Baffinland Iron Mines Corporation
Mary River Project

Construction Summary Report: Milne Port Stockpile Settling Ponds

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 18 DEC 14
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REGISTERED PROFESSIONAL ENGINEER
M. J. BUYKX
LICENSEE
11 DEC 14
NT/NU

2014-12-10	0	Approved for Use	S. Hess	S. Ranger	J. Cleland	D. Matthews
DATE	REV.	STATUS	PREPARED BY	CHECKED BY	APPROVED BY	APPROVED BY
			HATCH			CLIENT

Table of Contents

List of Appendices

1. Facility Description

1.1 Purpose and Design Basis

The stockpile settling ponds were constructed to temporarily retain the runoff water from the Milne Port stockpile area and contain the sediment load to meet the water quality standards in accordance with applicable effluent quality criteria. During normal operation, runoff from the stockpile area drains to the stockpile settling ponds. The ponds are equipped with overflow weirs designed to allow the unloaded surface water to drain through a controlled discharge to Milne Inlet. The ponds were designed with sufficient retention time to ensure the sediment would gravity-settle to the bottom of the pond before the water reaches the overflow weirs.

Water in the stockpile settling ponds will be monitored as part of the site drainage monitoring strategy to meet applicable effluent quality criteria.

Pond No. 1's design storage capacity was 2660m3 with a 0.3m freeboard (the west pond).
Pond No. 2's design storage capacity was 2800m3 with a 0.3m freeboard (the east pond).

1.2 Location and Base Elevations

Pond No. 1 is located between northing N7976293 and N7976378, and easting E503022 and E503115. The pond bottom elevation is at approximately EL. 2m and berm top elevation is at approximately EL. 5m. Pond No. 2 is located between northing N7976323 and N7976410, and easting E503402 and E503508. The pond bottom elevation is at approximately EL 7m (1400mm above design) and berm top elevation is at approximately EL. 11m (300mm above design).

1.3 Geometry and Access

The ponds have been constructed rectangular in shape to optimize the earthworks materials (granular fills and liners) and to fit within the foreshore areas and not encroach near the shoreline. The pond berms have design side slopes not steeper than 3H:1V and the berm top width is 2.0m to meet the access and liner anchoring requirements. The overflow weir design slopes are 5H:1V exiting the pond.

1.4 Earthworks Materials Details

The ponds were excavated to meet the elevation requirements of the design, and the berms constructed with raised earthworks. It has been sealed with exposed HDPE liner material for storage of the runoff and sediments without any leakage.

2. Construction Activity Summary

The construction activities on the Milne Port stockpile settling ponds started in June 2014. The liner for each pond was installed in August 2014.

The riprap weir was constructed for Pond No. 1 (the west pond) in August 2014 but was removed due to shiploader construction requirements in the vicinity. Construction of the

drainage ditches designed to carry runoff from the ore stockpile pad to the ponds and completion/reinstallation of the overflow weirs have been scheduled for 2015 completion.

The following summarizes the construction activities:

a. Crushed blast rock and fill material was quarried, crushed, screened, and hauled from the Milne Inlet Quarry (Q1) and crusher site for use in the earthworks.

b. Areas were cleared and graded to prepare the sub-base for the ponds

c. The pond areas were excavated to the required depth, except as noted below in paragraph 5a.

d. Constructed berms

e. Constructed riprap weir

f. Installed layer of fill material

g. Installed non-woven geotextile layer

h. Installed HDPE geomembrane liner

i. Installed fill to cover outer toe of the berms to maintain liner in-place.

j. Installed riprap on outside slope of weirs.

QA/QC

The quality assurance and quality control (QA/QC) conducted by Layfield documents the preparation of the subgrade, installation and testing of the membrane with a final inspection of the completed liner (Appendix A).

a. A certificate of acceptance of the soil subgrade for installation of the liner was verified and signed by the Hatch project coordinator and Layfield Environmental supervisor.

b. A geomembrane deployment log describes the location, size, temperature when placed, visually observed and initialled that the panel had been checked.

c. A geomembrane trial seam log tested the welding before the entire installation proceeded.

d. An air lance test log had been completed for each seam.

e. Layout drawings show all of the panel numbers, as described in the log documents.

f. A certificate of final inspection and acceptance was signed by Layfield and Hatch representatives.

3. Photographic Records

Figure 1: Pre-construction of the Milne Port Stockpile Settling Ponds (east and west of the bladder farm and airstrip shown in this photo) [northwest view].

Figure 2: Pond No. 1 (west pond) placing the liner [southwest view].

Figure 3: Pond No. 1 (west pond) liner installed [northeast view].

Figure 4: Aerial photo of in-progress Pond No. 1 (west pond) with liner in place [east view].

Figure 5: East side of completed Pond No. 1 (west) stockpile settling pond [north view].

Figure 6: Length view of the completed Pond No. 1 (west) stockpile settling pond [southwest view].

Figure 7: Pond No. 2 (east) high moisture sub-grade soils encountered during excavation. Discussed further in Section 5 Field Decisions, below.

Figure 8: Pond No. 2 (east) earthworks in-progress [northeast view].

Figure 9: Pond No. 2 (east) placing the liner [southeast view].

Figure 10: Pond No. 2 (east pond) liner installed [northwest view].

Figure 11: Aerial photo of in-progress Pond No. 2 (east pond) liner being sealed [north view].

Figure 12: Length view of the completed Pond No. 2 (east) stockpile settling pond [northwest view].

4. As-Built Drawings

The as-built drawing incorporates contractor red line markups, field instructions, requests for information, field sketches, and all other inputs provided by the field engineering team. The as-built drawing is attached in Appendix B.

Table 4-1: Water Treatment System 'As-Built' Drawing List

Drawing Number	Title	Revision
H349000-2345-10-035-0001	Milne Port Ore Stockpile Sedimentation Ponds Earthworks & Drainage – Plan & Sections	2

5. Field Decisions

The following section describes the most relevant field decisions made during construction:

a. During the excavation of Pond No. 2 (the east stockpile settling pond), the Baffinland self-perform earthworks construction team found sub-grade soils with high moisture content before reaching the design floor depth. HDPE liner materials cannot be appropriately installed on saturated sub-grade soils. As a result the Pond No. 2 berm height was raised by approximately 300mm and the pond bottom elevation was raised by approximately 1400mm during construction to facilitate appropriate installation of the liner. The raised floor results in more conservative (less steep) berm slopes than the design for Pond No. 2.

6. Performance Evaluation

As of the data collection cut-off date for this report (October 1, 2014) there have been no adverse observations in operational performance of the stockpile settling ponds.

7. Vibration Monitoring and Quarrying Activity

No vibration monitoring was conducted during the construction of the Milne Port stockpile settling ponds as it was not deemed necessary based on scope of activities required for construction.

Control for quarrying activity was conducted as per the project's specific management plans:

- BAF-PH1-830-P16-0040 (H349000-1000-07-126-0013): Quarry Management Plan Milne Inlet Quarry (Q1)
- BAF-PH1-830-P16-0004 (H349000-1000-07-126-0011): Borrow Pit and Quarry Management Plan

8. Environmental Monitoring

Environmental monitoring during the construction of the Milne Port stockpile settling ponds was conducted as per the BAF-PH1-830-P16-0008 Environmental Protection Plan (EPP) recently updated in July 2014.

In addition to the EPP, BIM self-performed earthworks construction follows the requirements of the BAF-PH1-830-STD-0001 Environmental Health and Safety Management Framework issued December 2010. The Baffinland on-site Environmental Management Team was responsible for environmental monitoring at all sites during construction and following-up with the construction team(s) if there were any reported environmental incidents or non-conformances.

