20 August 2007
AMEC Project No: YX00748

Dillon Consulting Limited
P.O. Box 1409
#4920 – 47 Street
Yellowknife, NT, X1A 2P1

Attention: Mr. Gary Strong, P.Eng
Project Officer

Dear Gary:

Re: Cut-off Trench Excavation
Sewage Lagoon Berms Construction Monitoring, Cape Dorset, NU

1.0 INTRODUCTION

Presented herein is a summary of construction monitoring services conducted during excavation of the cut-off trenches for two sewage lagoon berms in Cape Dorset, Nunavut. The construction monitoring was carried out from July 2 through July 12, 2007 by Mr. Dmitry Dumsky, a geotechnical engineer with AMEC Earth & Environmental, a division of AMEC Americas Limited (AMEC).

2.0 SCOPE OF WORK

AMEC was retained by Dillon Consulting Limited (Dillon) to inspect excavation of the cut-off trenches for the two sewage lagoon berms that are under construction in Cape Dorset, NU. AMEC inspected the depth of the cut-off trenches and subsurface materials that were exposed in the trenches, to determine whether the trench depths and exposed materials were in accordance with the design specifications. The scope of the work consisted primarily of the following duties:

- confirmation that the cut-off trench was not less than 2 m deep;
- confirmation that the cut-off trench is completed in hard frozen soil with a practical absence of visible ice;
- compilation of a record of soil composition and the ice content of the excavated soil.

A drawing, showing location of the berms, is presented in Appendix A. Selected photographs, also included in Appendix A, provide information on the soil profile at various sections of the cut-off trenches.

3.0 CUT-OFF TRENCH DOCUMENTATION

The following discussion of observations obtained during excavation of the cut-off trenches is divided into subsections that discuss discrete sections of the trenches each having relatively uniform soil conditions and trench depths.

3.1 CUT-OFF TRENCH 1

Cut-off Trench 1 was excavated for Berm 1, located on the north side of the lagoon. The berm is approximately 90 m in length and is aligned in a northwest-southeast direction. The berm was positioned to partition off a depression between two slopes facing southeast and northwest

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(Appendix A). A working pad was constructed over the berm area that consisted of rock fill with an average thickness of about 1.0 m.

3.1.1 Section 1: 000 m to 020 m

The soil profile within this section consisted of a thin layer of peat underlain by silt to the bottom of the cut-off trench. The silt contained some sand and gravel, was brown in color and hard frozen from 1.5 m depth with no visible ice. The minimum trench depth in this section was 2.0 m.

3.1.2 Section 2: 020 m to 070 m

The soil profile within this section consisted of a thin layer of peat underlain by silt to the bottom of the cut-off trench. The silt contained some sand and gravel, was brown in color and hard frozen from 1.5 m depth and with no visible ice. The minimum trench depth in this section was 2.1 m.

3.1.3 Section 3: 070 m to 090 m

The soil profile within this section consisted of bedrock from the ground surface down to the bottom of the cut-off trench. The minimum trench depth in this section was 2.0 m.

3.2 CUT-OFF TRENCH 2

Cut-off Trench 2 was excavated for a Berm located on the west side of the proposed lagoon near P-Lake. The berm is about 190 m long and is aligned in a north-south direction (Appendix A). A working pad consisting of rock fill was constructed over the berm area. The thickness of the working pad was about 0.3 m along the north section of the cut-off trench, about 1.0 m from Station 080 m to 100 m, and about 0.5 m along the south half of the cut-off trench.

3.2.1 Section 1: 000 m to 050 m

The soil profile along this fifty metre section comprised a thin peat layer over silt that was underlain with clay. The silt contained some sand and gravel, was non plastic, and brown in color. The boundary between the silt and clay ranged from 1.3 m to 1.9 m below ground surface. The clay was sandy with some silt, low plastic, grey in color, hard frozen, and with no visible ice. The depth of the trench varied from 2.0 m to 2.6 m.

3.2.2 Section 2: 050 m to 100 m

The soil profile within this section consisted of a thin peat layer, over silt, over bedrock. The silt contained some sand and gravel, was non plastic, and brown in color. The thickness of the silt varied from 0.3 m to 1.3 m. The depth of the trench varied from 2.1 to 2.5 m.

3.2.3 Section 3: 100 m to 130 m

The soil profile within this thirty metre section consisted of a thin peat layer, over silt, over clay extending to the bottom of the cut-off trench. The silt was sandy, with some sand and gravel, non plastic, brown in color, hard frozen from about 1.5 m depth, and with no visible ice. The thickness of the silt ranged from 1.8 m to 2.0 m. The clay was sandy, with some silt, low plastic, grey in color, hard frozen, and with no visible ice. The depth of the trench varied from 2.1 to 2.4 m.

