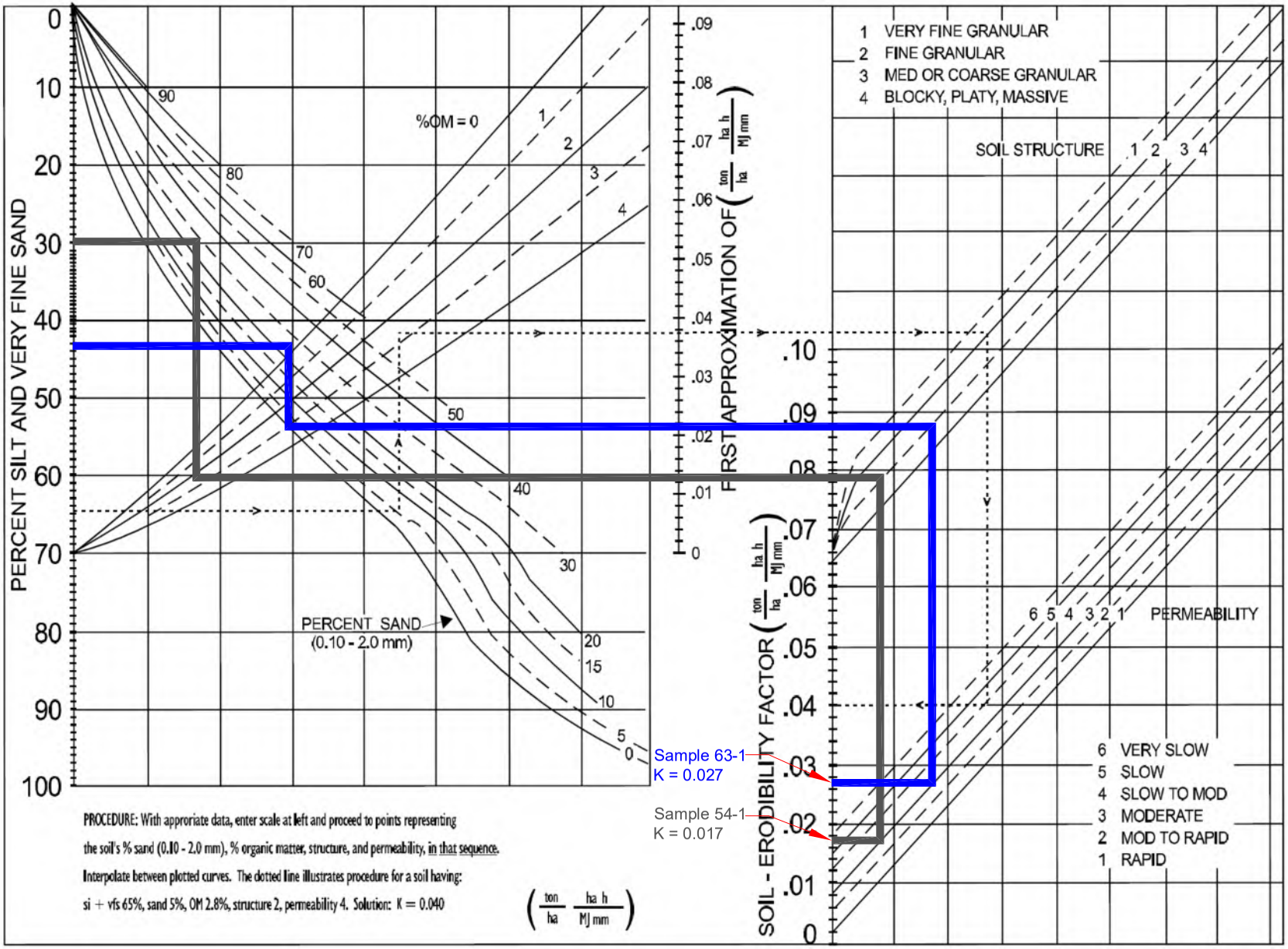
ENGLOBE



Client: Kineticor c/o Cassa Development Services	Job Number: 02500452.000	Date: April, 2025	
Project: Kineticor North Calgary Site			
Title: Erodibility Nomograph - Area 05.	Drawing Number: 02500452.000.E05	Scale: N.T.S.	



Client: Kineticor c/o Cassa Development Services	Job Number: 02500452.000	Date: April, 2025	
Project: Kineticor North Calgary Site			
Title: Erodibility Nomograph - Area 06.	Drawing Number: 02500452.000.E06	Scale: N.T.S.	



Client: Kineticor c/o Cassa Development Services		Job Number: 02500452.000	Date: April, 2025
Project: Kineticor North Calgary Site		Drawing Number: 02500452.000.E07	Scale: N.T.S.
Title: Erodibility Nomograph - Area 07.			

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Appendix B
Borehole Logs

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Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:1
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1039.154

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '1' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1039
		SILT - trace gravel, trace sand, some clay, compact, dry to damp, medium brown.		1-1	ML		13.5		[SO4]=0.041 (Negligible) Grain Size Distribution (RUSLEFAC): Clay = 28% ; Silt and Very Fine Sand = 36.2% ; Sand = 31.5% ; Gravel = 4.3% ; Organics = 3% ; Erodibility Factor = 0.031		
1											1038
2		some oxides.		1-2		5-7-7	14.5				1037
		SILTY CLAY (TILL) - trace fine gravel, some sand, very stiff, low plastic, damp,medium brown.		1-3							
3		some coal.		1-4		5-7-10	14.3				1036
		trace sand, low plastic, very stiff, damp, medium brown.		1-5							
4											1035
5				1-6		7-9-11	14.2				1034
		low plastic, very stiff, damp, medium brown.		1-7	CL-ML						
6		some precippitstes.		1-8		7-9-16	13.4				1033
7		low plastic, hard, dry to damp.		1-9							1032
				1-10		8-10-20	13.1				
8		water seepage.									1031
				1-11							
9		SANDSTONE BEDROCK - weak, wet, light brown.			BE						1030
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 8.8m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 2.7 mbeg / (04-08-2025) = 2.38 mbeg									
10											1029

Englobe Corporation
110 - 10 Stonehill Place NE
Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:2
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1035.859

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 275mm thick)			TPSL		1035
	SILTY CLAY (TILL) - trace gravel, trace sand, low plastic, stiff, damp, medium brown.		2-1			
1						
			2-2		3-4-5	1034
2	low to medium plastic, very stiff, damp, medium brown.		2-3	CL-ML		
						1033
3	coal spots.		2-4		4-8-13	
			2-5			1032
4	SANDY SILT - trace gravel, very dense, dry to damp, light brown.					
			2-6	MLS	19-39-39	1031
5	very dense, medium brown, dry.		2-7			
						1030
6	SILTY CLAY (TILL) - trace gravel, low plastic, dry to damp, hard, medium grey.		2-8		9-12-19	
						1029
7	trace sandstone		2-9	CL-ML		
			2-10		14-18-27	1028
8	SANDSTONE BEDROCK - strong, dry, medium grey.					
			2-11	BE		1027
9	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Reading (03-14-2025) = 2.7 mbeg					1026
10						1025

PLASTIC M.C. LIQUID (10 20 30 40) — 16.6 — PI = 26.7; 16.3; 11.0; 14.2; 12.6; 11.8

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well 2" SLOTTED PIEZOMETER

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Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:3
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1033.571

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	OTHER DATA	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, medium brown (approx 225mm thick)		TPSL			
	SILT - trace fine gravel, trace sand, compact, dry, light brown.	3-1			[SO4]=0.082 (Negligible)	1033
1			ML			
	trace oxides.	3-2		4-4-6	Grain Size Distribution (RUSLEFAC): Clay = 30% ; Silt and Very Fine Sand = 38.4% ; Sand = 27.7% ; Gravel = 3.9% ; Organics = 2.6% ; Erodibility Factor = 0.033	1032
2	SILTY CLAY (TILL) - trace fine gravel, some sand, very stiff, low plastic, dry to damp, medium brown.	3-3				1031
3	coal spots.	3-4		5-7-10		1030
	trace coarse gravel, trace sand, very stiff, low plastic, damp, medium brown.	3-5				1029
4		3-6		8-9-13		
5	coal spots, low plastic, very stiff.	3-7				1028
6			CL-ML			1027
		3-8		8-13-14		
7	very stiff to hard, low plastic, medium grey.	3-9				1026
8		3-10		9-17-13		1025
	low to medium plastic, very stiff, medium grey.	3-11				
9	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 2.5 mbeg / (04-08-2025) = 2.29 mbeg					1024
10						1023

PLASTIC M.C. LIQUID (10 20 30 40) — 11.0, 15.3, 15.6, 16.0, 14.3, 14.8

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

Well '3' SLOTTED PIEZOMETER

Englobe Corporation
110 - 10 Stonehill Place NE
Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:4
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1042.969

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL		
		SANDY SILT - trace gravel, compact, oxides, dry to damp, medium brown.		4-1			
1					MLS		1042
				4-2		5-6-9	
2		trace clay.					1041
		SILTY CLAY (TILL) - trace gravel, trace sand, trace oxides & precipitates, low plastic, stiff, dry to damp, medium brown.		4-3			
3							1040
				4-4		4-5-7	
		some sand.			CL-ML		
4		very stiff, low plastic, coal spots, dry to damp, medium brown.		4-5			1039
				4-6		7-7-12	
5		SANDSTONE BEDROCK - moderate, dry, light brown.		4-7			1038
6							1037
		water seepage.		4-8		50@4"	
7		moderate, damp to wet, light brown.		4-9	BE		1036
8							1035
		moderate to strong, wet, light brown.		4-10			
9							1034
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 3.69 mbeg					
10							1033

PLASTIC M.C. LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

10.8 | 15.3 | 13.8 | PI = 33.2 | 9.4 | 12.6 | 24.1

OTHER DATA

Well '4' SLOTTED PIEZOMETER

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Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:5
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1040.801

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 225mm thick)			TPSL		1040
1		SILT - trace fine gravel, some sand, trace clay, loose to compact, dry, medium brown.		5-1	ML		
2		some sand.		5-2		4-5-6	1039
3		SILTY CLAY (TILL) - trace gravel, trace sand, low plastic, very stiff, damp, medium brown.		5-3			1038
		some oxides.		5-4		6-8-12	
4		low plastic, very stiff, dry to damp, meedium brown.		5-5	CL-ML		1037
5		low plastic, medium brown.		5-6		8-9-8	1036
				5-7			
6		SANDSTONE BEDROCK - weak, dry, light brown.		5-8		50@4"	1035
7		moderate, damp, light brown.		5-9	BE		1034
8		strong, damp, medium brown.		5-10			1033
9		strong to very strong.					1032
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 3.86 mbeg					1031
							1030

PLASTIC M.C. LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

12.1 | 15.7 | 16.8 | 13.9 | 12.6 | 11.0

OTHER DATA: [SO4]=1.399 (Severe)

Well '5' SLOTTED PIEZOMETER

Englobe Corporation
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Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:6
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1037.62

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 245mm thick)			TPSL		1037
		SILT - trace gravel, trace sand, dry, medium brown.		6-1	ML		
1		SILTY CLAY (TILL) - trace fine gravel, low plastic, stiff, trace sand, damp, medium brown.					
		trace oxides.		6-2		4-5-5	1036
2							
		low to medium plastic, damp, medium brown.		6-3	CL-ML		1035
3							
				6-4		3-5-11	1034
4				6-5			
		SANDSTONE BEDROCK - weak to moderate, dry, light brown.					1033
5				6-6		15-50@4"	
		water seepage.					
		weak, damp to wet, light brown.		6-7			1032
6							
				6-8	BE		1031
7		weak, damp, light brown.					
							1030
8							
		weak, wet, medium brown.		6-9			1029
9							
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 8.8m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 1.93 mbeg / (04-08-2025) = 1.88 mbeg					1028
10							1027

PLASTIC M.C. LIQUID (10 20 30 40) — 18.3; PI = 38.8

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320) — 17.6; 19.3; 12.4; 24.7; 21.2