Stockpile settling pond construction was also required to follow the requirements of the Surface Water and Aquatic Ecosystems Management Plan (March 2014), BAF-PH1-830-

P16-0026. This Management Plan outlines the best management practices implemented to limit the potential for adverse impacts to receiving waters, aquatic ecosystems, fish and fish habitat used during construction. In addition this plan details the systems in place to mitigate and manage drainage and runoff at the building sites, address point and non-point discharges to surface waters and assess those discharges on water quality and quantity relative to their receiving water systems.

The Spill Contingency Plan (March 2014), BAF-PH1-830-P16-0036, in conjunction with the Emergency Response Plan (March 2014), BAF-PH1-830-P16-0007, provides guidance and instructions for first responders and Baffinland Management in the event of a spill event or other emergency such as fire or accident.

The risks to the water quality in the respective rivers and streams as a result of construction of the stockpile settling ponds would originate from the following sources based on construction methodology:

- Spills from equipment
- Increase in sediment load in the water

There were no recorded spills from equipment used at the construction site. During the period of construction, water quality monitoring conducted at downstream stations under Part D, Section 16 and Part I, of the Type “A” Water Licence 2AM-MRY1325 indicated total suspended solids (TSS) and other parameter at levels below the specified Water Licence criteria. The results for water quality monitoring were provided in monthly reports submitted to the Nunavut Water Board and other stakeholders. In consideration of the above, the environmental mitigation strategies were effective in maintaining runoff water quality.

9. Earthworks Data

The survey data collected has been included in Appendix C.

Two geotechnical inspections (early August and late September) were conducted in 2014 by a 3rd party, independent, Nunavut certified engineer under Part D, Section 19 of Type “A” Water Licence 2AM-MRY1325. The inspection is inclusive of waste containment structures at the Mary River Mine Site and Milne Port site. The last two inspections were completed prior to construction completion of these new ore settling ponds. The inspector noted in Sections 4.01, 4.12 and 4.13 of the report that these two ponds were under construction at the time of the inspections and that there is, “no reason to expect that [the] construction underway shall not produce a stable structure when complete”. The new ponds will be included in the next regularly scheduled geotechnical inspection in 2015.

The Annual Geotechnical Investigation Report – 2014 Inspections is provided in Appendix D.

10. Unanticipated Observations

As discussed in Section 5 above, the Baffinland self-perform earthworks construction team reached the water table before achieving the design depth during the excavation of Pond No. 2 (the east stockpile settling pond). As a result the Pond No. 2 berm height was raised by approximately 300mm and the pond bottom elevation was raised by approximately 1400mm during construction to facilitate appropriate installation of the liner.

11. Surface Monitoring

Not conducted.

12. Required Maintenance

None conducted to-date.

13. Adaptive Management

For discussion of adaptive management principles and practices applied during the Construction Phase of the Project and their overall effectiveness please refer to the 2013 Annual Report to the Nunavut Impact Review Board. Any additional adaptive management practices implemented as a result of works completed in 2014 will be reported in the updated 2014 Annual Report to the Nunavut Impact Review Board.

14. Concordance with Type "A" Water Licence

The Nunavut Water Board Type "A" Licence 2AM-MRY1325, Schedule D, outlines the requirements for Construction Monitoring Reports. The following table provides a concordance of the report, herein, with the requirements included in Part D.

Table 14-1: Table of Concordance for Schedule D

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1a	description of all infrastructure and facilities designed and constructed to contain, withhold, divert or retain Water and/or Waste;	1
1b	a summary of construction activities including photographic records before, during and after construction of the facilities and infrastructure designed to contain, withhold, divert or retain Water and/or Waste;	2, 3
1c	as-built drawings and design for facilities and infrastructure, in Item 1(a) of this schedule, designed and constructed to contain, withhold, divert or retain Water and/or Waste;	4
1d	documentation of field decisions that deviate from the original plans and any data used to support or	5

	developed facilities and infrastructure to withhold, divert or retain Water and/or Waste;	
1e	a comparison of measured versus predicted performance of infrastructure and facilities;	6
1f	any blast vibration monitoring and control for quarrying activity carried out in close proximity to fish bearing waters;	7
1g	monitoring conducted for sediment and explosives residue release from construction areas;	8
1h	monitoring undertaken in accordance with Part D of the during the Construction Phase of the Project;	8
1i	details confirming that the requirements of the CCME guidance document entitled “Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)” have been met by the Licensee;	N/A
1j	data collected from instrumentation used to monitor earthworks and the interpretation of that data;	9
1k	a discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk during construction;	10
1l	an overview of any method including frequency used to monitor deformations, seepage and geothermal responses;	11
1m	a summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams;	12
1n	a summary of adaptive management principles and practices applied during the relevant phases of the Project and their overall effectiveness.	13

Appendix A

Liner Data

A. E349000-CC004-02-198-0001-006Sub01: Project Completion QA/QC Package V – Sediment Pond 1 [Stockpile Sedimentation Pond No. 1 (west)] ***[30 pages]***

B. E349000-CC004-02-198-0001-008Sub01: Project Completion QA/QC Package VII – Sedimentation Stockpile [Stockpile Sedimentation Pond No. 2 (east)] ***[47 pages]***

C. E349000-CC004-02-198-0001-010Sub01: Project Completion QA/QC Package IX – Installation Warranty ***[1 page]***

HATCH	VENDOR DATA REVIEW		
Doc Number	E349000-CC004-02-198-0001-006	Sub	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 – Proceed to next submission & status	☐ Internal Review ☐ Certified Final ☐ Final ☐ As-Built
☐ C2 – Proceed with exceptions as noted to next submission & status	Next Submittal Date:
☐ C3 – Do not proceed, revise as noted & resubmit	
No further submission required - Complete ☐	
☐ C4 - No further submission required - Cancelled ☐	
No further submission required - Superseded ☐	

Package Coordinator: Name, signature and Date:

REVIEWED ONLY FOR GENERAL CONFORMITY WITH THE SPECIFICATIONS. ACCEPTANCE BY THE ENGINEER DOES NOT WARRANT OR REPRESENT THAT THE INFORMATION CONTAINED ON THIS DRAWING/DOCUMENT IS EITHER ACCURATE OR COMPLETE. THE SOLE RESPONSIBILTY FOR CORRECT DESIGN, DETAILS & DIMENSIONS SHALL REMAIN WITH THE PARTY SUBMITTING THE DRAWING/DOCUMENT.

LAYFIELD

CERTIFICATE OF ACCEPTANCE OF SOIL SUBGRADE SURFACE

PROJECT NAME: Mary River Project
PROJECT NUMBER: CT-000071
OWNER: Baffinland Iron Mine Corporation
LOCATION: Sediment Pond One

I, the undersigned, a duly appointed representative of Layfield Environmental Systems Ltd. (LESL), have visually observed the soil subgrade described below, and found it to be an acceptable surface on which to install geomembrane.

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield Environmental Systems, and LESL makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield Environmental Systems accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade accepted on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield Environmental Systems and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

Area Being Accepted: Sediment Pond One 2880m², area from crown to crown is being accepted (containment system).

