SPECIFICATIONS

INSTALLATION OF GEOMEMBRANE COVER FOR IQALUIT AIRPORT HYDROCARBON CONTAMINATED SOILS FROM THE TC LANDFARMS AND ARSENIC CONTAMINATED SOILS

Privileged and confidential document presented to

IQALUIT INTERNATIONAL AIRPORT IMPROVEMENT PROJECT "IIAIP"
BBC-SINTRA JOINT VENTURE

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DRAFT SPECIFICATIONS

VERSION 1.0

March 20th, 2015

O/Ref.: QE14-214-13

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ABBREVIATIONS

HDPE: High Density PolyEthylene

1. INTRODUCTION

The original cover tarp that was installed on the containment area when it was constructed was installed as a temporary solution. This was done due to the following reasons:

- It was the end of the season and it was impossible to have any alternatives arrive by sealift
- It was the only material that was in stock and could be delivered within the time frame needed
- This was a lighter material that would result in a lower cost for transport by air

The following specifications are for the installation of the geomembrane that will cover the contaminated soils excavated and placed in a lined containment area at the Iqaluit International Airport.

The anticipated life span of the containment area is 10 years.

2. INSTALLATION OF GEOMEMBRANE COVER

2.1 A layer of geotextile that meets the specifications of the geotextile referenced in paragraph 2.2 is to be installed under the geomembrane. The geotextile must be installed before the geomembrane is deployed. The geotextile must be installed under the supervision of an experienced geomembrane installer.

2.2 An impermeable geomembrane that meets the specifications in paragraph 2.4 will be used to cover the contaminated soils to prevent them from coming into contact with water from rainfall or snow.

2.3 The geotextile will be type W200 manufactured by Géosynthétiques ZTG Inc., or pre-approved equivalent.

2.4 The geomembrane shall be constructed of a High Density PolyEthylene (HDPE) textured on both sides with a minimum thickness of 40mil, or equivalent.

2.5 All surfaces to be covered by geomembrane must be free of any rocks with sharp edges that can pierce the geomembrane.

2.6 The geotextile will be composed of several sections that will extend from the outside bottom of one berm to the outside bottom of the opposite berm and heat tacked together to hold them in place.

2.7 The geomembrane will be composed of several sections that will extend from the outside bottom of one berm to the outside bottom of the opposite berm and welded together in such a way as to ensure that they remain water tight.

2.8 The geomembrane shall be anchored into place over the entire perimeter of the containment area. The shall be done according to the attached drawing.

2.9 The geomembrane sections will be installed by unrolling them from the roll that they were shipped on. Each roll, will be installed on a reel designed for this purpose, shall be lifted in the air using an excavator with a lifting capacity of 5,000 lbs prior unrolling.

2.10 The geomembrane and geotextile shall be installed only when the wind speed is low enough to ensure that the geomembrane and geotextile will remain in place while it is unrolled.

2.11 The geomembrane and geotextile shall be secured by sand bags that will be placed at maximum spacing of every 3 m over the entire surface of the geomembrane as it is unfolded.

2.12 To preserve the integrity of the geomembrane, only foot traffic or ATV’s are permitted on the geomembrane.

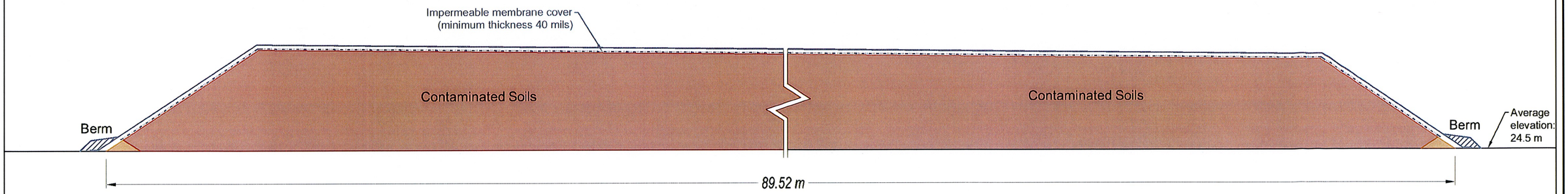
2.13 The geomembrane shall be installed by a Master Seamer who is trained in the installation of HDPE geomembrane and certified to weld the geomembrane sections together in such a way as to ensure that they remain water tight throughout the life of the storage area. The Master Seamer should have installed and seamed a minimum of 500,000 m^2 of HDPE Geomembrane. The geomembrane must respect the specifications referred to in clause 2.5.