OTHER DATA

Well '6' SLOTTED PIEZOMETER

Englobe Corporation
110 - 10 Stonehill Place NE
Calgary, AB T3N 1T7
Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:7
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1047.749

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well 7" SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 180mm thick)			TPSL						1047
1		SILTY CLAY (TILL) - trace gravel, trace sand, stiff, dry to damp, low plastic, medium brown.		7-1			12.0				
2				7-2		4-4-7	14.7				1046
		very stiff, low plastic, trace fine gravel, trace precipitates, medium brown.		7-3	CL-ML		15.0 PI = 35.1				
3		coal spots.		7-4		7-7-11	13.2				1045
4		SANDSTONE BEDROCK - moderate, dry, light brown.		7-5			22.8				1044
		water seepage.		7-6		39-50@3"					
5											1043
		weak to moderate, wet, light brown.		7-7	BE		28.0				
6											1042
7		super strong, wet, light brown.		7-8							1041
		END OF BOREHOLE at a depth of 7.3 metres (Refusal). Wet upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 3.18 mbeg									1040
8											1039
9											1038
10											1037

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Logged By: YD	Completion Depth: 24 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:8
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1041.761

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '8' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						
		SILT - trace fine gravel, trace sand, loose to compact, dry to damp, medium brown.		8-1			13.0				1041
1											
				8-2	ML	4-4-5	16.0				1040
2		coal spots.									
		trace clay, compact, dry, medium brown.		8-3			14.6				1039
3											
				8-4		8-18-41	9.6		[SO4]=0.041 (Negligible)		
		SHALEBEDROCK - weak, dry, light brown.		8-5							1038
4											
				8-6		23-50@4"	13.8				1037
5		moderate, dry, light brown.									
		moderate, dry, brown-grwy.		8-7							1036
6											
					BE						
		water seepage.		8-8			42.4				1035
7											
		moderate to strong, damp, light brown.									
		strong to very strong, damp to wet, medium grey.		8-9							1034
8											
9											1033
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 8.2m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 3.07 mbeg / (04-08-2025) = 2.98 mbeg									1032
10											
											1031

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Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:9
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1043.541

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '9' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1043
		SILT - trace fine gravel, some sand, compact, dry, light brown.		9-1			10.2				
1											
				9-2	ML	7-10-11	12.0				1042
2		trace oxides.									
		trace clay, compact, medium brown.		9-3			12.3				
3											1041
				9-4		7-11-13					
		SILTY CLAY (TILL) - trace fine gravel, trace sand, hard, low plastic, trace oxides, dry to damp, medium brown.		9-5			18.2				1040
4					CL-ML						
				9-6		11-13-18					1039
5											
		SANDSTONE BEDROCK - weak, dry, light brown.		9-7			10.6				1038
6											
				9-8		30-50@5"					1037
7		moderate, dry.		9-9	BE		9.3				
		strong.									1036
8											
		strong to very strong.		9-10							1035
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 5.23 mbeg / (04-08-2025) = 5.15 mbeg									1034
10											
											1033

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:10
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1028.404

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-light brown(approx 250mm thick)			TPSL		1028
	SILT - trace fine gravel, some sand, compact, dry, medium brown.		10-1			
1				ML		1027
	trace oxides & precipitates.		10-2		5-7-8	
2			10-3			1026
	SILTY CLAY (TILL) - trace gravel, trace sand, stiff to very stiff, low plastic, dry to damp, medium brown.					
3			10-4		5-7-8	
	trace coal.					1025
	low plastic, stiff, medium brown.		10-5			
4						1024
	layer of fine sand - approx 10" thick.		10-6		12-13-15	
5						1023
	low plastic, trace fine gravel, hard, brown-grey.		10-7	CL-ML		
6						1022
			10-8		12-17-25	
			10-9			
7	very gard, brown-grey.					1021
			10-10		17-24-30	
8						1020
	low to medium plastic, fine gravel, trace sand.		10-11			
9						1019
	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.2 mbeg / (04-08-2025) = 4.13 mbeg					1018
10						

PLASTIC M.C. LIQUID (10 20 30 40) — 10.8, 15.4, 13.8, 14.8, 13.9, 13.0; PI = 30.3

BLOW COUNT (10 20 30 40); POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well '10' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:11
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1030.503

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '11' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1030
		SAND - trace gravel, some silt, dense, dry, light brown.		11-1	SP		7.1		[SO4]=0.041 (Negligible)		
1											1029
				11-2		13-16-21					
2		SILT - some sand, trace gravel, dense, dry, medium brown.									1028
		compact to dense, dry, medium brown.		11-3			10.4				
3		oxides & precipitates.			ML						1027
				11-4		8-12-17					
4				11-5			13.6	>>			1026
		SILTY CLAY (TILL) - trace gravel, trace sand, dry to damp, low plastic, hard.									
		some oxides.		11-6		9-13-18					
5											1025
		some fine gravel, hard, dry to damp, medium brown.		11-7			13.8	>>			
6											1024
		coal spots.		11-8		9-13-22					
					CL-ML						
7		hard.		11-9			13.2	>>			1023
8		some coal spots.		11-10		10-14-22					1022
		hard, medium brown.		11-11			13.8	>>			
9											1021
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.7 metres slough. 25mm PVC standpipe installed at a depth of 6.4 m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									
10											1020

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:12
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1025.785

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '12' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1025
		SILT - trace gravel, trace fine sand, very dense, dry, light brown.		12-1			6.5				
1											
				12-2		17-21-40	8.0		Grain Size Distribution (RUSLEFAC): Clay = 20% ; Silt and Very Fine Sand = 37.2% ; Sand = 28.4% ; Gravel = 14.4% ; Organics = 3.1% ; Erodibility Factor = 0.021 [SO4]=0.082 (Negligible)		1024
2		some oxides, compact to dense, dry to damp, medium brown.		12-3	ML		11.0				
				12-4		14-14-15	10.1				1023
3		coal spots.									
		some clay, compact, medium brown.		12-5							1022
4		SILTY CLAY (TILL) - trace gravel, trace sand, very stiff, dry to damp, medium brown, low plastic.		12-6		7-10-16	12.3				1021
5											
		low plastic, hard, dry to damp, medium brown.		12-7	CL-ML			>>			1020
6				12-8		10-17-24	12.0				
				12-9							1019
7		END OF BOREHOLE at a depth of 7.0 metres (Refusal). Dry upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 6.00m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									1018
8											1017
9											1016
10											1015

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Logged By: YD	Completion Depth: 23 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:13
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1032.728

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '13' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						
		SILTY CLAY (TILL) - trace gravel, some sand, low plastic, stiff, damp, medium brown.		13-1			21.3				1032
1											
				13-2		3-3-4	18.0				1031
2		mdium plastic, trace sand, stiff.		13-3							
											1030
3				13-4		5-6-8	17.2				
		trace oxides & precipitates.			CL-ML		PI = 29.9				1029
4		low to medium plastic, stiff, damp, medium grey.		13-5							
				13-6		5-7-8	16.6				1028
5											
		very stiff.		13-7							1027
6											
				13-8		5-8-8	13.8				1026
7		SHALE BEDROCK - weak, dry to damp, medium grey.		13-9							
				13-10	BE	20-30-45	12.5				1025
8											
		weak, dry, medium grey.		13-11							1024
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 1.9 mbeg / (04-08-2025) = 1.8 mbeg									1023
10											1022

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-20
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:14
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1030.744

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)		TPSL					
	SILTY SAND - trace gravel, compact to dense, dry, light brown.	14-1	SM		7.8		Grain Size Distribution (RUSLEFAC): Clay = 20% ; Silt and Very Fine Sand = 37.2% ; Sand = 28.4% ; Gravel = 14.4% ; Organics = 3.1% ; Erodibility Factor = 0.021	1030
1	some oxides.	14-2		12-15-15	8.6			1029
2	SILT - trace clay, some sand, fine gravel, compact, dry, medium brown.	14-3	ML		13.2		[SO4]=1.935 (Severe)	1028
3		14-4		8-10-15				
		14-5			16.9			1027
4	SAND (fine) - trace silt, compact to dense, dry, light brown.		CL-ML					
5		14-6		10-12-17				1026
	SILTY CLAY (TILL) - trace fine sand, trace gravel, low plastic, hard, trace oxides, dry to damp, medoium brown.	14-7			13.7			1025
6		14-8		12-14-20				
								1024
7	water seepahe.	14-9	CL-ML		14.2	>>		
		14-10		14-15-21				1023
8	low plastic, hard.	14-11			13.5	>>		
								1022
9	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry							1021
10								1020

Well '14' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:15
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1024.563

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL		1024
1		SAND (Fine) - trace gravel, trace silt, dense, dry, light brown.		15-1	SP		
				15-2		12-14-17	1023
2		SILT - trace gravel, trace sand, dense, dry, medoim brown,. some oxides & precipitates.		15-3			1022
3				15-4	ML	8-12-20	1021
4		SAND - trace fine gravel, dense, trace silt, dry, light brown.		15-5			
5				15-6	SP	14-18-24	1020
6		SILTY CLAY (TILL) - trace gravel, trace sand, hard, low plastic, dry to damp, coal spots, medium brown. some oxides.		15-7			1019
				15-8		9-13-18	1018
7				15-9	CL-ML		
8		medium to dark brown.		15-10		9-14-17	1017
9		low plastic, hard, dry to damp, medium brown.		15-11			1016
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry					1015
							1014

PLASTIC M.C. LIQUID (10 20 30 40) | BLOW COUNT (10 20 30 40) | POCKETPEN (kPa) (80 160 240 320) | OTHER DATA | Well '15' SLOTTED PIEZOMETER

7.5 | 9.9 | 10.5 | 13.9 | 14.1 | PI = 31.8 | 13.1 | >>

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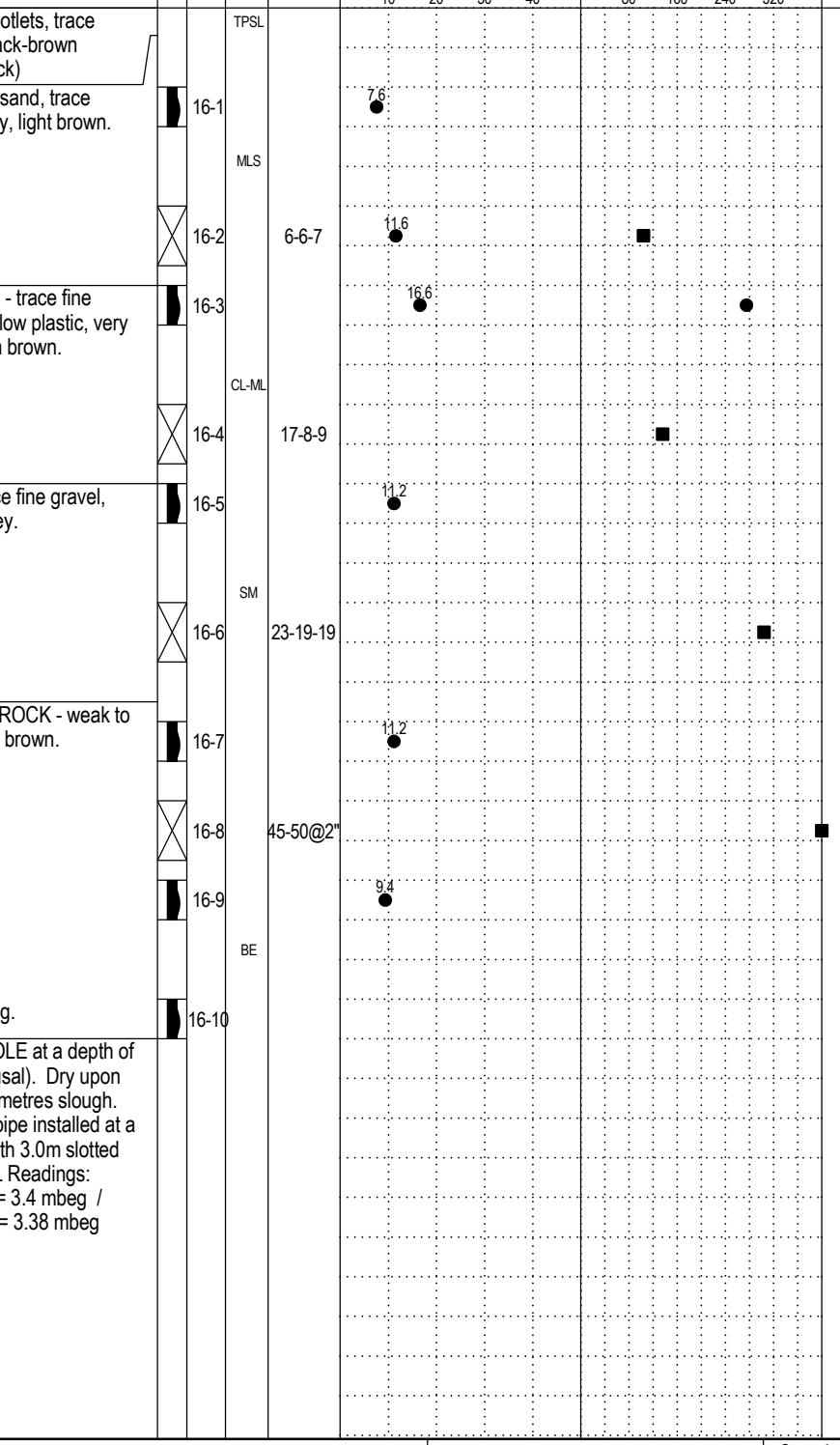
Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-21
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:16
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1034.701