LAYFIELD ENVIRONMENTAL SYSTEMS REPRESENTATIVE:

Date: 7/31/14
Signature:
Name: Thomas Wheeler
Title: QC Technician

OWNERS REPRESENTATIVE:

Date: Aug 12/14
Signature:
Name: Tim Thertell
Title:
Company: Hatch

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

GEOMEMBRANE **SECONDARY** **PRIMARY** **CLOSURE** **OTHER**

SUBGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS: **DATE:** 2-Aug-14

SHEET NUMBER: 1

DEPLOYMENT EQUIPMENT:

	PANEL LOCATION REFERENCE NUMBER P1	PANEL LOCATION REFERENCE NUMBER P2	PANEL LOCATION REFERENCE NUMBER P3
PANEL/ROLL NUMBER	R2	R2	R2
DEPLOYMENT LENGTH	38m	38m	16m
AMBIENT AIR TEMP.	13	13	13
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 ICNH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P2 S= P3-P11 E= W=	N= P12 S= P1 E= W=	N= P1 S= P4 E= P6 W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P4	PANEL LOCATION REFERENCE NUMBER P5	PANEL LOCATION REFERENCE NUMBER P6
PANEL/ROLL NUMBER	R2	R2	R2
DEPLOYMENT LENGTH	10m	11m	17m
AMBIENT AIR TEMP.	13	13	13
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P3 S= P24 E= P5 W=	N= P4 S= E= P6 W=	N= P3 S= E= P7 W= P5

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P7	PANEL LOCATION REFERENCE NUMBER P8	PANEL LOCATION REFERENCE NUMBER P9
PANEL/ROLL NUMBER	R2	R2	R2
DEPLOYMENT LENGTH	17m	16m	6m
AMBIENT AIR TEMP.	13	13	13
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P1 S= E= P8 W= P6	N= P11 S= E= P9 W= P7	N= P10 S= E= W= P8

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

SUBMITTED BY: TW

DATE: 2-Aug-14

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

GEOMEMBRANE **SECONDARY** **PRIMARY** **CLOSURE** **OTHER**

SUBGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS: **DATE:** 3-Aug-14

SHEET NUMBER: 2

DEPLOYMENT EQUIPMENT:

	PANEL LOCATION REFERENCE NUMBER P10	PANEL LOCATION REFERENCE NUMBER P11	PANEL LOCATION REFERENCE NUMBER P12
PANEL/ROLL NUMBER	P22	R22	R22
DEPLOYMENT LENGTH	6m	16m	38m
AMBIENT AIR TEMP.	16	16	16
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 ICNH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P11 S= E= P9 W=	N= P1 S= P10 E= W= P8	N= P13 S= P2 E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P13	PANEL LOCATION REFERENCE NUMBER P14	PANEL LOCATION REFERENCE NUMBER P15
PANEL/ROLL NUMBER	R22	R22	R22
DEPLOYMENT LENGTH	38m	35m	21m
AMBIENT AIR TEMP.	9	9	9
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P14 S= P12 E= W=	N= P15, P16 S= P13 E= W=	N= P17 S= P14 E= P16 W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P16	PANEL LOCATION REFERENCE NUMBER P17	PANEL LOCATION REFERENCE NUMBER P18
PANEL/ROLL NUMBER	R1	R1	R1
DEPLOYMENT LENGTH	14m	35m	35m
AMBIENT AIR TEMP.	9	9	9
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P18 S= P14 E= W= P15	N= P19 S= P18, P15 E= W=	N= P17 S= P16 E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P19	PANEL LOCATION REFERENCE NUMBER P20	PANEL LOCATION REFERENCE NUMBER P21
PANEL/ROLL NUMBER	R1	R1	R1
DEPLOYMENT LENGTH	35m	32m	32m
AMBIENT AIR TEMP.	9	9	9
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P20 S= P19 E= W=	N= P21 S= P19 E= W=	N= P22 S= P20 E= W=

SUBMITTED BY: TW

DATE: 3-Aug-14

LAYFIELD GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER: CT-000071
PROJECT TITLE: Mary River Project
OWNER: Baffinland Iron Mine Corporation
CONTRACTOR:
LOCATION: Sediment Pond One

GEOMEMBRANE **SECONDARY** **PRIMARY** **CLOSURE** **OTHER**

SUBGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS:

DATE: 3-Aug-14
SHEET NUMBER: 2B

DEPLOYMENT EQUIPMENT:

	PANEL LOCATION REFERENCE NUMBER P22	PANEL LOCATION REFERENCE NUMBER P23	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER	R13	R22	
DEPLOYMENT LENGTH	32m	32m	
AMBIENT AIR TEMP.	9	9	
VISUAL OBSERVATION	OK	OK	
OBSERVED OVERLAP	6 INCH	6 ICNH	
CHECKED BY	TW	TW	
ADJACENT PANEL	N= P23 S= P21 E= W=	N= S= P22 E= W=	N= S= E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER			
DEPLOYMENT LENGTH			
AMBIENT AIR TEMP.			
VISUAL OBSERVATION			
OBSERVED OVERLAP			
CHECKED BY			
ADJACENT PANEL	N= S= E= W=	N= S= E= W=	N= S= E= W=

SUBMITTED BY: TW

DATE: 3-Aug-14

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

GEOMEMBRANE **SECONDARY** **PRIMARY** **CLOSURE** **OTHER**

SUBGRADE CONDITION (SURFACE COMPACTION, PROTRUSIONS, DESICCATION, EXCESSIVE MOISTURE):

REMARKS: **DATE:** 4-Aug-14

SHEET NUMBER: 3

DEPLOYMENT EQUIPMENT:

	PANEL LOCATION REFERENCE NUMBER P24	PANEL LOCATION REFERENCE NUMBER P25	PANEL LOCATION REFERENCE NUMBER P26
PANEL/ROLL NUMBER	R22	R13	R13
DEPLOYMENT LENGTH	5m	17m	10m
AMBIENT AIR TEMP.	8	8	8
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 ICNH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= P23 S= P21 E= W=	N= P26 S= P23 E= P28 W=	N= P33 S= P25 E= P27 W=

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P27	PANEL LOCATION REFERENCE NUMBER P28	PANEL LOCATION REFERENCE NUMBER P29
PANEL/ROLL NUMBER	R13	R13	R13
DEPLOYMENT LENGTH	10m	18.5m	18.5m
AMBIENT AIR TEMP.	8	8	8
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 I NCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= S= P26 E= P28 W= P33	N= S= P23 E= P29 W= P27	N= S= P32 E= P30 W= P28

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P30	PANEL LOCATION REFERENCE NUMBER P31	PANEL LOCATION REFERENCE NUMBER P32
PANEL/ROLL NUMBER	R13	R13	R13
DEPLOYMENT LENGTH	10m	7.5m	17m
AMBIENT AIR TEMP.	8	10	10
VISUAL OBSERVATION	OK	OK	OK
OBSERVED OVERLAP	6 INCH	6 INCH	6 INCH
CHECKED BY	TW	TW	TW
ADJACENT PANEL	N= S= P31 E= P31 W= P29	N= P30 S= P32 E= W= P30	N= P31 S= P23 E= W= P29

DESCRIPTION	PANEL LOCATION REFERENCE NUMBER P33	PANEL LOCATION REFERENCE NUMBER	PANEL LOCATION REFERENCE NUMBER
PANEL/ROLL NUMBER	R13		
DEPLOYMENT LENGTH	5m		
AMBIENT AIR TEMP.	10		
VISUAL OBSERVATION	OK		
OBSERVED OVERLAP	6 INCH		
CHECKED BY	TW		
ADJACENT PANEL	N= S= P26 E= P27 W=	N= S= E= W=	N= S= E= W=

SUBMITTED BY: TW

DATE: 4-Aug-14

GEOMEMBRANE TRIAL SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One **SHEET NUMBER:** 1

TF - # FUSION **X** **TX - # = EXTRUSION** **TS - # = SOLVENT**

SAMPLE NUMBER	APPROX. TIME & DATE	WELDING MACHINE NUMBER	WELD TECH.	TEMPERATURES				TEST RESULTS												PASS OR RE - TEST	CH'KD BY	REMARKS
				AMBIENT AIR TEMP.	PREHEAT OR MACHINE SPEED	EXTRUDER	WEDGE TEMP. Deg F	INSIDE PEEL MODE ---------- STRENGTH					OUTSIDE PEEL MODE ---------- STRENGTH						SHEAR MODE ---------- STRENGTH				
TX 1	9:00 3-Aug	PX 6234	MB	10	485	490							105	107	104	104	94	118	115	P	TW	
TX 2	12:30 4-Aug	PX 6234	MB	12	485	490							91	100	101	81	100	118	127	P	TW	