3.2.4 Section 4: 120 m to 140 m

Bedrock was encountered within this section from the ground surface down to the base of the cut-off trench. The depth of the trench ranged from 2.1 to 2.3 m.

3.2.5 Section 5: 140 m to 190 m

The soil profile along the most southerly section of Cut-off Trench 2 consisted of a thin peat layer, over silt, over clay, extending to the bottom of the cut-off trench. An exception to this pattern was present over a ten metre length between 150 m to 160 m where bedrock encountered below the clay at a depth of 2 m. The silt contained some sand and gravel, was non plastic, and brown in color. The boundary between the silt and clay varied from a depth of 1 m to 1.5 m below the ground surface. The clay was sandy, with some silt, low plastic, grey in color, hard frozen, and with no visible ice The depth of the cut-off trench ranged from 2.0 m to 2.4 m.

4.0 CONCLUSION

The findings summarized in this report are based on the construction monitoring carried out by AMEC over the period from July 2 through July 12, 2007. The monitoring has found that the soil profile along the cut-off trenches consisted predominately of silty/clayey soil, with bedrock encountered within the approximate 2 m trench depth along approximately 35% of the total length of the cut-off trenches. The overburden was typically hard frozen from a depth of 1.0 m to 1.5, and with no visible ice. Based on the monitoring results, AMEC concludes that the cut-off trench was excavated into the hard frozen soils to depths specified in Dillon Design Drawing 111. It is anticipated that the trenches will perform as designed, provided that the surrounding cut-off trench soils will remain in a frozen state.

If you have any questions or concerns, please feel free to contact the undersigned at your convenience.

Yours truly,

AMEC Earth & Environmental Limited

Dmitry Dumsky, E.I.T.
Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
TCHEKHOVSKI
LICENSEE
NWT/NU

August 10, 2007

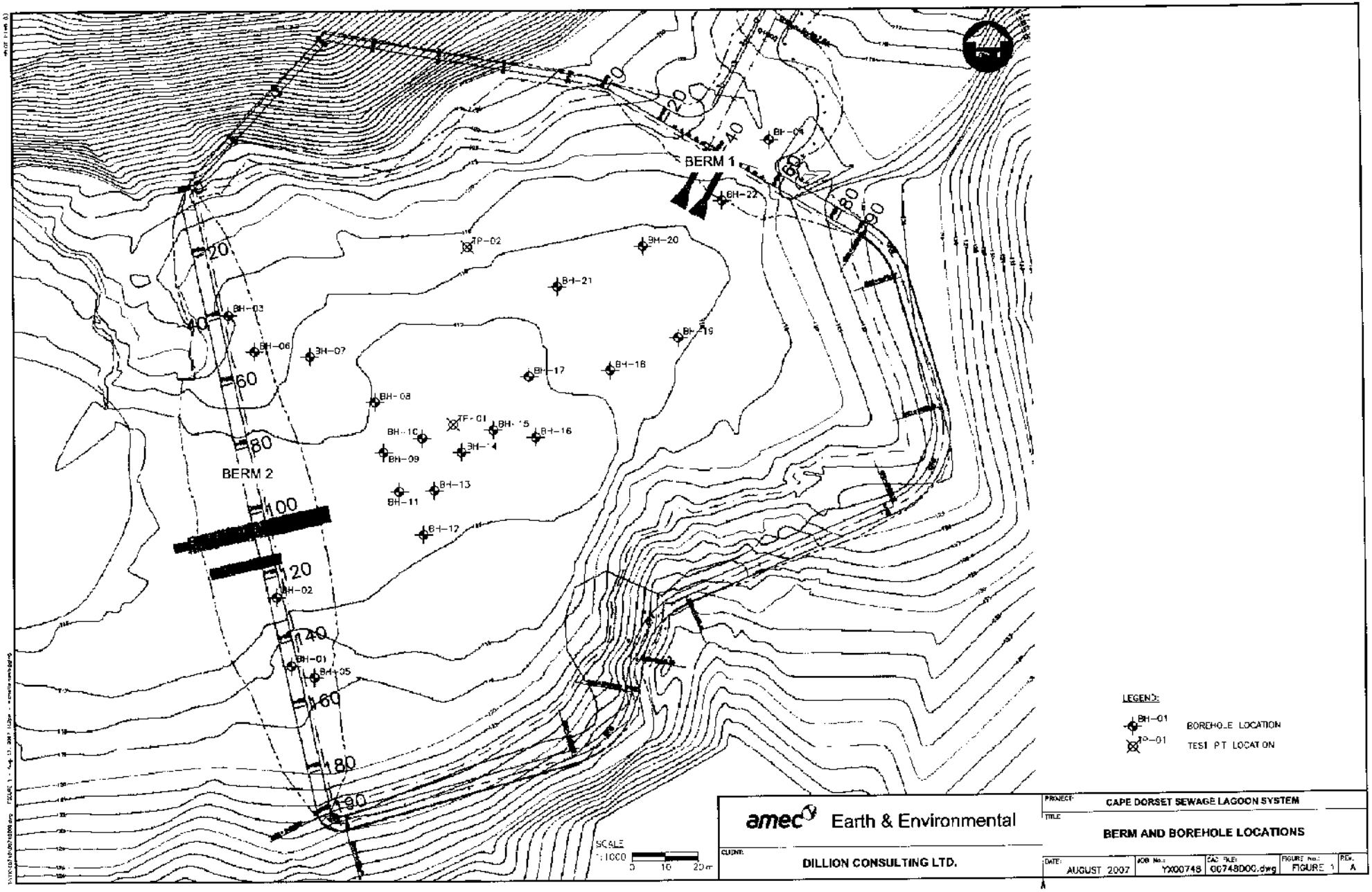
Alexandre Tchekhovski, Ph.D., P.Eng.
Associate Permafrost/Geotechnical Engineer