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)		TPSL		
	SANDY SILT - fine sand, trace gravel, compact, dry, light brown.	16-1			1034
1			MLS		
		16-2		6-6-7	1033
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.	16-3			
			CL-ML		1032
3		16-4		17-8-9	
	SILTY SAND - trace fine gravel, dense, dry, light grey.	16-5			1031
4			SM		
		16-6		23-19-19	1030
5	SABDSTONE BEDROCK - weak to moderate, dry, light brown.	16-7			1029
6		16-8		45-50@2"	
		16-9			1028
7	moderate.		BE		
	strong to very strong.	16-10			1027
8	END OF BOREHOLE at a depth of 7.9 metres (Refusal). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 3.4 mbeg / (04-08-2025) = 3.38 mbeg				1026
9					1025
10					1024



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Logged By: YD	Completion Depth: 26 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:17
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1032.699

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '17' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						
		SILTY SAND - fine sand, trace fine gravel, compact, dry, light brown.		17-1	SM		6.7				1032
1											
				17-2		10-8-8					1031
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, trace oxides & precipitates, low plastic, very stiff, dry to damp, medium brown.		17-3			14.8				
											1030
3		coal spots.		17-4		6-9-9					
		low plastic, very stiff, dry to damp, medium brown, no sand.		17-5			15.5 PI = 27.2				1029
4											
				17-6		7-10-11					1028
5					CL-ML						
		hard, trace gravel.		17-7			14.2				1027
6											
				17-8		15-17-22					1026
7		low plastic, very stiff, dry to damp, medium grey.		17-9			13.1				
				17-10		8-11-14					1025
8		SABDSTONE BEDROCK - weak, dry, light brown.		17-11			12.5				
					BE						1024
9		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.24 mbeg / (04-08-2025) = 6.2 mbeg									1023
10											1022

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:18
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1025.119

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '18' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1025
		SILTY SAND - trace gravel, compact, dry , light brown.		18-1							
1					SM						1024
		some gravel.		18-2		16-11-12	6.6				
2											1023
		SILT - some clay, trace gravel, compact, dry, medium brown.		18-3			12.6				
3		trace oxides & precipitates.		18-4	ML	7-9-13	13.5		[SO4]=0.073 (Negligible)		1022
		SILTY CLAY (TILL) - trace fine gravel, trace sand, hard, low plastic, dry to damp, medium brown.		18-5							
4											1021
		trace oxides.		18-6		10-14-18	13.3				
5											1020
		stiff, low plastic, coal spots.		18-7							
6											1019
				18-8	CL-ML	8-12-19	13.4				
7		hard.		18-9							1018
8				18-10		12-16-22	13.7				1017
		hard, low plastic.		18-11				>>			
9											1016
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 8.2m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									
10											1015

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:19
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1065.008

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '19' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 180mm thick)			TPSL						
		SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.		19-1			6.1				
1					MLS						1064
				19-2		6-7-7	14.6				
2		SILTY CLAY (TILL) - trace fine gravel, some sand, low plastic, very stiff, damp, medium brown.		19-3			14.4				1063
3		some oxides.		19-4	CL-ML	6-7-9					1062
		low plastic, hard, coal spots.		19-5			14.7 PI = 26.6				
4											1061
		SANDSTONE BEDROCK - weak, dry, light brown.		19-6		50@4"					
5											1060
		moderate, dry, brown-grey.		19-7			11.2				
6											1059
		moderate to strong, dry, light grey.		19-8	BE						
7											1058
8											1057
		strong, dry, light grey.		19-9			8.0				
9											1056
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.94 mbeg / (04-08-2025) = 6.81 mbeg									
10											1055

OTHER DATA: Grain Size Distribution (RUSLEFAC): Clay = 27% ; Silt and Very Fine Sand = 36.6% ; Sand = 26.6% ; Gravel = 9.8% ; Organics = 2.2% ; Erodibility Factor = 0.031

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-03
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:20
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1059.658

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '20' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1059
		SANDY SILT - trace gravel, trace clay, compact, some oxides, dry, medium brown.		20-1			10.9				
1					MLS		PI = 29.1				
				20-2		5-5-7	15.2				1058
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, damp, medium brown.		20-3			13.0				1057
3		trace coal spots.		20-4	CL-ML	5-6-8					
4		SANDSTONE BEDROCK - moderate, dry, light brown.		20-5			5.0				1056
				20-6		50@3"					1055
5		moderate to strong, dry, light brown.		20-7			6.4				1054
6		water seepage.			BE						1053
				20-8							
7		strong, wet, medium grey.									1052
8											
		moderate to strong, damp, medium grey.		20-9			18.9				1051
9		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 8.8m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.07 mbeg / (04-08-2025) = 3.93 mbeg									1050
10											1049

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-03
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:21
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1056.145

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-light brown(approx 250mm thick)			TPSL		1056
		SILTY CLAY (TILL) - trace gravel, trace sand, stiff, low plastic, dry to damp, medium brown.		21-1			
1							1055
		some sand, some oxides.		21-2		4-6-7	
2							1054
		low plastic, very stiff, dry to damp, medium brown.		21-3	CL-ML		
3		coal spots.		21-4		6-9-12	1053
		trace sand, low plastic, very stiff, damp, medium brown.		21-5			
4							1052
				21-6		7-9-14	
5							1051
		SANDSTONE BEDROCK - weak, dry, light brown.		21-7			
6							1050
				21-8		50@4"	
		strong, dry, brown-grey.		21-9			
7					BE		1049
		moderate, dry, light grey.					
8		strong, dry, light grey.					1048
				21-10			
		very strong, dry, light grey.					
9							1047
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 8.2m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.53 mbeg / (04-08-2025) = 4.47 mbeg					
10							1046

PLASTIC — M.C. — LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

11.0	
15.2	
16.0	
13.6	
9.0	
10.2	

OTHER DATA

Grain Size Distribution (RUSLEFAC): Clay = 28% ; Silt and Very Fine Sand = 40.5% ; Sand = 28.3% ; Gravel = 3.2% ; Organics = 2.1% ; Erodibility Factor = 0.035

[SO4]=0.506 (Severe)

Well '21' SLOTTED PIEZOMETER

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Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-02
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:22
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1066.363

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '22' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1066
1		SANDY SILT - trace gravel, loose, dry, light brown.		22-1	MLS		9.0				1065
2				22-2		2-4-4	14.0		[SO4]=0.041 (Negligible)		1064
		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		22-3	CL-ML		16.1				
3											1063
		SANDSTONE BEDROCK - weak, dry, light brown.		22-4		3-5-23	14.2				
4		weak.		22-5							1062
				22-6		50@4"	7.8				
5											1061
		weak to moderate, dry, light brown,		22-7							
6					BE						1060
		moderate, brown-grey,									
7				22-8			9.6				1059
8											1058
		dry, medium grey.		22-9							
9											1057
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 7.3m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.8 mbeg / (04-08-2025) = 4.76 mbeg									
10											1056

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-03
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:23
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1064.495

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '23' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1064
		SANDY SILT - trace gravel, compact, dry, light brown.		23-1			8.9				
1					MLS						1063
				23-2		6-6-16	12.7				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		23-3			13.5				1062
3		trace coal spots.			CL-ML						
				23-4		5-8-10					1061
				23-5			6.2				
4		SANDSTONE BEDROCK - weak, dry, light brown.									1060
				23-6		50@3"					
5		moderate, dry.									1059
				23-7			22.8				
6		water seepage.			BE						1058
				23-8							
7		weak, wet, brown-grwy.									1057
8		strong, damp, medium grey.									1056
				23-9			19.8				
9		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 5.3 mbeg / (04-08-2025) = 5.39 mbeg									1055
10											1054

Grain Size Distribution (RUSLEFAC): Clay = 28% ; Silt and Very Fine Sand = 39.4% ; Sand = 26.4% ; Gravel = 6.2% ; Organics = 2.7% ; Erodibility Factor = 0.034

[SO4]=1.133 (Severe)

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-04
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:24
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1062.383

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '24' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 255mm thick)			TPSL						1062
		SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.		24-1			7.7				
1					MLS						1061
				24-2		6-9-12	11.8				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		24-3			13.1				1060
3		trace coal spots & precipitates.		24-4	CL-ML	6-8-10	11.5		[SO4]=0.041 (Negligible)		1059
		SANDSTONE BEDROCK - weak, dry, light brown.		24-5							
4											1058
				24-6		50@4"	11.9				
5		moderate, dry, light brown.									1057
				24-7							
6					BE						1056
		moderate to strong, dry, light brown.		24-8			7.4				
7											1055
		strong.									
8		very strong.		24-9							1054
		END OF BOREHOLE at a depth of 8.2 metres (Refusal). Dry upon completion. 2.7 metres slough. 25mm PVC standpipe installed at a depth of 5.46m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									1053
9											
10											1052

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Logged By: YD	Completion Depth: 27 ft
Reviewed By: MA	Drilled on: 2025-03-04
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:25
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1069.714

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 180mm thick)		TPSL		1069
	SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.	25-1	MLS		
1					
		25-2		5-6-8	1068
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.	25-3	CL-ML		
					1067
3	coal spots.				
		25-4		8-23-36	
4	SANDSTONE BEDROCK - weak, dry, light brown.	25-5			1066
		25-6		28-50@3"	1065
5					
	wek to moderate, dry, light brown.	25-7			1064
6					
	water seepage.		BE		
		25-8			1063
7	weak, damp to wet, brown-grey.				
					1062
8	moderate, damp, medium grey.				
		25-9			1061
9					
	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 25mm PVC standpipe installed at a depth of 5.46m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 5.48 mbeg / (04-08-2025) = 5.37 mbeg				1060
10					1059

PLASTIC M.C. LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

Moisture content values: 10.8, 12.4, 14.8, 13.2, 12.6, 19.2

PI = 22.7

OTHER DATA: Grain Size Distribution (RUSLEFAC): Clay = 30% ; Silt and Very Fine Sand = 34.8% ; Sand = 33.5% ; Gravel = 1.7% ; Organics = 2.8% ; Erodibility Factor = 0.032

Well '25' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-04
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:26
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1068.44

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '26' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1068
		SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.		26-1	MLS		10.4				
1											1067
				26-2		5-7-8	12.9				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		26-3	CL-ML		13.5				1066
		SANDSTONE BEDROCK - weak, dry, light brown.									
3				26-4		29-50@4"	8.9				1065
		weak, dry, light brown.		26-5			8.8				
4											1064
5		weak to moderate, dry, light brown.									
				26-6							1063
6					BE						
											1062
		moderate, dry, light brown.		26-7			10.2				
7											1061
		moderate to strong, light brown.									
8											1060
		strong, dry, light brown.		26-8							
9											1059
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 5.46m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 4.63 mbeg									
10											1058