SUBMITTED BY: TW

LS FORM 3 LAYFIELD ENVIRONMENTAL SYSTEMS DATE: 4-Aug

GEOMEMBRANE TRIAL SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One **SHEET NUMBER:** 1

X **TF - # FUSION** **TX - # = EXTRUSION** **TS - # = SOLVENT**

SAMPLE NUMBER	APPROX. TIME & DATE	WELDING MACHINE NUMBER	WELD TECH.	TEMPERATURES				TEST RESULTS												PASS OR RE - TEST	CH'KD BY	REMARKS
				AMBIENT AIR TEMP.	PREHEAT OR MACHINE SPEED	EXTRUDER	WEDGE TEMP. Deg F	INSIDE PEEL MODE ---------- STRENGTH					OUTSIDE PEEL MODE ---------- STRENGTH					SHEAR MODE ---------- STRENGTH				
TF 1	12:30 2-Aug	PW 3370	JB	13	6O%		850	111	108	107	109	102	109	106	111	107	101	116	116	P	TW	
TF 2	7:00 3-Aug	PW 3370	JB	16	60%		850	109	112	107	106	108	109	112	107	105	109	127	128	P	TW	
TF 3	12:30 3-Aug	PW 3370	JB	9	60%		850	110	106	112	109	107	113	111	109	103	108	125	122	P	TW	
TF 4	6:48 4-Aug	PW 3370	JB	8	60%		850	114	110	112	112	108	109	106	112	109	108	129	127	P	TW	

SUBMITTED BY: TW

DATE:

LAYFIELD

GEOMEMBRANE SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

PASSING TRIAL SEAMS

	NO.	TIME	TECH ID
X FUSION	TF 1	12:30 2-Aug-14	JB
EXTRUSION			
SOLVENT			

SHEET NUMBER: 1

DATE: 2-Aug-14

SEAM NUMBER	SEAM SECTION * START POINT	SEAM SECTION * FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES DIGITAL SET WEDGE OR BARREL	MACHINE TEMPERATURES INDICATOR WEDGE OR BARREL	APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON-DESTRUCTIVE TEST DATE	NON-DESTRUCTIVE CHECKED BY
P1 / P2	EEOS-WEOS		1:24	13	JB	60%		850	38m				4-Aug-14	TW
P3 / P4	EEOS-WEOS		3:51	13	JB	60%		850	10m				4-Aug-14	TW
P5 / P6	NEOS-SEOS		4:20	13	JB	60%		850	11m				4-Aug-14	TW
P6 / P7	NEOS-SEOS		4:53	13	JB	60%		850	17m				4-Aug-14	TW
P7 / P8	NEOS-SEOS		5:00	13	JB	60%		850	16m				4-Aug-14	TW
P8 / P9	NEOS-SEOS		5:05	13	JB	60%		850	6m				4-Aug-14	TW
P3/P4 P5/P6	NEEOS-SWEOS		5:20	13	JB	60%		850	17m					
/														
/														
/														
/														
							DAILY TOTAL		115m					

** REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.*

SUBMITTED BY: TW

DATE: 2-Aug-14

LAYFIELD

GEOMEMBRANE SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

PASSING TRIAL SEAMS

	NO.	TIME		TECH ID
X FUSION	TF 2	7:00	3-Aug-14	JB
	TF 3	12:30	3-Aug-14	JB
EXTRUSION				
SOLVENT				

SHEET NUMBER: 2A

DATE: 3-Aug-14

SEAM NUMBER	SEAM SECTION * START POINT	SEAM SECTION * FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES DIGITAL SET WEDGE OR BARREL	MACHINE TEMPERATURES INDICATOR WEDGE OR BARREL	APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON-DESTRUCTIVE TEST DATE	NON-DESTRUCTIVE CHECKED BY
P10 / P11	EEOS-WEOS		8:00	16	JB	60%		850	6m				4-Aug-14	TW
P8/P9 / 10/11	NWEOS-SEEOS		8:15	16	JB	60%		850	17m				4-Aug-14	TW
P1 / P3-P11	WEOS-EEOS		8:40	10	JB	60%		850	38m	DT-1	TW	PASS	4-Aug-14	TW
P2 / P12	EEOS-WEOS		9:40	9	JB	60%		850	38m				4-Aug-14	TW
P12 / P13	EEOS-WEOS		10:20	9	JB	60%		850	37m				4-Aug-14	TW
P13 / P14	EEOS-WEOS		10:58	9	JB	60%		850	37m				4-Aug-14	TW
P15 P16	SEOS-NEOS		1:00	9	JB	60%		850	6.5m				4-Aug-14	TW
P14 15 P16	EEOS-WEOS		1:15	9	JB	60%		850	35m	DT-2	TW	PASS	4-Aug-14	TW
P17 / P18	WEOS-EEOS		1:30	9	JB	60%		850	14m				4-Aug-14	TW
P15 16 P18	EEOS-WEOS		1:40	9	JB	60%		850	35m				4-Aug-14	TW
P17 P19	EEOS-WEOS		1:55	9	JB	60%		850	34m				4-Aug-14	TW
								DAILY TOTAL	297.5m					

** REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.*

SUBMITTED BY: TW

DATE: 3-Aug-14

GEOMEMBRANE SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

PASSING TRIAL SEAMS

	NO.	TIME	TECH ID
X FUSION	TF 3	12:30 3-Aug-14	JB
EXTRUSION			
SOLVENT			

SHEET NUMBER: 2B

DATE: 3-Aug-14

SEAM NUMBER	SEAM SECTION * START POINT	SEAM SECTION * FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES DIGITAL SET WEDGE OR BARREL	MACHINE TEMPERATURES INDICATOR WEDGE OR BARREL	APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON-DESTRUCTIVE TEST DATE	NON-DESTRUCTIVE CHECKED BY
P19 / P20	EEOS-WEOS		2:20	9	JB	60%		850	32m				4-Aug-14	TW
P20 / P21	EEOS-WEOS		2:35	9	JB	60%		850	32m	DT-3	TW	PASS	4-Aug-14	TW
P21 / P22	EEOS-WEOS		4:00	9	JB	60%		850	32m				4-Aug-14	TW
P22 / P23	EEOS-WEOS		4:55	9	JB	60%		850	32m				4-Aug-14	TW
/														
/														
/														
							DAILY TOTAL		128m					

** REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.*

SUBMITTED BY: TW

DATE: 3-Aug-14

GEOMEMBRANE SEAM LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

SHEET NUMBER: 3

DATE: 4-Aug-14

PASSING TRIAL SEAMS

	NO.	TIME	TECH ID
X FUSION	TF 4	6:48 4-Aug-14	JB
EXTRUSION			
SOLVENT			

SEAM NUMBER	SEAM SECTION * START POINT	SEAM SECTION * FINISH POINT	APPROX. START TIME	AMB. AIR TEMP.	WELD TECH.	PREHEAT OR MACH. SPEED	MACHINE TEMPERATURES DIGITAL SET WEDGE OR BARREL	MACHINE TEMPERATURES INDICATOR WEDGE OR BARREL	APPROX. LENGTH WELDED (M)	DESTR. NUMBER	CHK'D BY	REMARKS	NON-DESTRUCTIVE TEST DATE	NON-DESTRUCTIVE CHECKED BY
P24 / P4	WEOS-EEOS		7:00	8	JB	60%		850	5m				4-Aug-14	TW
P24 / P5	SEOS-NEOS		7:08	8	JB	60%		850	5m				4-Aug-14	TW
P25 / P26	EEOS-WEOS		7:46	8	JB	60%		850	10m				4-Aug-14	TW
P27 / P28	NEOS-SEOS		8:17	8	JB	60%		850	10m				4-Aug-14	TW
P28 / P29	SEOS-NEOS		8:36	8	JB	60%		850	18.5m				4-Aug-14	TW
P29 / P30	SEOS-NEOS		8:47	8	JB	60%		850	10m				4-Aug-14	TW
P31 P32	EEOS-WEOS		9:40	10	JB	60%		850	7.5m				4-Aug-14	TW
P29 30 31/32	SWEOS-NEEOS		9:50	10	JB	60%		850	17m	DT-4	TW	PASS	4-Aug-14	TW
P33 / P26	WEOS-EEOS		10:10	10	JB	60%		850	5m				4-Aug-14	TW
P33 P27	NEOS-SEOS		10:15	10	JB	60%		850	5m				4-Aug-14	TW
P23 32 P25	EEOS-WEOS		10:50	12	JB	60%		850	32m				4-Aug-14	TW
								DAILY TOTAL	125m					

** REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR, OR A POINT LOCATION ON THE SEAM.*

SUBMITTED BY: TW

DATE: 3-Aug-14

LAYFIELD GEOMEMBRANE VACUUM / AIR LANCE TEST LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

VACUUM BOX X **AIR LANCE** **SHEET NUMBER:** 1

SEAMS								REPAIRS					
SEAM NUMBER	SEAM SECTION * FROM - TO	TEST DATE	TECH ID	DEFECTS **	COMPLETE NO YES	CHK'D BY	REMARKS **	DEFECT CODE	TEST DATE	TECH ID	DEFECTS **	CHK'D BY	REMARKS **
/	-							1 A	4-Aug-14	JB		TW	T-WELD
/	-							1 B	4-Aug-14	JB		TW	T-WELD
/	-							1 C	4-Aug-14	JB		TW	T-WELD
/	-							1 D	4-Aug-14	JB		TW	T-WELD
/	-							1 E	4-Aug-14	JB		TW	T-WELD
/	-							1 F	4-Aug-14	JB		TW	T-WELD
/	-							1 G	4-Aug-14	JB		TW	T-WELD
/	-							1 H	4-Aug-14	JB		TW	T-WELD
/	-							1 I	4-Aug-14	JB		TW	6" WELD
/	-							1 J	4-Aug-14	JB		TW	2' PATCH
/	-							1 K	4-Aug-14	JB		TW	6" WELD
/	-							1 L	4-Aug-14	JB		TW	2' PATCH
/	-							1 M	4-Aug-14	JB		TW	2' PATCH
/	-							1 N	4-Aug-14	JB		TW	3' PATCH
/	-							1 O	4-Aug-14	JB		TW	T-WELD
/	-							1 P	4-Aug-14	JB		TW	2' PATCH
/	-							1 Q	4-Aug-14	JB		TW	T-WELD
/	-							1 R	4-Aug-14	JB		TW	T-WELD
/	-							1 S	4-Aug-14	JB		TW	T-WELD
/	-							1 T	4-Aug-14	JB		TW	2' PATCH

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER. OR A POINT LOCATION ON THE SEAM

** RECORD QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS

SUBMITTED BY: TW

LAYFIELD GEOMEMBRANE VACUUM / AIR LANCE TEST LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

VACUUM BOX X **AIR LANCE** **SHEET NUMBER:** 2

SEAMS								REPAIRS						
SEAM NUMBER	SEAM SECTION * FROM - TO	TEST DATE	TECH ID	DEFECTS **	COMPLETE NO YES	CHK'D BY	REMARKS **	DEFECT CODE		TEST DATE	TECH ID	DEFECTS **	CHK'D BY	REMARKS **
/	-							2	A	4-Aug-14	JB		TW	6" WELD
/	-							2	B	4-Aug-14	JB		TW	6" WELD
/	-							2	C	4-Aug-14	JB		TW	2' PATCH
/	-							2	D	4-Aug-14	JB		TW	6" WELD
/	-							2	E	4-Aug-14	JB		TW	6" WELD
/	-							2	F	4-Aug-14	JB		TW	2' PATCH
/	-													
/	-													
/	-													
/	-													
/	-													
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* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER. OR A POINT LOCATION ON THE SEAM

** RECORD QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS

SUBMITTED BY: TW

LAYFIELD GEOMEMBRANE SEAM PRESSURE TEST LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

DATE: 4-Aug-14

SHEET NUMBER: 1A

SEAM NUMBER	SEAM SECTION * FROM	SEAM SECTION * TO	TECH. ID	PRESSURE PSI Start	PRESSURE PSI Finish	TIME START	TIME FINISH	RESULTS PASS	RESULTS FAIL	SEAM COMPLETE NO	SEAM COMPLETE YES	CH'KD BY	REMARKS **
P1 / P3	EEOS	WEOS	JB	40	40	11:45	11:50	PASS			YES	TW	
P3 / P6	NEEOS	SWEOS	JB	40	40	11:45	11:50	PASS			YES	TW	
P1 / P6	WEOS	EEOS	JB	40	40	11:45	11:50	PASS			YES	TW	
P6 / P7	NEOS	SEOS	JB	40	40	11:45	11:50	PASS			YES	TW	
P1 / P7	WEOS	EEOS	JB	40	40	11:45	11:50	PASS			YES	TW	
P1 / P11	WEOS	EEOS	JB	40	40	11:55	12:00	PASS			YES	TW	
P7 / P11	NWEOS	SEEOS	JB	40	40	11:55	12:00	PASS			YES	TW	
P7 / P8	NEOS	SEOS	JB	40	40	11:55	12:00	PASS			YES	TW	
P8 / P11	NWEOS	SEEOS	JB	40	40	11:55	12:00	PASS			YES	TW	
P10 / P11	WEOS	EEOS	JB	40	40	11:55	12:00	PASS			YES	TW	
P8 / P10	NWEOS	SEEOS	JB	40	40	12:45	12:50	PASS			YES	TW	
P8 P9	NEOS	SEOS	JB	40	40	12:45	12:50	PASS			YES	TW	
P3 / P5	NEEOS	SWEOS	JB	40	40	1:14	1:19	PASS			YES	TW	
P3 / P4	EEOS	WEOS	JB	40	40	1:14	1:19	PASS			YES	TW	
P4 P5	NEEOS	SWEOS	JB	40	40	1:14	1:19	PASS			YES	TW	
P4 / P24	EEOS	WEOS	JB	40	40	1:14	1:19	PASS			YES	TW	
P5 / P24	NEOS	SEOS	JB	40	40	1:14	1:19	PASS			YES	TW	

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT ON THE SEAM.

** RECORD ANY QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS.

DATE: 4-Aug

SUBMITTED BY: TW

LAYFIELD GEOMEMBRANE SEAM PRESSURE TEST LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

DATE: 4-Aug-14

SHEET NUMBER: 1B

SEAM NUMBER	SEAM SECTION * FROM	TO	TECH. ID	PRESSURE PSI Start	Finish	TIME START	FINISH	RESULTS PASS	FAIL	SEAM COMPLETE NO	YES	CH'KD BY	REMARKS **
P1 / P2	WEOS	EEOS	JB	40	40	2:16	2:21	PASS			YES	TW	
P2 / P12	WEOS	NEOS	JB	40	40	2:16	2;21	PASS			YES	TW	
P12 / P13	WEOS	WEOS	JB	40	40	2:16	2:21	PASS			YES	TW	
P13 / P/14	WEOS	EEOS	JB	40	40	2:16	2:21	PASS			YES	TW	
P14 / P15	WEOS	EEOS	JB	40	40	2:16	2:21	PASS			YES	TW	
P14 / P16	WEOS	EEOS	JB	40	40	2:30	2:35	PASS			YES	TW	
P15 / P16	SEOS	NEOS	JB	40	40	2:30	2:35	PASS			YES	TW	
P15 / P17	EEOS	WEOS	JB	40	40	2:30	2:35	PASS			YES	TW	
P16 / P18	NWEOS	SEEOS	JB	40	40	2:30	2:35	PASS			YES	TW	
P17 / P18	WEOS	EEOS	JB	40	40	2:30	2:35	PASS			YES	TW	
P17 / P19	WEOS	EEOS	JB	40	40	2:40	2:45	PASS			YES	TW	
P19 P20	WEOS	SEOS	JB	40	40	2:40	2:45	PASS			YES	TW	
P20 / P21	WEOS	EEOS	JB	40	40	2:40	2:45	PASS			YES	TW	
P21 / P22	WEOS	EEOS	JB	40	40	2:40	2:45	PASS			YES	TW	
P22 P23	WEOS	EEOS	JB	40	40	2:40	2:45	PASS			YES	TW	
P23 / P25	WEOS	EEOS	JB	40	40	3:20	3:25	PASS			YES	TW	
P25 / P28	WEOS	EEOS	JB	40	40	3:20	3:25	PASS			YES	TW	

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT ON THE SEAM.