APPENDIX A

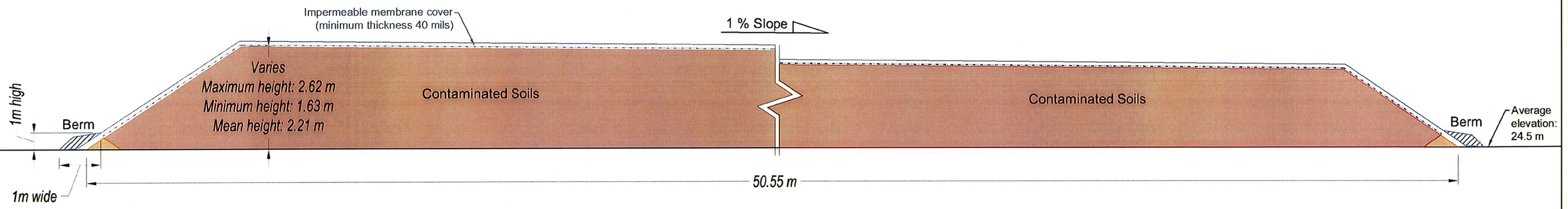
FIGURE

FIGURE 1: GEOMEMBRANE COVER INSTALLATION DETAILS

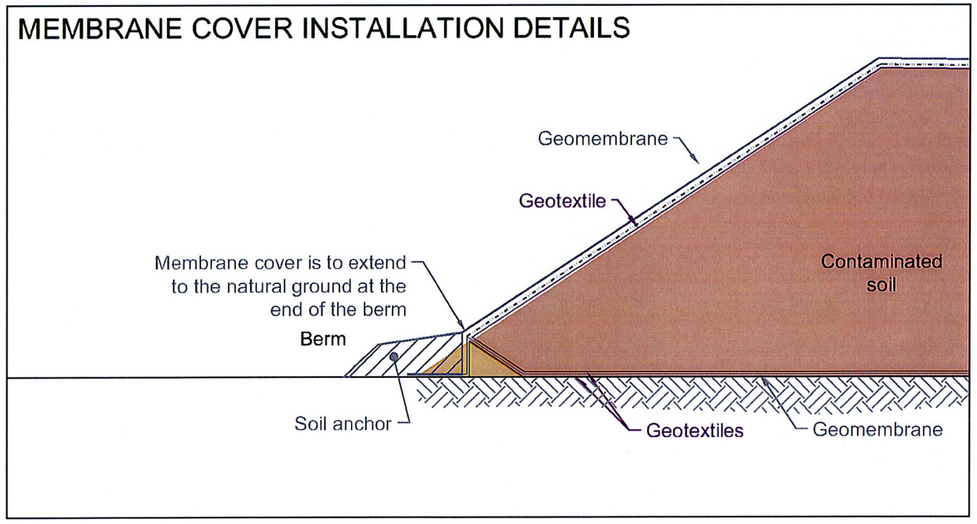
MEMBRANE COVER INSTALLATION
(Side View-Length)



MEMBRANE COVER INSTALLATION
(Side View-Width)



MEMBRANE COVER INSTALLATION DETAILS



REGISTERED PROFESSIONAL ENGINEER
GEOPHYSICIST
LICENSEE
NWT/NU

PERMIT TO PRACTICE
QIKIQTAALUK ENVIRONMENTAL
Signature
Date 2015-03-23
PERMIT NUMBER: P 530
The Association of Professional Engineers, Geologists and Geophysicists of the NWT / NU

All dimensions are in meters unless otherwise indicated

This document shall not be used for construction, building or installation purposes.

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Figure 1

MEMBRANE COVER INSTALLATION DETAILS

Presented to:

sintra INC.

Property located at:

Iqaluit Airport

Scale:	Design date:	Revision date:
Not to scale	2015-03-17	2015-03-23
Drawn by:	Verified by:	Approved by:
J. Bergeron	G. Johnson	S. Laberge
Project no.:	Drawing no.: / Layout:	Geodetic reference:
QE14-214-13	QE14-214-13-02 / A	None / None

Qikiqtaaluk environmental