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-04
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:27
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1066.537

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 255mm thick)			TPSL		1066
1	SANDY SILT - trace gravel, compact, dry, light brown.		27-1	MLS		1065
2			27-2		4-5-7	1064
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		27-3			1064
3	some oxides.		27-4		4-6-10	1063
4	low plastic, hard, dry to damp.		27-5	CL-ML		1062
5			27-6		8-16-24	1061
5	SANDSTONE BEDROCK - weak, dry, light brown.					1061
5	weak.		27-7			1061
6						1060
7	moderate, dry, light brown.		27-8	BE		1059
8						1058
9	moderate.		27-9			1057
9	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 5.07 mbeg / (04-08-2025) = 4.93 mbeg					1056
10						

PLASTIC — M.C. — LIQUID (10 20 30 40)

9.3 | 13.2 | 15.1 | 14.4 | 11.6 | 9.0

PI = 23.5

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Grain Size Distribution (RUSLEFAC): Clay = 29% ; Silt and Very Fine Sand = 41.4% ; Sand = 27.2% ; Gravel = 2.4% ; Organics = 2.2% ; Erodibility Factor = 0.035

Well '27' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-04
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:28
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1051.947

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '28' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						
		SANDY SILT - trace gravel, compact, dry, light brown.		28-1			9.5				
1					MLS						1051
				28-2		6-6-6	10.7				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		28-3			12.5				1050
3		some oxides.		28-4		7-16-9	12.5				1049
					CL-ML		PI = 25.1				
		SANDSTONE BEDROCK - weak, dry, light brown.		28-5							
4											1048
				28-6		50@5"	7.7				
5		moderate to strong, dry, light brown.		28-7							1047
6											1046
		water seepage.			BE						
				28-8			21.5				
7		weak, wet, medium grey.									1045
8											1044
		moderate, damp, medium grey.		28-9							
9											1043
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.83 mbeg / (04-08-2025) = 6.88 mbeg									
10											1042

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:29
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1045.331

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '29' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1045
		SANDY SILT - trace gravel, compact, dry, light brown.		29-1			9.0		[SO4]=0.229 (Severe)		
1					MLS						1044
2				29-2		5-5-4	13.2				
		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		29-3			15.6				1043
3					CL-ML						
		coal spots, some oxides.		29-4		3-5-8					1042
4		SANDSTONE BEDROCK - weak, dry, light brown.		29-5			9.0				1041
				29-6		50@5"					
5		moderate to strong, dry, light brown.									1040
				29-7			14.6				
6					BE						1039
		moderate to strong, dry, light brown.									
7				29-8							1038
		very strong.									
8				29-9			15.6				1037
		END OF BOREHOLE at a depth of 8.2 metres (Refusal). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 4.59 mbeg									
9											1036
10											1035

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Logged By: YD	Completion Depth: 27 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:30
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1042.442

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '30' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 180mm thick)			TPSL						1042
		SANDY SILT - trace gravel, trace clay, compact, dry, medium brown.		30-1			13.1				
1											1041
				30-2	CL-ML	7-9-17	12.4				
2		no clay, very dense, trace fine gravel, dry, light brown.		30-3			17.0				1040
3		trace oxides & precipitates.		30-4		11-27-29					1039
		SANDSTONE BEDROCK - weak, dry, light brown.		30-5			5.6				
4											1038
				30-6		50@4"					
5		moderate, dry, light brown.		30-7			9.3				1037
6					BE						1036
		moderate to strong, dry, light brown.		30-8							
7											1035
		very strong, damp, light brown.		30-9			13.6				
8		END OF BOREHOLE at a depth of 7.9 metres (Refusal). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 6.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 4.96 mbeg									1034
9											1033
10											1032

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Logged By: YD	Completion Depth: 26 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:31
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1056.5

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	OTHER DATA	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL			1056
1	SANDY SILT - trace gravel, compact, dry, light brown.		31-1	MLS			1055
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		31-2		5-5-6	[SO4]=0.041 (Negligible)	1054
			31-3				
3	some oxides.		31-4	CL-ML	5-8-17		1053
			31-5				
4	SANDSTONE BEDROCK - weak, dry, light brown.						1052
5	moderate to strong, dry, light brown.		31-6		50@3"		1051
			31-7				
6				BE			1050
7	very strong		31-8				1049
8	END OF BOREHOLE at a depth of 7.5 metres (Refusal). Dry upon completion. 1.7 metres slough. 25mm PVC standpipe installed at a depth of 5.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry						1048
9							1047
10							1046

PLASTIC — M.C. — LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

9.6 13.1 14.3 12.5 13.7 7.0

Well '31' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 24.5 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:32
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1049.05

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '32' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 240mm thick)			TPSL						
		SANDY SILT - trace gravel, trace clay, compact, dry, light brown.		32-1	MLS		9.8				
1											1048
				32-2		4-4-6	12.5				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, stiff, damp, medium brown.		32-3							1047
3		trace coal.		32-4	CL-ML	2-3-6	16.0 PI = 24.5				1046
		low plastic, some oxides.very stiff, damp, medium brown.		32-5							
4											1045
				32-6		5-8-14	15.3				
5		SANDSTONE BEDROCK - weak, dry, light brown.									1044
				32-7							
6				32-8		50@4"	10.6				1043
		weak to moderate, dry, brown-grey.		32-9	BE						
7											1042
8		water seepage.									1041
		moderate, damp to wet, medium grey.		32-10			16.5				
9											1040
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.28 mbeg / (04-08-2025) = 6.36 mbeg									
10											1039

OTHER DATA: Grain Size Distribution (RUSLEFAC): Clay = 27% ; Silt and Very Fine Sand = 41.9% ; Sand = 28.7% ; Gravel = 2.4% ; Organics = 2.2% ; Erodibility Factor = 0.036

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:33
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1046.397

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	OTHER DATA	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL			1046
		SANDY SILT - trace gravel, compact, dry, light brown.		33-1				
1					MLS			1045
				33-2		4-5-7		
2		trace precipitstes.						
		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		33-3			[SO4]=2.178 (Very Severe)	1044
3					CL-ML			
		coal spots, some oxides.		33-4		7-8-14		1043
		SANDY SILT - trace fine gravel, dense, dry, light brown.						
4				33-5	MLS			1042
		trace sand stone.		33-6		15-50@5"		
5		SANDSTONE BEDROCK - moderate, dry, light brown.						1041
				33-7				
6		moderate to strong, dry,, light brown.						1040
				33-8				
7		moderate, damp, light brown.			BE			1039
8		moderate to strong, dry,, light brown.						1038
				33-9				
9								1037
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.4 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry						
10								1036

PLASTIC / M.C. / LIQUID: 10 20 30 40

BLOW COUNT: 10 20 30 40

POCKETPEN (kPa): 80 160 240 320

Well '33' SLOTTED PIEZOMETER

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		Reviewed By: MA	Drilled on: 2025-03-07
		Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:34
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1063.789

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL		1063
1	SANDY SILT - trace gravel, compact, dry, light brown.		34-1	MLS		
2	trace oxides.		34-2		5-6-5	1062
	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		34-3			
3			34-4	CL-ML	5-9-11	1061
4	SANDSTONE BEDROCK - weak, dry, light brown.		34-5			1060
5			34-6		50@4"	1059
	weak to modeate, dry, light brown.		34-7			
6	water seepage.					1058
7	damp to wet, brown-grey.		34-8	BE		1057
8	moderate, damp, medium grey.		34-9			1056
9						1055
10	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.6 mbeg / (04-08-2025) = 6.51 mbeg					1054
						1053

PLASTIC M.C. LIQUID (10 20 30 40)

10.1, 13.1, 15.8, 13.6, PI = 30.8, 8.9, 24.0

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well '34' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:35
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1053.925

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)		TPSL					
	SANDY SILT - trace fine gravel, loose, dry, light brown.	35-1			13.6			
1			MLS					1053
	trace oxides & precipitates.	35-2		4-4-5	15.1			
2								1052
	SILTY CLAY (TILL) - trace gravel, low plastic, low plastic, oxides & precipitates, dry to damp, medium brown.	35-3						
3	coal spots, trace sand.	35-4		5-6-10	16.1		[SO4]=1.362 (Severe)	1051
	trace fine gravel, low plastic, stiff.	35-5	CL-ML					
4								1050
		35-6		5-6-9	13.9			
5		35-7						1049
	SANDSTONE BEDROCK - moderate, dry, light brown.							
6		35-8		50@4"	11.6			1048
	water seepage.	35-9						
7	weak to moderate, dry to damp, brown-grey.		BE					1047
8								1046
	moderate, damp, medium grey.	35-10			13.1			
9								1045
	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = 2.99 mbeg							
10								1044
								1043

Well '35' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:36
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1047.265

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '36' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1047
		SANDY SILT - trace gravel, compact, dry, light brown.		36-1			10.7				
1					MLS						1046
		trace precipitstes.		36-2		5-4-6	13.1				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		36-3			14.5				1045
3		coal spots, some oxides.		36-4		7-9-16					1044
		low plastic, very stiff, trace fine gravel.		36-5			14.4				
4											1043
				36-6		8-10-13					
5		trace precipitstes.		36-7			13.9				1042
					CL-ML		PI = 30.7				
6		trace oxides.		36-8		6-8-14					1041
				36-9			14.5				
7		low plastic, very stiff to hard.									1040
				36-10		8-11-19					
8											1039
		dry to damp, medium brown.		36-11							
9											1038
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 7.3m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = Dry									
10											1037

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:37
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1038.187

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '37' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-light brown(approx 270mm thick)			TPSL						1038
		SANDY SILT - trace gravel, compact, dry, light brown.		37-1	MLS		11.3				
1											1037
				37-2		4-4-5	15.0				
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		37-3			16.4				1036
3		some oxides.		37-4	CL-ML	4-7-10	15.7				1035
							PI = 30.1				
4		some gravel,very stiff-hard, low plastic.		37-5				>>			1034
				37-6		7-12-17	16.7				
5				37-7							1033
		SANDSTONE BEDROCK - weak, dry, light brown.									
6				37-8		50@5"	12.8				1032
7		moderate, dry, light brown.		37-9	BE						1031
8											1030
		weak to moderate, damp, light brown.		37-10							
9											1029
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = 5.77 mbeg									1028
10											

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:38
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1032.182

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '38' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1032
		SILTY CLAY (TILL) - trace gravel, trace sand, stiff, stiff, low plastic, damp, medium brown.		38-1			18.3		[SO4]=2.740 (Very Severe)		
1											1031
				38-2		4-4-4	16.4				
2		very stiff, low to medium plastic, coal spots.		38-3	CL-ML		18.9				1030
3		trace precipitates.		38-4		6-9-16					1029
4		SANDSTONE BEDROCK - weak, dry, light brown.		38-5			15.0				1028
		moderate.		38-6		19-43-50@4"					
5		brown-grey, dry.		38-7			13.7				1027
6											1026
					BE						
7				38-8							1025
		moderate to strong.									
8		strong, dry, medium grey.									1024
				38-9			13.0				
9											1023
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 7.3m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 6.73 mbeg / (04-08-2025) = 6.5 mbeg									
10											1022

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:39
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1025.357

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '39' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1025
		SILTY SAND - fine sand, compact, trace gravel, dry, light brown.		39-1	SM		9.3				
1											1024
				39-2		9-8-8	13.2				
2		trace oxides.									1023
		SILTY CLAY (TILL) - trace fine gravel, trace sand, very stiff, dry to damp, medium brown.		39-3							
3											1022
				39-4		7-8-13	15.3 PI = 31.2				
4				39-5							1021
		layer of sand with trace gravel, orange.									
		trace coal spots.		39-6		11-16-19	14.2				
5											1020
		some fine gravel, low plastic, hard, dry to damp, medium brown.		39-7	CL-ML			>>			
6											1019
				39-8		10-15-23	14.2				
7		low plastic, trace fine gravel, hard, dry to damp, medium brown.		39-9				>>			
											1018
8				39-10		12-17-22	13.8				
		low plastic, hard, medium brown.		39-11				>>			1017
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 7.3m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									1016
10											1015