** RECORD ANY QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS.

DATE: 4-Aug

SUBMITTED BY: TW

LAYFIELD GEOMEMBRANE SEAM PRESSURE TEST LOG

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project

OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**

LOCATION: Sediment Pond One

DATE: 4-Aug-14

SHEET NUMBER: 1C

SEAM NUMBER	SEAM SECTION * FROM	SEAM SECTION * TO	TECH. ID	PRESSURE PSI Start	PRESSURE PSI Finish	TIME START	TIME FINISH	RESULTS PASS	RESULTS FAIL	SEAM COMPLETE NO	SEAM COMPLETE YES	CH'KD BY	REMARKS **
P27 / P28	SEOS	NEOS	JB	40	40	3:20	3:25	PASS			YES	TW	
P25 P27	SEEOS	NWEOS	JB	40	40	3:20	3:25	PASS			YES	TW	
P25 / P26	EEOS	WEOS	JB	40	40	3:20	3:25	PASS			YES	TW	
P26 / P27	SEEOS	NWEOS	JB	40	40	3:40	3:45	PASS			YES	TW	
P26 / P33	EEOS	WEOS	JB	40	40	3:40	3:45	PASS			YES	TW	
P27 / P33	SEOS	NEOS	JB	40	40	3:40	3:45	PASS			YES	TW	
P28 / P29	SEOS	NEOS	JB	40	40	3:40	3:45	PASS			YES	TW	
P29 / P32	SWEOS	NEEOS	JB	40	40	3:40	3:45	PASS			YES	TW	
P23 / P32	WEOS	EEOS	JB	40	40	3:55	4:00	PASS			YES	TW	
P31 / P32	WEOS	EEOS	JB	40	40	3:55	4:00	PASS			YES	TW	
P29 / P30	SEOS	NEOS	JB	40	40	3:55	4:00	PASS			YES	TW	
P30 P31	SWEOS	NEEOS	JB	40	40	3:55	4:00	PASS			YES	TW	
/				:									
/				:									
				:									
/				:									
/				:									

* REFERENCE SEAM ENDPOINTS FROM AN END OF SEAM (EOS), A REPAIR NUMBER, OR A POINT ON THE SEAM.

** RECORD ANY QUANTITY OF LEAKS DETECTED AND REFERENCE NEW DEFECT CODE IN REMARKS.

DATE: 4-Aug

SUBMITTED BY: TW

GEOMEMBRANE DESTRUCTIVE TEST REPORT

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project
OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**
LOCATION: Sediment Pond One **SHEET NUMBER:** 1

DESTRUCTIVE TEST NUMBER*: DT-1 **TEST DATE:** 4-Aug-14
SEAM NUMBER: P1-P11 **ARCHIVE _____ LAYFIELD _____ OWNER _____ ENGINEER**
SAMPLE LOCATION: End of EEOS **3RD PARTY _____ YES _____ NO_____ WHO?**
DATE SEAMED / SAMPLED: 3-Aug-14 - **DATE FORWARDED TO LAB _____**
TYPE OF SEAM: Fusion **DATE LAB TEST RESULTS REC'D _____**

FIELD TEST RESULTS (units = lbf. / in. width = ppi)

SHEAR STRENGTH			PEEL ADHESION				
				INSIDE SEAM		OUTSIDE SEAM	
SPECIMEN NUMBER	SEAM STRENGTH	** LOCUS OF BREAK CODE	SPECIMEN NUMBER	ADHESION STRENGTH	LOCUS OF BREAK CODE	ADHESION STRENGTH	** LOCUS OF BREAK CODE
1	124	ES-1	2	103	ES-1	102	ES-1
3	125	ES-1	4	98	ES-1	105	ES-1
5	131	ES-1	6	106	ES-1	101	ES-1
7	123	ES-1	8	105	ES-1	103	ES-1
9	123	ES-1	10	105	ES-1	108	ES-1
11			12				

* DESTRUCTIVE TEST NUMBERS SHOULD BE SEQUENTIAL AND ARE TO BE PREFIXED BY EITHER DT (FUSION), DX (EXTRUSION) OR DS (SOLVENT).

LPL: PASS _____ FAIL _____

** REFER TO LOCUS OF BREAK CODE DIRECTORIES PROVIDED FOR UNSUPPORTED AND SUPPORTED MATERIALS.

3RD PARTY / LAB: PASS _____ FAIL _____

NOTES: _____

CHECKED BY: TW
DATE: 4-Aug-14

GEOMEMBRANE DESTRUCTIVE TEST REPORT

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project
OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**
LOCATION: Sediment Pond One **SHEET NUMBER:** 2

DESTRUCTIVE TEST NUMBER*: DT-2 **TEST DATE:** 4-Aug-14
SEAM NUMBER: P14-P15 **ARCHIVE _____ LAYFIELD _____ OWNER _____ ENGINEER**
SAMPLE LOCATION: End of WEOS **3RD PARTY _____ YES _____ NO_____ WHO?**
DATE SEAMED / SAMPLED: 3-Aug-14 - **DATE FORWARDED TO LAB _____**
TYPE OF SEAM: Fusion **DATE LAB TEST RESULTS REC'D _____**

FIELD TEST RESULTS (units = lbf. / in. width = ppi)

SHEAR STRENGTH			PEEL ADHESION				
				INSIDE SEAM		OUTSIDE SEAM	
SPECIMEN NUMBER	SEAM STRENGTH	** LOCUS OF BREAK CODE	SPECIMEN NUMBER	ADHESION STRENGTH	LOCUS OF BREAK CODE	ADHESION STRENGTH	** LOCUS OF BREAK CODE
1	118	ES-1	2	113	ES-1	109	ES-1
3	124	ES-1	4	108	ES-1	111	ES-1
5	129	ES-1	6	110	ES-1	100	ES-1
7	125	ES-1	8	114	ES-1	107	ES-1
9	130	ES-1	10	111	ES-1	108	ES-1
11			12				

* DESTRUCTIVE TEST NUMBERS SHOULD BE SEQUENTIAL AND ARE TO BE PREFIXED BY EITHER DT (FUSION), DX (EXTRUSION) OR DS (SOLVENT).