PERMIT TO PRACTICE
AMEC Earth & Environmental Limited
Signature
Date August 10, 2007
PERMIT NUMBER: P 047
The Association of Professional Engineers, Geologists and Geophysicists of the NWT / NU

Reviewed by:
Kevin Spencer, M. Eng., P. Eng.,
Associate Geotechnical Engineer

APPENDIX A

Figure 1: Site Plan
Photographs: Select Site Photos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BERM 2
BH-01
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BOREHOLE LOCATION
TP-01
TEST PIT LOCATION
amec Earth & Environmental
CLIENT:
DILLION CONSULTING LTD.
PROJECT:
CAPE DORSET SEWAGE LAGOON SYSTEM
TITLE:
BERM AND BOREHOLE LOCATIONS
DATE:
AUGUST 2007
JOB No.:
YX00748
CAD FILE:
00748D00.dwg
FIGURE No.:
FIGURE 1
REV.
A

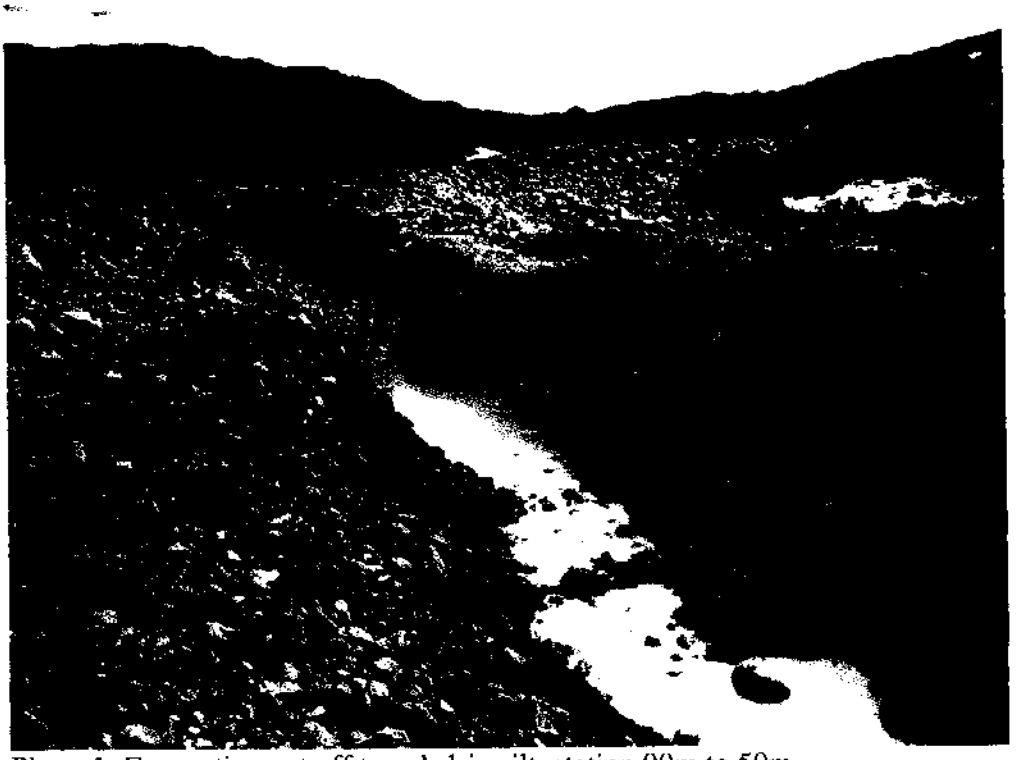

Photo 1: Excavating cut off trench 1 in silt, station 90m to 50m

Photo 2: Excavating cut off trench 2 in clay, station 190m to 150m

Photo 3: Exposed clay in cut off trench 2, station 160m

Photo 4: Exposed bedrock in cut off trench 2, station 70m

Photo 5: Contact bedrock and clay in cut off trench 2, station 130m to 170m