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:40
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1041.244

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '40' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 180mm thick)			TPSL						1041
		SILTY CLAY (TILL) - some gravel, some sand, very stiff, low plastic, damp, dark brown.		40-1			14.8				
1											1040
				40-2	CL-ML	5-7-10	11.9		[SO4]=0.041 (Negligible)		
2		trace gravel, trace sand, dry to damp.		40-3			14.3				1039
3											
				40-4		11-37-50@2"	12.3				1038
		SANDSTONE BEDROCK - weak, dry, light brown.					PI = 23.4				
4				40-5							1037
				40-6		50@4"	8.6				
5		weak to moderate, dry, light brown.		40-7							1036
6					BE						1035
		moderate, dry, brown-grey.		40-8			10.1				
7											1034
8				40-9							1033
		moderate to strong, light brown.									
9											1032
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.7 mbeg / (04-08-2025) = 4.78 mbeg									
10											1031

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-06
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:41
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1035.62

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)		TPSL					1035
1	SILTY SAND - trace fine gravel, compact, dry, light brown.	41-1	SM		8.7		Grain Size Distribution (RUSDLEFAC): Clay = 17% ; Silt and Very Fine Sand = 34.8% ; Sand = 42.6% ; Gravel = 5.6% ; Erodibility Factor = 0.022	1034
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, dry to damp, medium brown.	41-2		10-10-10				1033
3	some oxides.	41-3			14.1			1032
4	hard, low plastic, trace coal spots.	41-4		6-8-12				1031
5	trace precipitates.	41-5			14.1			1030
6	hard, low plastic.	41-6	CL-ML	10-13-20				1029
7	trace fine gravel, low plastic, hard.	41-7			13.9		Grain Size Distribution (RUSLEFAC): Clay = 17% ; Silt and Very Fine Sand = 34.8% ; Sand = 42.6% ; Gravel = 5.6% ; Organics = 2.3% ; Erodibility Factor = 0.022	1028
8	SANDSTONE BEDROCK - weak, dry, medium grey.	41-8		11-15-21				1027
9		41-9			14.5			1026
10	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.8 metres slough. 25mm PVC standpipe installed at a depth of 7.3m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry	41-10		10-13-19				1025
		41-11	BE		16.6			

Well '41' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:42
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1025.916

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '42' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						
		SILTY SAND - trace gravel, compact, dry, light brown.		42-1			8.5				
1					SM						1025
				42-2		5-7-8					
2											1024
		SILTY CLAY (TILL) - trace gravel, trace sand, low plastic, very stiff, damp, medium brwon.		42-3			14.2				
3		cobble or gravel in spoon.		42-4		50@3"					1023
		low plastic, very stiff.		42-5			14.3				
4											1022
		trace oxides & precipitates.		42-6		9-12-16					
5											1021
		low plastic, hard, trace gravel, trace coal spots.		42-7	CL-ML		13.0				
6											1020
				42-8		13-30-35					
7		dry to damp, hard.		42-9			11.9	>>			1019
		coal spots,		42-10		16-35-38					
8											1018
		hard, medium brown.		42-11			11.8	>>			
9											1017
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.2 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									
10											1016
											1015

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:43
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1041.336

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '43' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1041
		SANDY SILT - trace gravel, trace clay, compact, dry, medium brown.		43-1	MLS		14.2				
1											1040
		some sand.		43-2		5-6-11					
2				43-3			13.0		[SO4]=0.08 (Negligible)		1039
3		trace oxides & precipitates.		43-4		5-6-11					1038
		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, hard, damp, medium brown.		43-5			14.2				
4											1037
		coal spots, some oxides.		43-6		15-12-28					
5		low plastic, hard.		43-7			14.0				1036
6				43-8	CL-ML	10-12-20					1035
				43-9			13.8				
7		some sand, some precipitates.									1034
				43-10		7-12-22					
8				43-11			14.2				1033
		low plastic, hard, medium - light brown.									
9											1032
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.1 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = Dry									
10											1031

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-10
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:44
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1035.5

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '44' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1035
		SILT - some sand, compact, trace oxides, dry, light brown.		44-1			12.4				
1											1034
				44-2		6-6-5	13.3	■			
2		trace clay, dense, damp, medium brown.									1033
				44-3	ML		15.0				
3											1032
				44-4		7-10-22	12.0	■	[SO4]=2.067 (Very Severe)		
4		some clay, dense, trace precipitates.		44-5							1031
				44-6		10-16-21	13.5	■			
5		SILTY CLAY (TILL) - trace gravel, trace precipitates, low plastic, very stiff, dry to damp, medium brown.		44-7							1030
6											
				44-8	CL-ML	50@5"	13.0		NO recovery in spoon		1029
7		very stiff, low plastic, damp, medium brown.		44-9							1028
		END OF BOREHOLE at a depth of 7.6 metres (Refusal). Dry upon completion. 0.0 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									1027
8											
9											1026
10											1025

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Logged By: YD	Completion Depth: 25 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:45
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1029.604

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 225mm thick)		TPSL		1029
	SILTY CLAY (TILL) - trace gravel, low plastic, stiff, damp, medium brown.	45-1			
1					
		45-2		6-6-8	1028
2	some oxides & precipitates, low plastic, very stiff.	45-3			
					1027
3			CL-ML		
		45-4		6-7-12	
	coal spots, trace fine gravel, low plastic, medium brown, very stiff to hard.	45-5			1026
4					
		45-6		10-12-17	1025
5					
	SANDSTONE BEDROCK - weak, dry,, light brown.	54-7			1024
6					
		45-8		38-50@3"	
		45-9			1023
7	weak, dry to damp, light brown.		BE		
					1022
8					
	weak, dry, light brown.	45-10			1021
9					
	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 8.2m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 7.2 mbeg / (04-08-2025) = 6.99 mbeg				1020
10					
					1019

PLASTIC M.C. LIQUID (10 20 30 40)

15.0 14.9 15.8 16.0 12.6 14.5

PI = 21.6

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well '45' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-27
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:46
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1068.752

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0	TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL		
	SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.		46-1			1068
1				MLS		
			46-2		5-6-8	1067
2	SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, very stiff, damp, medium brown.		46-3			
						1066
3	coal spots		46-4	CL-ML	7-9-12	
						1065
4	SANDSTONE BEDROCK - weak, dry, light brown.		46-5			
			46-6		50@4"	1064
5	moderate, dry, light brown.		46-7			
						1063
6						
	moderate to strong, dry, light brown.		46-8	BE		1062
7						
						1061
8	strong.					
			46-9			1060
9	moderate, dry, light brown.					
	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.4 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry					1059
10						1058

PLASTIC M.C. LIQUID (10 20 30 40) — PI = 35.1

BLOW COUNT (10 20 30 40) — POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well '46' SLOTTED PIEZOMETER

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	Reviewed By: MA	Drilled on: 2025-03-04
	Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:47
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1055.874

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '47' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics and rootlets, damp, black (approx. 300mm).			TPSL						1055
1		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown.		47-1			16.0		[SO4]=0.410 (Severe)		
2				47-2	CI	7-7-9	14.1				1054
3				47-3			16.9				1053
				47-4		4-4-7					
4		Sandy SILT - trace gravel, compact, dry, medium brown.		47-5			10.5				1052
5				47-6	MLS	13-23-42					1051
		Bedrock (SILTSTONE) - weak, dry, grey.		47-7			11.0				
6		- moderate to strong.		47-8		50@2"	4.8		SPT #47-8: poor recovery.		1050
7				47-9	BE						1049
8				47-10							1048
9											1047
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 8.8m with 3.0m slotted screen.									1046
											1045

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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:48
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1048.223

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '48' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics and rootlets, black (approx 300mm).			TPSL						1048
		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown.		48-1			13.7				
1		- coal spots.									1047
				48-2	CI	3-4-6	15.2				
2											1046
				48-3			14.6				
3											
				48-4		9-13-26	13.6				1045
							PI = 25.4				
		Sandstone - moderate, dry, light brown.		48-5	SDST		7.7				
4				48-6							1044
		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown, coal spots.									
				48-7		5-10-14	13.3				
5											1043
				48-8							
6		- medium to high plastic.									1042
				48-9	CI	5-6-11	15.8				
7											1041
				48-10							
		- medium brown with grey.									
				48-11		7-10-13					
8											1040
				48-12							
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 7.2 mbeg / (04-08-2025) = 4.56 mbeg									1039
10											1038

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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:49
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1073.066

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '49' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics, rootlets, black (approx. 300mm).			TPSL						1073
		Sandy SILT - trace gravel, loose, dry, medium brown.		49-1	MLS		9.2				
1											1072
				49-2		6-5-6	11.8				
2		Silty Clay (TILL) - trace sand and gravel, stiff, dry to damp, trace oxides and precipitates, coal spots, low plastic, medium brown.									1071
				49-3	CL-ML		13.0		[SO4]=1.210 (Severe)		
3											1070
				49-4		10-18-23					
		Sand - trace silt and gravel, compact, dry, medium brown.									
4				49-5	SP		7.4				1069
		- damp.		49-6		16-33-50@4"					
5											1068
		Silty SAND - trace gravel, trace sandstone, compact to dense, damp, light brown.		49-7			12.9				
6		- coal spots.			SM						1067
				49-8		38-44-50@2"					
7		Bedrock (SANDSTONE) - weak, dry, light grey.									1066
				49-9			4.7				
8		- moderate.		49-10	BE						1065
		END OF BOREHOLE at a depth of 8.5 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									
9											1064
10											1063

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Logged By: HS	Completion Depth: 28 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:50
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1058.233

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '50' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics, rootlets, black (approx. 300mm).			TPSL						1058
1		Silty Clay (TILL) - trace sand and gravel, stiff, dry, trace oxides and precipitates, low to medium plastic, medium brown.		50-1			12.7				1057
2		- damp, coal spots, medium plastic.		50-2		5-7-6	14.0		[SO4]=0.040 (Negligible)		1056
3				50-3	CI		14.4				1055
4		- medium brown with grey.		50-4		3-6-10					1054
5		Bedrock (SANDSTONE) - weak, dry, light brown.		50-5			14.1				1053
6				50-6		20-31-35					1052
7				50-7			11.8				1051
8		- wet, grey.		50-8		50@5"					1050
9				50-9	BE		19.3				1049
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = 5.92 mbeg		50-10							1048

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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:51
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1049.006

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '51' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics and rootlets, black (approx. 300mm).			TPSL						
		Sandy SILT - trace gravel, loose, dry, medium brown.		51-1	MLS		10.1				
1											1048
		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown.		51-2		6-5-5	15.1				
2				51-3			15.5				1047
				51-4		4-5-8					
3		- coal spots, some sand lensing.									1046
				51-5			15.0				
4		- medium brown with grey.									1045
				51-6		7-10-15					
5					CI						1044
		- coal spots.		51-7			15.2				
6											1043
		- trace coal.		51-8		8-13-19					
				51-9			15.1				
7											1042
				51-10		8-11-16					
8											1041
				51-11							
9											1040
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Inaccessible / (04-08-2025) = Dry									
10											1039

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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:52
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1077.889

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '52' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics and rootlets, black (approx. 300mm).			TPSL						1077
1		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown.		52-1			15.0		Grain Size Distribution (RUSLEFAC): Clay = 24% ; Silt and Very Fine Sand = 38.1% ; Sand = 33.7% ; Gravel = 4.2% ; Organics = 2.8% ; Erodibility Factor = 0.021		
2				52-2		3-4-8	16.1				1076
3				52-3			17.5				1075
				52-4		3-4-5					
4		- coal spots.		52-5	CI		15.5 PI = 25.8				1074
5		- medium brown with grey.		52-6		6-10-14					1073
6				52-7			14.3				1072
7		- coal spots, dry to damp.		52-8		5-11-18					1071
				52-9			14.3				
8				52-10		7-11-19					1070
9		Sandy SILT - trace gravel and clay, compact, damp, grey.		52-11	MLS						1069
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 0.6 metres slough. 25mm PVC standpipe installed at a depth of 8.5m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 2.45 mbeg / (04-08-2025) = 2.6 mbeg									1068
											1067