LPL: PASS _____ FAIL _____

** REFER TO LOCUS OF BREAK CODE DIRECTORIES PROVIDED FOR UNSUPPORTED AND SUPPORTED MATERIALS.

3RD PARTY / LAB: PASS _____ FAIL _____

NOTES: _____

CHECKED BY: TW
DATE: 4-Aug-14

GEOMEMBRANE DESTRUCTIVE TEST REPORT

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project
OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**
LOCATION: Sediment Pond One **SHEET NUMBER:** 3

DESTRUCTIVE TEST NUMBER*: DT-1 **TEST DATE:** 4-Aug-14
SEAM NUMBER: P20-021 **ARCHIVE _____ LAYFIELD _____ OWNER _____ ENGINEER**
SAMPLE LOCATION: End of WEOS **3RD PARTY _____ YES _____ NO_____ WHO?**
DATE SEAMED / SAMPLED: 3-Aug-14 - **DATE FORWARDED TO LAB _____**
TYPE OF SEAM: Fusion **DATE LAB TEST RESULTS REC'D _____**

FIELD TEST RESULTS (units = lbf. / in. width = ppi)

SHEAR STRENGTH			PEEL ADHESION				
				INSIDE SEAM		OUTSIDE SEAM	
SPECIMEN NUMBER	SEAM STRENGTH	** LOCUS OF BREAK CODE	SPECIMEN NUMBER	ADHESION STRENGTH	LOCUS OF BREAK CODE	ADHESION STRENGTH	** LOCUS OF BREAK CODE
1	120	ES-1	2	104	ES-1	92	ES-1
3	122	ES-1	4	106	ES-1	111	ES-1
5	123	ES-1	6	113	ES-1	102	ES-1
7	126	ES-1	8	113	ES-1	103	ES-1
9	122	ES-1	10	114	ES-1	106	ES-1
11			12				

* DESTRUCTIVE TEST NUMBERS SHOULD BE SEQUENTIAL AND ARE TO BE PREFIXED BY EITHER DT (FUSION), DX (EXTRUSION) OR DS (SOLVENT).

LPL: PASS _____ FAIL _____

** REFER TO LOCUS OF BREAK CODE DIRECTORIES PROVIDED FOR UNSUPPORTED AND SUPPORTED MATERIALS.

3RD PARTY / LAB: PASS _____ FAIL _____

NOTES: _____

CHECKED BY: _____
DATE: _____

GEOMEMBRANE DESTRUCTIVE TEST REPORT

PROJECT NUMBER: CT-000071 **PROJECT TITLE:** Mary River Project
OWNER: Baffinland Iron Mine Corporation **CONTRACTOR:**
LOCATION: Sediment Pond One **SHEET NUMBER:** 4

DESTRUCTIVE TEST NUMBER*: DT-1 **TEST DATE:** 4-Aug-14
SEAM NUMBER: P30-P31 **ARCHIVE _____ LAYFIELD _____ OWNER _____ ENGINEER**
SAMPLE LOCATION: End of WEOS **3RD PARTY _____ YES _____ NO_____ WHO?**
DATE SEAMED / SAMPLED: 4-Aug-14 - **DATE FORWARDED TO LAB _____**
TYPE OF SEAM: Fusion **DATE LAB TEST RESULTS REC'D _____**

FIELD TEST RESULTS (units = lbf. / in. width = ppi)

SHEAR STRENGTH			PEEL ADHESION				
				INSIDE SEAM		OUTSIDE SEAM	
SPECIMEN NUMBER	SEAM STRENGTH	** LOCUS OF BREAK CODE	SPECIMEN NUMBER	ADHESION STRENGTH	LOCUS OF BREAK CODE	ADHESION STRENGTH	** LOCUS OF BREAK CODE
1	121	ES-1	2	110	ES-1	93	ES-1
3	121	ES-1	4	113	ES-1	96	ES-1
5	119	ES-1	6	105	ES-1	95	ES-1
7	119	ES-1	8	107	ES-1	97	ES-1
9	116	ES-1	10	107	ES-1	100	ES-1
11			12				

* DESTRUCTIVE TEST NUMBERS SHOULD BE SEQUENTIAL AND ARE TO BE PREFIXED BY EITHER DT (FUSION), DX (EXTRUSION) OR DS (SOLVENT).

LPL: PASS _____ FAIL _____

** REFER TO LOCUS OF BREAK CODE DIRECTORIES PROVIDED FOR UNSUPPORTED AND SUPPORTED MATERIALS.

3RD PARTY / LAB: PASS _____ FAIL _____

NOTES: _____

CHECKED BY: TW
DATE: 4-Aug-14

LAYFIELD

GEOMEMBRANE DEFECT / REPAIR LOG

PROJECT NUMBER: CT-000071 PROJECT TITLE: Mary River Project

OWNER: Baffinland Iron Mine Corporation CONTRACTOR:

LOCATION: Sediment Pond One SHEET NUMBER: 1

DEFECT CODE	LOG DATE	DEFECT LOCATION		DEFECT TYPE	REPAIR TYPE	WELD TECH.		REPAIR DATE	REMARKS **	TEST DATE	CHECKED BY
		SEAM OR PANEL NO.	DEFECT LOCATION DESCRIPTION								
1 A	3-Aug-14	P3 P4 P5	7m NE OF 2F	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
1 B	3-Aug-14	P3 P5 P6	2.5m NE OF 1A	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
1 C	3-Aug-14	P1 P3 P6	6m NE OF 1B	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
1 D	3-Aug-14	P1 P6 P7	2.5m EAST OF 1C	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
1 E	3-Aug-14	P1 P7 P11	4.5m EAST OF 1D	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
1 F	3-Aug-14	P7 P8 P11	2.5m SE OF 1E	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
	3-Aug-14	P8 P10 P11	6.5m SE OF 1F	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
	3-Aug-14	P8 P9 P10	2m SE OF 1G	T	G&W	MB		3-Aug-14	T-WELD	4-Aug-14	JB
	3-Aug-14	P9 /	7m SE OF 1H/ 1m SOUTH OF P10	D	G&W	MB		3-Aug-14	6" WELD	4-Aug-14	JB
	3-Aug-14	P1 /	4m EEOS-WEOS/ 3m NORTH OF P11	D	P	MB		3-Aug-14	2' PATCH	4-Aug-14	JB
	3-Aug-14	P1 /	4.5m EEOS-WEOS/ 3m NORTH OF P11	D	G&W	MB		3-Aug-14	6" WELD	4-Aug-14	JB
	3-Aug-14	P13 / P14	5m WEOS-EEOS/ TOP OF CREST	BO	P	MB		3-Aug-14	2' PATCH	4-Aug-14	JB
	3-Aug-14	P14 P15 P16	14m EEOS-WEOS	T	P	MB		3-Aug-14	2' PATCH	4-Aug-14	JB
	3-Aug-14	P15 P16 17/18	14m EEOS-WEOS	T	P	MB		3-Aug-14	3' PATCH	4-Aug-14	JB
	4-Aug-14	P29 P30 31/32	10m NEEOS-SWEOS	T	G&W	MB		4-Aug-14	T-WELD	4-Aug-14	JB
	4-Aug-14	P32	5m SW OF 1O/ 1m NORTH OF P29	WR	P	MB		4-Aug-14	2' PATCH	4-Aug-14	JB
	4-Aug-14	23/25 28 29/32	9m SW OF 1O	T	G&W	MB		4-Aug-14	T-WELD	4-Aug-14	JB
	4-Aug-14	P25 P27 P28	7m NW OF 1Q	T	G&W	MB		4-Aug-14	T-WELD	4-Aug-14	JB
	4-Aug-14	P25 P26 P27	2m NW OF 1R	T	G&W	MB		4-Aug-14	T-WELD	4-Aug-14	JB
	4-Aug-14	P26 P27 P33	7m NW OF 1S	T	P	MB		4-Aug-14	2' PATCH	4-Aug-14	JB

DEFECT TYPE: AD - ANIMAL RELATED DAMAGE; B - UNDISPERSED RESIN BEAD; BO - FUSION WELDER BURN; BS - BOOT/SKIRT FROM FML PENETRATION; CO - CHANGE OF OVERLAP; CR - CREASE; D - INSTALLATION DAMAGE; DS-# - DESTRUCTIVE TEST NUMBER; EE - EARTHWORK EQUIPMENT DAMAGE; EXT - EXTENSION; FM - FISHMOUTH; FS - FAILED SEAM LENGTH; FTS - FIELD TEST STRIP; HT - HEAT TACK BURN; IO - INSUFFICIENT OVERLAP (UNDER SPEC.); MD - MANUFACTURER/DELIVERY DAMAGE; PT - PRESSURE TEST CUT; SI - SOIL SURFACE IRREGULARITY; SL - SLAG ON TEXTURED SHEET; T - THREE PANEL INTERSECTION; VL - VACUUM TEST LEAK; WR - WRINKLE; WS - WELDER RESTART; OTHER:_____