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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:53
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1060.341

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '53' SLOTTED PIEZOMETER	Elevation (m)
0		Topsoil - trace organics and rootlets, black (approx. 300mm).			TPSL						1060
1		Silty Clay (TILL) - trace sand and gravel, stiff, damp, trace oxides and precipitates, medium plastic, medium brown.		53-1			14.0				1059
2				53-2	CI	6-5-6	13.9				1058
3				53-3							1057
		- coal spots.		53-4		4-7-8	15.1		[SO4]=1.420 (Severe)		
4		Gravelly SAND - trace sandstone, compact, dry, light brown.		53-5							1056
5				53-6	SPG	50@2"	10.3		SPT# 53-6: poor recovery.		1055
6		Sandy SILT - trace gravel and clay, dense, trace sandstone, dry, medium brown with grey.		53-7							1054
				53-8	MLS	14-21-50@5"	12.9				
7		Sand - trace sandstone, dense, dry, trace silt, light brown.		53-9							1053
8				53-10	SP	39-50@1"	11.5				1052
9		Bedrock (SANDSTONE) - weak, dry, light brown.		53-11	BE						1051
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.1 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.58 mbeg / (04-08-2025) = 4.65 mbeg									1050

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Logged By: HS	Completion Depth: 30 ft
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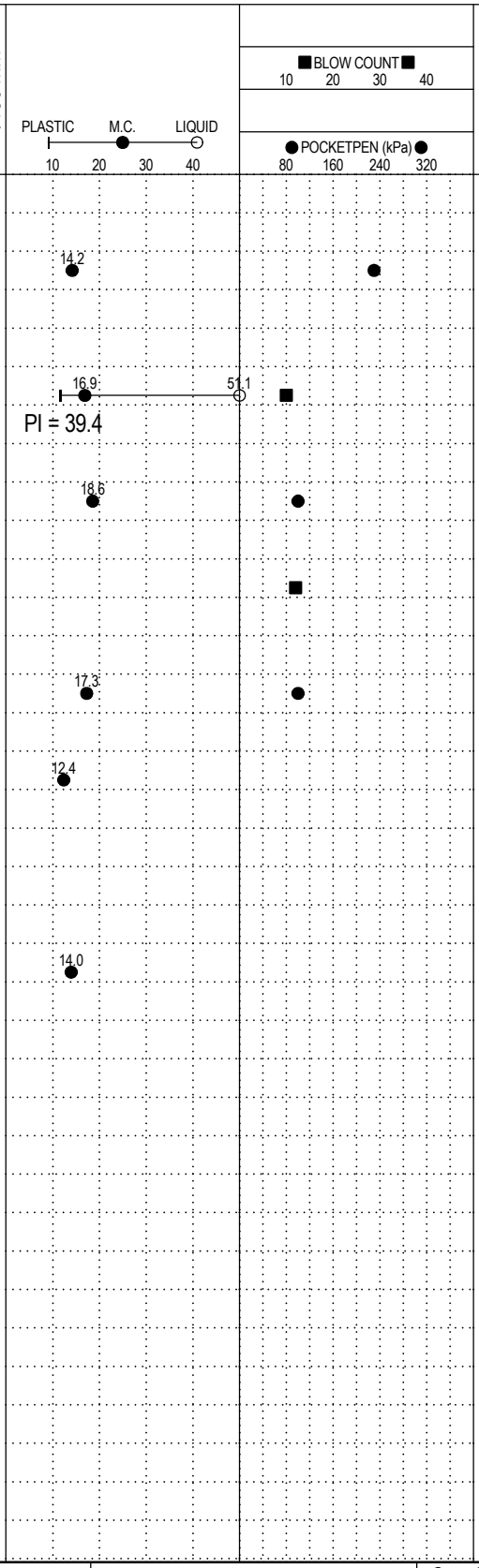
Groundwater Depth: m	Page 1 of 1

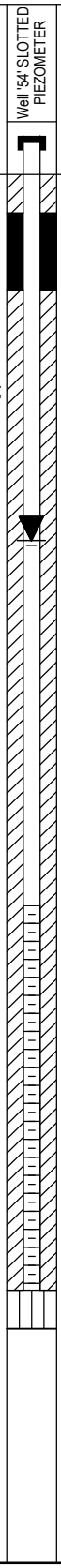
Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:54
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1052.687

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	OTHER DATA	Elevation (m)
0	Topsoil - trace organics and rootlets, black (approx. 300mm).			TPSL			
1	Silty Clay (TILL) - trace sand and gravel, stiff, damp, medium plastic, medium brown.		54-1			Grain Size Distribution (RUSLEFAC): Clay = 18% ; Silt and Very Fine Sand = 30% ; Sand = 28% ; Gravel = 24% ; Organics = 2.2% ; Erodibility Factor = 0.017	1052
2			54-2		4-5-5	PI = 39.4	1051
3			54-3	CI			1050
4	- medium brown with grey.		54-4		4-5-7		1049
5	SANDSTONE - weak to moderate, dry, light brown.		54-5				1048
	Sand - trace silt and gravel, compact, damp, medium brown.		54-6	SDST	50@1"	SPT# 54-6: poor recovery.	
			54-7				
			54-8	SP			1047
6			54-9		50@3"	SPT# 54-9: poor recovery.	1046
7	Bedrock (SANDSTONE) - weak, grey, dry.		54-10				1045
8	- wet.			BE			
9			54-11				1044
10	END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 0.3 metres slough. 25mm PVC standpipe installed at a depth of 8.8m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 2.9 mbeg / (04-08-2025) = 3.08 mbeg						1043
							1042





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Logged By: HS	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-05
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:55
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1042.39

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '55' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1042
		SILTY CLAY (TILL) - trace gravel, some sand, stiff, low plastic, damp, medium brown.		55-1			13.0		[SO4]=0.080 (Negligible)		
1											1041
				55-2	CL-ML	5-5-4	14.1				
2		trace sand.									
		low plastic, very stiff, trace oxides.		55-3			14.2				1040
3											
				55-4		6-8-12	13.5				1039
		SAND - trace silt, very dense, damp, light brown.		55-5			11.9				
4											1038
		trace sandstone.		55-6	SP	50@5"	13.3				
5											1037
				55-7							
		END OF BOREHOLE at a depth of 5.5 metres (Refusal). Dry upon completion. 25mm PVC standpipe installed at a depth of 5.46m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									
6											1036
7											1035
8											1034
9											1033
10											1032

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Logged By: YD	Completion Depth: 18 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:56
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1034.662

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '56' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 250mm thick)			TPSL						
		SILTY SAND - trace gravel, some clay, loose, damp, medium brown.		56-1	SM		10.4				1034
1											
				56-2		3-3-3	16.1				1033
2		SILTY CLAY (TILL) - trace gravel, trace sand, low plastic, stiff, damp, medium brwon.		56-3			16.0				
											1032
3		coal spots.		56-4		4-6-9	17.0 PI = 26.3				
		low plastic, very stiff.		56-5							1031
4											
		trace oxides & precipitates.		56-6		5-7-9	15.6				1030
5				56-7							
		low to medium plastic,very stiff, damp, medium brown.			CL-ML						1029
6				56-8		5-6-10	15.4				
				56-9							1028
7		low plastic, very stiff.									
				56-10		5-7-12					1027
8											
		low plastic, very stiff, medium brown.		56-11							1026
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 25mm PVC standpipe installed at a depth of 9.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = Dry / (04-08-2025) = Dry									1025
10											
											1024

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-10
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:57
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1034.187

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '57' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1034
		SILT - some clay, trace gravel, trace sand, compact, dry, medium brown.		57-1	ML		13.1				
1											1033
		some oxides.		57-2		6-7-8	14.3		[SO4]=0.56 (Severe)		
2											1032
		SILTY CLAY (TILL) - trace gravel, trace sand, low plastic, very stiff, damp, medium brown.		57-3			16.3				
3											1031
				57-4	CL-ML	8-9-10	16.0				
4		hard, low plastic, trace sand stone.		57-5			14.5				1030
				57-6		24-50@5"	9.4				
5		SANDSTONE BEDROCK - weak, dry, light brown.		57-7							1029
		weak, dry, light brown.									
6											1028
		weak.		57-8	BE						
7											1027
8		weak to moderate.		57-9							1026
9											1025
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 7.0 metres slough. 25mm PVC standpipe installed at a depth of 6.1m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 3.85 mbeg / (04-08-2025) = 3.9 mbeg									
10											1024

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:58
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1044.612

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC M.C. LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '58' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 250mm thick)			TPSL						1044
		SANDY SILT - trace gravel, trace oxides, compact, dry, light brown.		58-1	MLS		13.5				
1											
				58-2		3-4-6	15.1				1043
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic,stiff, damp, medium brown.		58-3			17.0 — 52.3 PI = 40.4				1042
3		trace fine gravel		58-4		5-6-9	16.6				
		low plastic, very stiff, trace oxides.		58-5	CL-ML		15.2				1041
4											
				58-6		5-8-19	13.4				1040
5		coal spot									
		SANDSTONE BEDROCK - weak, dry, light brown.		58-7							1039
6											
				58-8		50@5"					1038
		moderate, dry, light brown.		58-9							
7					BE						1037
8											
		moderate.		58-10							1036
9											
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.4 metres slough. 25mm PVC standpipe installed at a depth of 6.7m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = 4.42 mbeg									1035
10											1034

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:59
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1040.671

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 250mm thick)			TPSL		1040
1		SANDY SILT - trace fine gravel, trace oxides, compact, dry, light brown.		59-1	MLS		
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic,stiff, damp, medium brown.		59-2		5-5-6	1039
3		coal spots		59-3	CL-ML		1038
4		SANDSTONE BEDROCK - weak, dry, light brown.		59-4		6-8-14	1037
5		moderate, dry, light brown.		59-5		50@5"	1036
6				59-6			1035
7		moderate to strong, dry, light brown.		59-7	BE		1034
8		strong.		59-8			1033
9		moderate, dry, brown-grey.		59-9			1032
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.1 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = 4.41 mbeg					1031
							1030

PLASTIC M.C. LIQUID (10 20 30 40)

9.4, 12.2, 14.1, PI = 32.4, 13.7, 13.3, 6.5

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

OTHER DATA

Well '59' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-10
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:60
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1040.427

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '60' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1040
		SILT - some sand, compact, damp, light brown.		60-1			11.0				
1											1039
				60-2	ML	9-10-12	11.3	■			
2		some clay, trace oxides, trace fine gravel, compact.		60-3			12.6				1038
3		trace precipitates.		60-4		9-12-16		■			1037
		SANDSTONE BEDROCK - weak to moderate, dry, light brown.		60-5			11.0				
4											1036
				60-6		50@4"					
5		moderate, dry to damp, light brown.		60-7			10.0				1035
6											1034
		moderate to strong.			BE						
7				60-8							1033
		strong.									
8											1032
		strong, damp, light brown.		60-9			9.8				
9											1031
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = inaccessible / (04-08-2025) = 7.2 mbeg									
10											1030

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Telephone: 403-2912345

Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:61
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1050.499

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '61' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 200mm thick)			TPSL						1050
1		SANDY SILT - trace gravel, trace clay, loose, dry, light brown.		61-1	MLS		11.4				1049
2		SILTY CLAY (TILL) - trace fine gravel, trace sand, low plastic, stiff, damp, medium brown.		61-2		4-4-4	15.6				1048
				61-3			16.5		[SO4]=2.240 (Very Severe)		
3		very stiff, low plastic.									1047
		some oxides.		61-4		4-7-10	15.7				
4		very stiff, low plastic, trace gravel.		61-5	CL-ML		13.8				1046
				61-6		4-7-9	15.1				
5		low plastic, hard.		61-7							1045
6				61-8		5-11-26					1044
7		SAND - trace silt, some gravel, trace clay, dry to damp, very dense, light brown.		61-9							1043
		brown-grey.			SP						
8		SANDSTONE BEDROCK - weak to moderate, dry, medium grey.		61-10		48-50@4"					1042
				61-11	BE						
9											1041
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 1.5 metres slough. 25mm PVC standpipe installed at a depth of 7.6m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 3.69 mbeg / (04-08-2025) = 3.53 mbeg									1040

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-03-07
Groundwater Depth: m	Page 1 of 1

AUGER 02500452.000 WITH LAB RESULTS.GPJ M-L STANDARD.GDT 25-4-24

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:62
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1046.741

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	PLASTIC / M.C. / LIQUID (10 20 30 40)	BLOW COUNT (10 20 30 40) / POCKETPEN (kPa) (80 160 240 320)	OTHER DATA	Well '32' SLOTTED PIEZOMETER	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black-brown (approx 160mm thick)			TPSL						1046
1		SILTTY SAND - compact, dry, light brown.		62-1	SM		13.5				
2		SILTY CLAY (TILL) - trace gravel, low plastic, hard, damp, medium brown.		62-2		7-8-10	14.3				1045
3				62-3	CL-ML		15.5				1044
4		SANDSTONE BEDROCK - weak, dry, light brown.		62-4		6-8-24	13.0 PI = 23.6				
5		moderate to strong, dry, light brown.		62-5			8.5				1043
6		damp.		62-6	BE	50@3"	5.1				1042
7		water seepage.		62-7							1041
8		weak, wet, brown-grey.		62-8							1040
9		weak, damp, medium grey.		62-9							1039
10		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Wet upon completion. 0.9 metres slough. 25mm PVC standpipe installed at a depth of 8.2m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 3.45 mbeg / (04-08-2025) = 3.58 mbeg									1038
11											1037
											1036
											1035

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Project: Kineticor 7 QS ASP	Drilling Information:	Borehole No.:63
Client: Kineticor Holdings LP #3 c/o Cassa	Earth Drilling	Project No.:02500452.000
	D-120 SS-Auger	Elevation:1044.606

SAMPLE TYPE: SHELBY TUBE | CORE SAMPLE | SPT SAMPLE | GRAB SAMPLE | AUGER SAMPLE | NO RECOVERY

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS /150 mm	Elevation (m)
0		TOPSOIL - trace rootlets, trace organics, damp, black (approx 150mm thick)			TPSL		1044
		SILT - some sand, trace gravel, compact, dry, medium brown.		63-1	ML		
1							1043
				63-2		6-7-10	
2		SILTY CLAY (TILL) - trace gravel, low plastic, very stiff, damp, medium brown.		63-3			1042
3		some oxides.		63-4	CL-ML	7-9-14	
		SILTY SAND - trace clay, dense, damp, light brown.		63-5			1041
4					SM		
				63-6		17-17-24	1040
5		SANDSTONE BEDROCK - weak, dry, light brown.		63-7			
		weak to moderate, dry, light brown.					1039
6				63-8		50@4"	
		moderate, dry, brown-grey.		63-9			1038
7					BE		
				63-10			1037
8		strong, dry, medium grey.					
9							1036
		END OF BOREHOLE at a depth of 9.1 metres (Targeted Depth). Dry upon completion. 2.1 metres slough. 25mm PVC standpipe installed at a depth of 7.0m with 3.0m slotted screen. GWL Readings: (03-14-2025) = 4.15 mbeg / (04-08-2025) = 4.23 mbeg					1035
10							1034

PLASTIC — M.C. — LIQUID (10 20 30 40)

BLOW COUNT (10 20 30 40)

POCKETPEN (kPa) (80 160 240 320)

Moisture content values: 11.2, 15.2, 16.8, 15.4, 14.4, 12.2

OTHER DATA

Grain Size Distribution (RUSLEFAC): Clay = 26% ; Silt and Very Fine Sand = 43.4% ; Sand = 26.9% ; Gravel = 3.7% ; Organics = 2.5% ; Erodibility Factor = 0.027

[SO4]=1.780 (Severe)

Well '63' SLOTTED PIEZOMETER

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Logged By: YD	Completion Depth: 30 ft
Reviewed By: MA	Drilled on: 2025-02-28
Groundwater Depth: m	Page 1 of 1

Appendix C
Design and Construction Guidelines

ENGLOBE

BACKFILL AND COMPACTION

General

Maximum density, as used in this section, means Standard Proctor Maximum Dry Density (ASTM Test D698) unless otherwise noted. Optimum moisture content is as defined in this text.

Backfill adjacent to exterior footings, foundation walls, grade beams and pile caps and within 300 mm of final grade should comprise low-plastic cohesive general engineered fill as defined above. Such backfill should provide a relatively impervious surface layer to reduce seepage in the sub-soil.

Backfill should not be placed against a foundation structure until the structure has sufficient strength to withstand the earth pressures resulting from placement and compaction. During compaction, careful observation of the foundation wall for deflection should be carried out continuously. Where deflection is apparent, the compactive effort should be reduced accordingly. In order to reduce potential compaction induced stresses, only hand held compaction equipment should be used in the compaction of fill within 500 mm of retaining walls or basement walls.

Backfill materials should not be placed in a frozen state or placed on a frozen subgrade. All lumps of materials should be broken down during placement.

Where the maximum-sized particles in any backfill material exceed 50 percent of the lift thickness or minimum dimension of the cross-section to be backfilled, such particles should be removed and placed at other more suitable locations on site or screened-off prior to delivery to site.

Bonding should be provided between backfill lifts, if the previous lift has become desiccated. For fine-grained materials, the previous lift should be scarified to 75 mm in depth followed by proper moisture conditioning and recompaction.

General Engineered Fill

Backfill adjacent to and above footings, abutment walls, basement walls, grade beams and pile caps or below highway, street or parking lot pavement sections should comprise general engineered fill. “General engineered fill” materials should comprise clean, well-graded granular soils or inorganic, low-plastic cohesive soils. Such material should be placed in lifts not exceeding an uncompacted thickness of 300 mm, and compacted to not less than 98 percent of maximum density, at a moisture content at or slightly above optimum. The uncompacted lift thickness may be adjusted based on the method of fill placement and the size and type of compaction equipment in use.

Structural Fill

Backfill supporting structural loads should comprise structural fill materials. “Structural fill” materials should comprise clean, well-graded inorganic granular soils. Such fill should be placed in compacted lifts not exceeding 150 mm and compacted to not less than 98 percent of maximum density, at a moisture content at or slightly (0 to 3 percent) above optimum. The following table provides gradation limits for structural fill of various nominal sizes. The gradation limits have been adapted from the City of Calgary Roads Construction 2015 Standard Specifications, Section 303.00.00 Materials. Other gradations may be approved on a project specific basis by a qualified geotechnical engineer.

Sieve Size (mm)	Percent Passing By Weight Nominal Gravel Size		
	80 mm	50 mm	25 mm
80	100		
75	---		
50	---	100	
40	60 - 90	95 - 100	
25	---	---	100
20	40 - 70	50 - 75	95 - 100
10	25 - 60	25 - 52	55 - 80
5	15 - 45	15 - 40	35 - 65
2.5	10 - 35	10 - 33	28 - 52
0.63	5 - 23	5 - 23	13 - 35
0.315	---	---	9 - 26
0.16	3 - 12	2 - 14	6 - 18
0.08	2 - 10	1 - 10	4 - 10
%Fractures (2 faces)	20	30	60

Lean Mix Concrete

“Lean-mix concrete” should be low strength concrete having a minimum 28 days compressive strength of 3.5 MPa.

Landscape Fill

“Landscape fill” material may comprise soils without regard to engineering quality. Such soils should be placed in compacted lifts not exceeding 300 mm and compacted to a density of not less than 90 percent of maximum density.

Pipe Bedding and Drainage

Bedding for pipes and utilities should generally conform to the manufacturer’s specification. The type and depth of bedding material relative to the size of pipe are a function of the rigidity of the utility and the embedment depth. For drainage blankets and weeping tile, an open-graded, clean aggregate is required. The following table represents the gradation limits for bedding gravel. The gradation limits have been adapted from the City of Calgary Standard Specifications: Sewer Construction 2012 Section 402.10.00. Class IA material as defined in the table is also suitable for use in drainage applications. Local municipal specifications or manufacturer’s specifications may be substituted at the discretion of a qualified engineer.

Sieve Size (mm)	For Pipe 375 mm and Smaller (20 mm Nominal Size) % passing by mass		Sieve Size (mm)	For Pipe Larger than 375 mm (40 mm Nominal Size) % passing by mass
Class IA*				
20	100		40	100
4.75	0 - 10		4.75	0 - 10
2.5	0 - 5		2.5	0 - 5
0.075	0 - 5		0.075	0 - 5
Class IB				
20	100		40	100
4.75	10 - 50		4.75	10 - 50
2.5	0 - 5		2.5	0 - 5
0.075	0 - 5		0.075	0 - 5
Class II				
20	100		40	100
4.75	0 - 100		4.75	0 - 100
0.075	0 - 12		0.075	0 - 12
Class III				
20	100		40	100
4.75	0 - 100		4.75	0 - 100
0.075	12 - 50		0.075	12 - 50

* Class IA material is suitable for granular material below slabs-on-grade for which a subfloor depressurization system is required for soil gas control, as specified in section 9.16.2.1 of the 2014 Alberta Building Code Volume 2.

BORED CAST-IN-PLACE CONCRETE PILES

Design and construction of piles should comply with relevant Building Code requirements.

Piles should be installed under full-time inspection of geotechnical personnel. Pile design parameters should be reviewed in light of the findings of the initial bored shafts drilled on a site. Further design review may be necessary if conditions observed during site construction do not conform to design assumptions.

Where fill material, lenses or strata of sand, silt or gravel are present within the designed pile depth, these may be incompetent and/or water bearing and may cause sloughing. Casing should be on hand before drilling starts and be used, if necessary, to seal water and/or prevent sloughing of the hole.

If piles are to be under-reamed (belled), the under-reams should be formed entirely in self-supporting soil and entirely within the competent bearing stratum. Where caving occurs at design elevation, it may be necessary to extend the base of the pile bell to a greater depth. Piles may be constructed with bell having outside diameters up to approximately three times the diameters of their shafts. Piles with shaft diameters of less than 760 mm should not be under-reamed due to difficulties associated with ensuring a clean base.

Prior to pouring concrete, bottoms of pile bells or of straight-shaft end-bearing piles should be cleaned of all disturbed material.

Pile excavation should be visually inspected after completion to ensure that disturbed materials and/or water are not present on the base so that recommended allowable bearing and skin friction parameters may apply.

Visual inspection may be accomplished by the inspector descending into the pile shaft [shaft diameter of 760 mm (30 inches) or greater]. A protective cage and other safety equipment required by government regulations should be provided by the contractor to facilitate down hole inspection.

Other procedures to inspect the pile shafts may be used where shaft diameters of less than 760 mm (30 inch) are constructed, such as inspection with a light.

For safety reasons, where hand cleaning and/or “down shaft” inspection by personnel are required, the pile shaft should be cased full-length prior to personnel entering the shaft.

Reinforcing steel should be on hand and should be placed as soon as the bore has been completed and approved.

Longitudinal reinforcing steel is recommended to counteract the possible tensile stresses induced by frost action and should extend to a minimum depth of 3.5 m. A minimum steel of 0.5 percent of the gross shaft area is recommended.

Where a limited quantity of water is present on the pile base, when permitted or directed by a geotechnical engineer, it should be either removed or absorbed by the addition of dry cement, which should then be thoroughly mixed as an in situ slurry by means of the belling tool, using reverse rotation of the tool. Where significant quantities of water are present and it is impracticable to exclude water from the pile bore, concrete should be placed by tremie techniques or concrete pump.

A “dry” pile should be poured by “free fall” of concrete only where impact of the concrete against the reinforcing cage, which can cause segregation of the concrete, will not occur. A hopper should be used to direct concrete down the centre of the pile base and to prevent impact of concrete against reinforcing steel.

Concrete used for dry piles should be self-compacting and should have a slump of between 50 mm and 130 mm. Concrete for each pile should be poured in one continuous operation and should be placed immediately after excavation and inspection of piles, to reduce the opportunity for the ingress of free water or deterioration of the exposed soil or rock.

If piles cannot be formed in dry conditions, then the concrete should be placed by tremie tube or concrete pump. Concrete placed by tremie should have a slump of not less than 150 mm. A ball or float should be used in the tremie tube to separate the initial charge of concrete from the water in the pile hole.

The outlet of the tremie tube should be maintained at all times 1.0 m to 2.0 m below the surface of the concrete. The diameter of the tremie tube should be at least 200 mm. The tube should be water-tight and not be made of aluminum. Smaller diameter pipes may be used with a concrete pump. The surface of the concrete should be allowed to rise above the cut-off level of the pile, so that when the temporary casing is withdrawn and the surface level of the concrete adjusts to the new volume, the top of the uncontaminated concrete is at or above the cut-off level. The concrete should be placed in one continuous, smooth operation without any halts or delays. Placing the lower portion of the pile by tremie tube and placing the upper portion of the pile by free fall should not be permitted, to ensure that defects in the pile shaft at the top of the tremie concrete do not occur.

As the surface of the concrete rises in the pile bore, the water in the pile bore will be displaced upwards and out of the top of the pile casing. It may be necessary to pump off this water to a container to temporary ditch drain to prevent the formation of ice or flooding conditions and possibly damage to existing structures.

When concreting by tremie techniques, allowance should be made for the removal of contaminated or otherwise defective concrete at the tops of the piles.

The casing should be filled with concrete and then the casing should be withdrawn smoothly and continuously.

Sufficient concrete should be placed to allow for additional volume of the casing and reduction in level of the concrete as the casing is withdrawn. Concrete should not be poured on top of previously poured concrete after the casing is withdrawn.

An accurate record of the volume of concrete placed should be maintained as a check that a continuous pile has been formed.

Concrete should not be placed if its temperature is less than 5°C or exceeds 30°C or if it is more than two hours old.

Where tension, horizontal or bending moment loading on the pile is foreseen, steel reinforcing should be extended and tied into the grade beam or pile cap. The steel should be designed to transfer loads to the required depth in the pile and to resist resultant bending moments and shear forces.

Void formers should be placed beneath all grade beams to reduce the risk of damage due to frost effects or soil moisture changes.

Where the drilling operation might affect the concrete in adjacent pile (ie. where pile spacing is less than about three diameters), drilling should not be carried out before the previously poured pile concrete has set for at least 24 hours.

Where a group of four or more piles are used, the allowable working load on the piles may need to be modified to allow for group effects.

Piles should be spaced no closer than 2.5 times the pile shaft diameter, measured centre-to-centre. Strict control of pile location and vertically should be exercised to provide accurate locations and spacing of piles. In

general, piles should be constructed within a tolerance of 75 mm plan distance in any direction and within a vertically of 1 in 75 mm.

A detailed record should be kept of pile construction including information such as pile number, shaft/base diameter, date and time bored, date and time concreted, elevation of piling platform, depths (from piling platform level) to pile base and to concrete cut-off level, length of casing used, detailed of reinforcement, brief description of soils encountered in the bore and details of any unusual occurrences during construction.

If a large number of piles are to be installed, it may be possible to optimize the design on the basis of pile load test.

CONSTRUCTION EXCAVATIONS

Construction should be in accordance with good practice and comply with the requirements of the responsible agencies.

All excavations greater than 1.5 m deep should be sloped or shored for worker protection.

Shallow excavations up to 3 m depth may use temporary side slopes of 1H:1V. A flatter slope of 2H:1V should be used if groundwater is encountered. Localized sloughing can be expected from these slopes.

Deep excavations or trenches may require temporary support if space limitations or economic considerations preclude the use of sloped excavations.

For excavations greater than 3 m depth, temporary support should be designed by a qualified geotechnical engineer. The design and proposed installation and construction procedures should be submitted Englobe Corp. for review.

The construction of a temporary support system should be monitored. Detailed records should be taken of installation methods, materials, in situ conditions and the movement of the system. If anchors are used, they should be load tested. Englobe Corp can provide further information on monitoring and testing procedures, if required.

Attention should be paid to structures or buried service lines close to the excavation. For structures, a general guideline is that if a line projected down at 45° from a horizontal, from the base of foundations of adjacent structures, intersects the extent of the proposed excavation, then these structures may require underpinning or special shoring techniques to avoid damaging earth movements. The need for any underpinning or special shoring techniques and the scope of monitoring required can be determined when details of the service ducts and vaults, foundation configuration of existing buildings and final design excavation levels are known.

No surface surcharges should be placed closer to the edge of the excavation than a distance equal to the depth of the excavation, unless the excavation support system has been designed to accommodate such surcharge.

FLOOR SLABS-ON-GRADE

All soft, loose or organic material should be removed from beneath slab areas. If any local hard spots such as old basement walls are revealed beneath the slab area, these should be over-excavated and removed to not less than 0.9 m below underside of slab level. The exposed soil should be proof-rolled and the final grade restored by general engineered fill placement. If proof-rolling reveals any soft or loose spots, these should be excavated and the desired grade restored by general engineered fill placement. Proof-rolling should be carried out in accordance with the recommendations given elsewhere in this Appendix. The subgrade should be compacted to a depth of not less than 0.3 m to density of not less than 95 percent Standard Proctor Maximum Dry Density (ASTM Test Method D698).

If for economic reasons, it is considered desirable to leave low quality material in place beneath a slab-on-grade, special ground treatment procedures may be considered. Englobe Corp. could provide additional advice on this aspect, if required.

A leveling course of at least 150 mm in compacted thickness is recommended directly beneath all slabs-on-grade. For slabs in buildings requiring a subfloor depressurization system for soil gas control, the underslab gravels should consist of an open graded clean gravel with limited fine grained inclusions to allow free flow of gasses. The Class IA material (drainage gravel) is a suitable material for this application. Where these gravels are placed on top of fine grained soils, a geotextile filter fabric should be placed between the gravel and subgrade soils. Geotextile filter fabric is also recommended between the gravels and the polymer vapour barrier to protect the polymer from punctures. Where no subfloor depressurization system is required, the levelling course may consist of structural fill. Alternatively, a minimum thickness of 150 mm of pit-run gravel overlain by a minimum thickness of 50 mm of crushed gravel may be used. Very coarse material (larger than 25 mm diameter) should be avoided directly beneath the slabs-on-grade to limit potential stress concentrations within the slab.

General engineered fill, structural fill, pit-run gravel and crushed gravel are defined under the heading “Backfill Materials and Compaction” elsewhere in this Appendix.

The slab should be structurally independent from walls and columns supported on foundations. This is to reduce any structural distress that may occur as a result of differential soil movements. If it is intended to place any internal non-load bearing partition walls directly on a slab-on-grade, such walls should be structurally independent from other elements of the building founded on a conventional foundation system so that some relative vertical movement of the walls can occur freely.

The excavated subgrade beneath slabs-on-grade should be protected at all times from rain, snow, freezing temperatures, excessive drying and the ingress of free water. This applies during and after the construction period.

A minimum slab concrete thickness of 100 mm is recommended. Control joints should be provided in all slabs. Typically for a 125 mm slab thickness, control joints should be placed on a 3 m square grid, should be sawn to a depth of one-quarter the slab thickness and have a width of approximately 3 mm.

Wire mesh reinforcement, 150 mm square grid, should be provided to reduce the possibility of uncontrolled slab cracking. The mesh should be adequately supported and should be located at or above mid-height of the slab with adequate cover.

Permanent and temporary walls should be designed to resist all lateral pressures including those due to soil or backfill, surcharges, water and adjacent footings using the following expressions defined in terms of total and effective stresses:

$P_{lateral\ pressure} = P'_{earth+surcharge} + P_{net\ water} + P'_{adj\ ft}$

where

$P_{lateral\ pressure}$	=	total lateral pressure at a given depth (kN/m^2)
$P'_{earth+surcharge}$	=	lateral earth pressure due to soil or fill and surcharges at a given depth (kN/m^2)
	=	$K (\gamma h + q)$ above water table or phreatic surface
	=	$K (\gamma' h + q)$ below water table or phreatic surface
$P_{net\ water}$	=	net water pressure on wall at a given depth (kN/m^2), calculated by hand drawn flow net or computer solution based on drainage conditions
$P'_{adj\ ft}$	=	lateral earth pressure due to adjacent footings at given depth (kN/m^2)
K	=	coefficient of lateral earth pressure, K_a, K_o, K_p or combination of as noted below
K_a	=	coefficient of active earth pressure
K_o	=	coefficient of at-rest earth pressure
K_p	=	coefficient of passive earth pressure
γ'	=	submerged unit weight of backfill or natural soil (kN/m^3)
γ'	=	$\gamma - \gamma_w$
γ	=	bulk unit weight of backfill or natural soil (kN/m^3)
γ_w	=	unit weight of water 9.81 kN/m^3
h	=	excavation depth (m)
q	=	surcharge load (kN/m^2)

PERMANENT LATERAL WALL PRESSURES

The distribution of soil pressure against a permanent wall may be assumed using the general equation given above with a coefficient of lateral earth pressure equal to the at rest coefficient of earth pressure, k = ko. Values of ko are given above for fill and native silt and clay as permanent walls can be constructed with backfill or poured neat to temporary shoring and native soils.

Permanent walls should be designed to resist the maximum possible water pressure subject to drainage conditions determined by design.

TEMPORARY LATERAL WALL PRESSURES

The distribution of soil pressure against a temporary wall may be assumed using the general equation given above and values of K according to deformation restrictions as follows:

– If moderate wall movements can be permitted: K = Ka

– If foundations of buildings or services exist at a shallow depth, at a distance less than H (height of the wall) behind the top of the wall and not closer than 0.5H: K = 0.5 (Ka + Ko)
– If foundations or services exist at a shallow depth, at a distance less than 0.5H: K = Ko

TEMPORARY PASSIVE WALL RESISTANCE

Passive resistance at the base of a temporary wall may be calculated as follows:

$P'p = Kp (\gamma' d/1.5)$

Where $P'p$ = passive resistance at depth below excavation (kN/m2)

Kp = coefficient of passive earth pressure

γ' = submerged unit weight (kN/m3)

d = depth below excavation level (m)

The passive resistance should be taken to act on an area twice the pile diameter below grade.

Shallow Foundations

Design and construction of shallow foundations should comply with relevant Building Code requirements.

The term “shallow foundations” includes strip and spread footings, mat slab and raft foundations.

Minimum footing dimensions in plan should be 0.45 m for strip footings and 0.9 m for square footings.

No loose, disturbed or sloughed material should be allowed to remain in open foundation excavations. Hand cleaning should be undertaken to prepare an acceptable bearing surface. Recompaction of disturbed or loosened bearing surface may be required.

Foundation excavation and bearing surfaces should be protected from rain, snow, freezing temperatures, drying and the ingress of free water, during and after footing construction.

Footing excavations should be carried down into the designated bearing stratum.

After the bearing surface is approved, a mud slab should be poured to protect the soil and provide a working surface for construction, should immediate foundation construction not be intended.

All constructed foundations should be placed on unfrozen soils, which should be at all times protected from frost penetration.

All foundation excavations and bearing surface should be observed by a qualified geotechnical engineer to confirm that the recommendations contained in this report have been followed and that soil conditions are consistent with those assumed in the design.

Where over-excavation has been carried out through a weak or unsuitable stratum in order to reach a suitable bearing stratum; or where a foundation pad is to be placed above stripped natural ground surface, lean-mix concrete or structural fill may be used to reinstate the grade. These materials are defined under the separate heading “Backfill Materials and Compaction”.