REPAIR TYPE: P - PATCH, C - CAP, RS - RECONSTRUCTED SEAM, G&W - GRIND/WELD

PASSING TRIAL SEAMS		
NO.	TIME	TECH ID.
TX-1	9:00 3-Aug-14	MB
TX-2	12:30 4-Aug-14	MB

** COLUMNS TO BE USED BY THE PROJECT SUPERVISOR OR LEAD TECHNICIAN ONLY.

SUBMITTED BY: TW

DATE: 4-Aug

GEOMEMBRANE DEFECT / REPAIR LOG

PROJECT NUMBER: CT-000071 PROJECT TITLE: Mary River Project

OWNER: Baffinland Iron Mine Corporation CONTRACTOR:

LOCATION: Sediment Pond One SHEET NUMBER: 2

DEFECT CODE	LOG DATE	DEFECT LOCATION		DEFECT TYPE	REPAIR TYPE	WELD TECH.		REPAIR DATE	REMARKS **	TEST DATE	CHECKED BY
		SEAM OR PANEL NO.	DEFECT LOCATION DESCRIPTION								
2 A	4-Aug-14	P17	5m WEOS-EEOS/ TOP OF CREST	D	G&W	MB		4-Aug-14	6" WELD	4-Aug-14	JB
2 B	4-Aug-14	P17	1m EEOS-WEOS/ 1m SOUTH OF P19	D	G&W	MB		4-Aug-14	6" WELD	4-Aug-14	JB
2 C	4-Aug-14	P17	1.5m EEOS-WEOS/ 3m SOUTH OF P19	D	P	MB		4-Aug-14	2' PATCH	4-Aug-14	JB
2 D	4-Aug-14	P17	3m EEOS-WEOS/ 3m SOUTH OF P19	D	G&W	MB		4-Aug-14	6" WELD	4-Aug-14	JB
2 E	4-Aug-14	P17	3.5m EEOS-WEOS/ 3m SOUTH OF P19	D	G&W	MB		4-Aug-14	6" WELD	4-Aug-14	JB
2 F	4-Aug-14	P4 P5 P24	7m SW OF 1A	T	P	MB		4-Aug-14	2' PATCH	4-Aug-14	JB

DEFECT TYPE: AD - ANIMAL RELATED DAMAGE; B - UNDISPERSED RESIN BEAD; BO - FUSION WELDER BURN; BS - BOOT/SKIRT FROM FML PENETRATION; CO - CHANGE OF OVERLAP; CR - CREASE; D - INSTALLATION DAMAGE; DS-# - DESTRUCTIVE TEST NUMBER; EE - EARTHWORK EQUIPMENT DAMAGE; EXT - EXTENSION; FM - FISHMOUTH; FS - FAILED SEAM LENGTH; FTS - FIELD TEST STRIP; HT - HEAT TACK BURN; IO - INSUFFICIENT OVERLAP (UNDER SPEC.); MD - MANUFACTURER/DELIVERY DAMAGE; PT - PRESSURE TEST CUT; SI - SOIL SURFACE IRREGULARITY; SL - SLAG ON TEXTURED SHEET; T - THREE PANEL INTERSECTION; VL - VACUUM TEST LEAK; WR - WRINKLE; WS - WELDER RESTART; OTHER:_____

REPAIR TYPE: P - PATCH, C - CAP, RS - RECONSTRUCTED SEAM, G&W - GRIND/WELD

PASSING TRIAL SEAMS		
NO.	TIME	TECH ID.
TX-2	12:30 4-Aug-14	MB

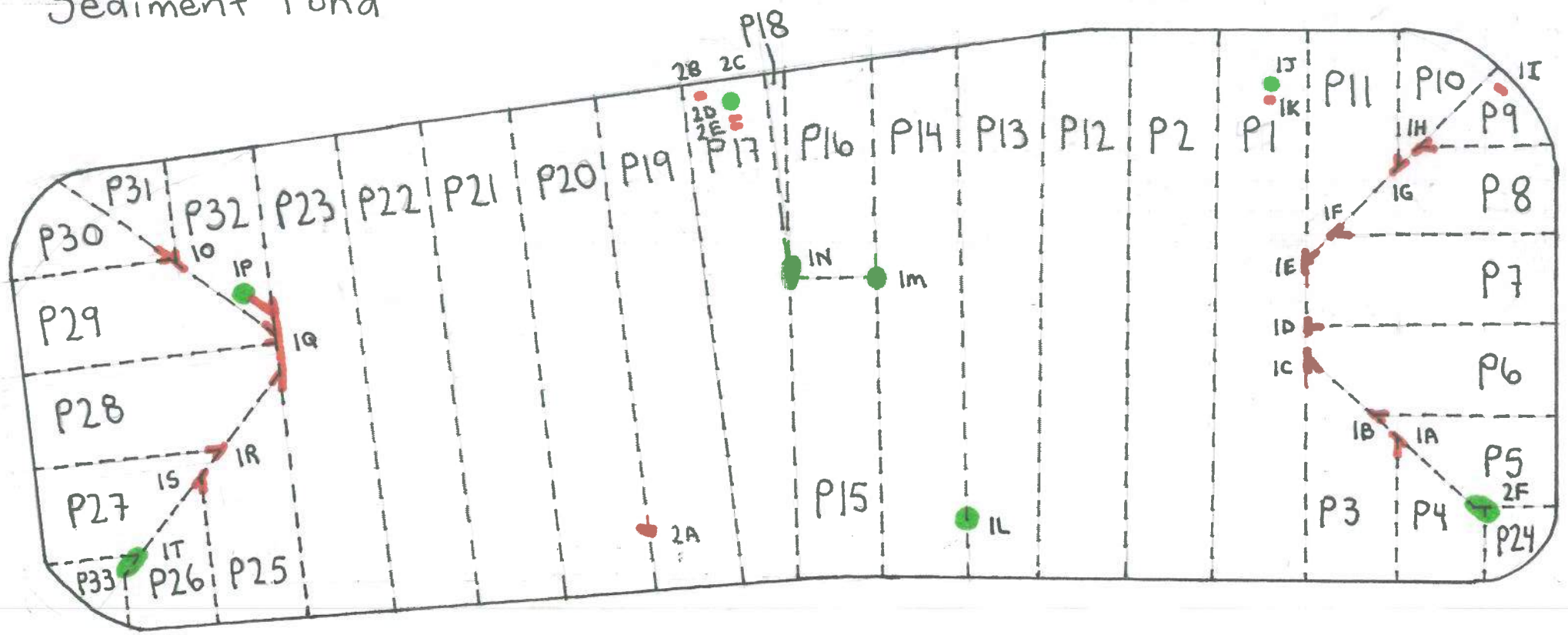
** COLUMNS TO BE USED BY THE PROJECT SUPERVISOR OR LEAD TECHNICIAN ONLY.

SUBMITTED BY: TW

DATE: 4-Aug

No.	Revisions	Date (MM/DD/YY)	By

Sediment Pond



PROJECT NAME
Mary River Project

MATERIAL TYPE

LAYFIELD
ENVIRONMENTAL SYSTEMS LTD

N

LEGEND

- EXTENT OF LINER
- TOE OF SLOPE
- LINER FIELD SEAM
- XXX EXTRUSION WELDING
- △ PATCH
- P2 PANEL NUMBER
- 1A REPAIR NUMBER

Quote No.	PROJECT No.
DWG:	OF SCALE: 1
DWN:	CHKD: APPD:
DATE:	REVISION: