

Appendix D

Liner QC Report

FIELD QUALITY CONTROL REPORT

50mil HDPE MICRODRAIN INSTALLATION FOR:

HARRIETSFIELD C & D LANDFILL

Cap Replacement and Extension

26th July – 1st October, 2021

Prepared By:

Jason Le Quality Control Technician

ATLANTIC POLY LINERS INC.

103 Park Road, Elmsdale,

Nova Scotia

B2S 2L3



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1.1 Introduction

This report details the field quality control results for the installation of 50mil HDPE Micodrain liner and 60mil HDPE liner for the construction of the Cap and the extension at Harrietsfield C & D Landfill, located in Harrietsfield, Nova Scotia by Atlantic Poly Liners Inc.

Atlantic Poly Liners Inc. is an authorized installer of Agru America Inc. and Solmax International as attested by the attached letter. Field quality control on behalf of the installer was carried out under the direction of Mr. Jason Le. This work was carried out between July 26th, 2021 and October 1st, 2021 by the crew listed below

- Mr. Devin Sinclair General Superintendent, Master Seamer
- Mr. Greg Billiard Site Supervisor, Master Seamer
- Mr. Jason Le Quality Control Technician
- Mr. Daniel Lewis Geomembrane Technician
- Mr. Robert Doherty Geomembrane Technician
- Mr. Tyler Wright Geomembrane Technician
- Mr. Mike MacKenzie Geomembrane Technician
- Mr. Ryan Penton Geomembrane Technician
- Mr. Tyron Goodwin Geomembrane Technician
- And 3 labourers (Mr. Brock McNeil, Mr. Braydon McNeil and Mr. Keith Doucette)

Field quality control procedures were in keeping with industry standard and project specifications. The following strength criteria were applied to standard coupons during installation.

	50mil
Peel (Wedge)	76 lb/in
Peel (Extrusion)	65 lb/in
Shear	100 lb/in

Tensiometer Serial #96021 and Pro-Testor unit #5 - serial #1536 and #230319 were used for the installation. All valid Calibration Certificates are enclosed in this report.

Nomenclature: In the data sheets, *eos* stands for 'end of seam'; thus, *Weos* stands for 'West end of seam'

In the Extrusion Welder Seam Log, the following notations are used:

P	Extruded Patch
B	Pipe Boot
DSF / DSX	Destructive Test Fusion / Extrusion (respectively)
D	Installation Damage
FTS	Field Test Strip
MD	Manufacturer's Damage
PT	Pressure Test Cut
T	Three-Panel Intersection
IO	Insufficient Overlap
WR	Wrinkle Relief
EW	Extrusion Seam Weld
BO	Fusion Welder Burn Out
EST	Panel Extension
SUB	Sub Grade Irregularity
FSL	Failed Seam Length
WS	Fusion Welder Start/Stop



Technology in Plastics

Atlantic Poly Liners Inc.

Atlantic Poly Liners Inc. (APLI) is a well-established lining installation company within the Geosynthetic Industry. APLI is one of the largest installers of Agru America, Inc.'s products and one of our top installers in Canada.

Agru America, Inc. has worked successfully with APLI over the years on multiple projects where APLI has installed both our HDPE and LLDPE Smooth/Microspike material. APLI is familiar with approved installation procedures and we have recognized them as one of our top-tier "Priority Installers".

Agru America, Inc. does not warrant or guarantee the work of any Approved Installer. Approved installers are independent contractors that provide specific installation services and do not act as agents or representatives of Agru America, Inc.



Paul W. Barker
Technical Director
Agru America, Inc.

Date: January 18, 2021



February 8, 2021

To whom it may concern,

This correspondence certifies that **Atlantic Poly Liners Inc.** has been successfully installing Solmax International geomembrane products (PE & PVC) since 1998.

In installation of Solmax products, **Atlantic Poly Liners Inc.** is required to follow the International Association Geosynthetic Installers (IAGI) field installation quality assurance manual. In addition, **Atlantic Poly Liners Inc.** has access to Solmax's technical publications and the ability to contact Solmax's technical department with particular questions regarding our products.

Solmax does not warrant or guarantee the work of **Atlantic Poly Liners** or any certified installer. Instead, Solmax's sole warranty (express or implied) is against product defects, not installation. Users and others are encouraged to discuss installation warranties with their particular installer. No installer or any third party is authorized to grant, extend, modify or assume any obligation or liability for or on behalf of Solmax without the prior written signed consent of an authorized officer of Solmax.

Sincerely yours,

A handwritten signature in blue ink that reads "Lucia Talenti".

Lucia Talenti

Sales Manager Canada

Solmax GSE

T 450 929 1214

2801, BOUL. MARIE-VICTORIN
VARENNES QC CANADA J3X 1P7

SOLMAX.COM ■ GSEWORLD.COM

Documentation of Participation

Atlantic Poly Liners Incorporated

Has successfully completed the

ClosureTurf® Installer Continuing Education Program

WAG Administered by **Watershed Geosynthetics LLC**

Recognition of qualifications to install ClosureTurf® expires upon completion of Harrietsfield Landfill Closure and must be renewed with completion of the annual continuing education program.

Curt Boling

Curt Boling
ClosureTurf® Program Administrator
Watershed Geosynthetics LLC

 **ClosureTurf®**

Table 1(a) – Seam Strength and Related Properties of Thermally Bonded Smooth and Textured High Density Polyethylene (HDPE) Geomembranes (English Units)

Geomembrane Nominal Thickness	30 mils	40 mils	50 mils	60 mils	80 mils	100 mils	120 mils
Hot Wedge Seams⁽¹⁾							
shear strength, lb/in.	57	80	100	120	160	200	240
shear elongation at break ⁽²⁾ , %	50	50	50	50	50	50	50
peel strength, lb/in.	45	60	76	91	121	151	181
peel separation, %	25	25	25	25	25	25	25
Extrusion Fillet Seams							
shear strength, lb/in.	57	80	100	120	160	200	240
shear elongation at break ⁽²⁾ , %	50	50	50	50	50	50	50
peel strength, lb/in.	39	52	65	78	104	130	156
peel separation, %	25	25	25	25	25	25	25

Notes for Tables 1(a) and 1(b):

1. Also for hot air and ultrasonic seaming methods
2. Elongation measurements should be omitted for field testing

Table 1(b) – Seam Strength and Related Properties of Thermally Bonded Smooth and Textured High Density Polyethylene (HDPE) Geomembranes (S.I. Units)

Geomembrane Nominal Thickness	0.75 mm	1.0 mm	1.25 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm
Hot Wedge Seams⁽¹⁾							
shear strength, N/25 mm.	250	350	438	525	701	876	1050
shear elongation at break ⁽²⁾ , %	50	50	50	50	50	50	50
peel strength, N/25 mm	197	263	333	398	530	661	793
peel separation, %	25	25	25	25	25	25	25
Extrusion Fillet Seams							
shear strength, N/25 mm	250	350	438	525	701	876	1050
shear elongation at break ⁽²⁾ , %	50	50	50	50	50	50	50
peel strength, N/25 mm	170	225	285	340	455	570	680
peel separation, %	25	25	25	25	25	25	25

2.1

Panel Log

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project:
Description:
QC Inspector:

Harrietsfield C & D Landfill
Cell Cap
Jason I.e

PANEL LOG

Panel No.	Roll No.	North Side (m)	South Side (m)	East Side (m)	West Side (m)	Area (m ²)	Cumulative Area (m ²)	Comments
01	500160	7.0	7.0	49.6	48.0	341.6	342	50mil HDPE Microdrain (AGRU)
02	500160	7.0	7.0	48.0	49.0	339.5	681	
03	500160	7.0	7.0	49.0	48.7	342.0	1,023	
04	890004	7.0	7.0	48.7	49.0	342.0	1,365	
05	890004	7.0	7.0	49.0	49.6	345.1	1,710	
06	890004	7.0	7.0	49.6	46.0	334.6	2,045	
07	890014	7.0	7.0	46.0	43.5	313.3	2,358	
08	890014	7.0	7.0	43.5	42.5	301.0	2,659	
09	890014	7.0	7.0	42.5	40.2	289.5	2,948	
10	500158	7.0	7.0	40.2	39.0	277.2	3,226	
11	500158	7.0	7.0	39.0	34.8	258.3	3,484	
12	500158	7.0	7.0	34.8	33.2	238.0	3,722	
13	500159	7.0	7.0	33.2	28.8	217.0	3,939	
14	500159	7.0	7.0	28.8	27.4	196.7	4,136	
15	500159	7.0	7.0	27.4	24.7	182.4	4,318	
16	500159	7.0	7.0	24.7	24.2	171.2	4,489	
17	500156	7.0	7.0	51.2	49.6	352.8	4,842	
18	500156	7.0	7.0	51.7	51.2	360.2	5,202	
19	500157	55.0	52.5	7.4	7.0	387.0	5,589	
20	500157	52.5	51.1	7.4	7.0	373.0	5,962	
21	500161	51.1	47.7	7.4	7.0	355.7	6,318	
22	500161	7.0	7.0	39.2	37.9	269.9	6,588	
23	500161	7.0	7.0	40.6	39.2	279.3	6,867	
24	500161	33.7	29.2	7.4	7.0	226.4	7,093	
25	500161	29.2	28.8	7.4	7.0	208.8	7,302	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project:
Description:
QC Inspector:

Harrietsfield C & D Landfill
Cell Cap
Jason I e

PANEL LOG

Panel No.	Roll No.	North Side (m)	South Side (m)	East Side (m)	West Side (m)	Area (m ²)	Cumulative Area (m ²)	Comments
26	890011	28.8	27.3	7.4	7.0	202.0	7,504	
27	500157	7.0	7.2	20.7	18.5	139.2	7,643	
28	500157	7.0	7.4	17.9	20.7	139.0	7,782	
29	500157	13.3	10.0	7.4	7.0	83.9	7,866	
30	500157	10.0	5.2	7.4	7.0	54.7	7,921	
31	500157	5.2	-	7.2	3.9	10.1	7,931	Irregular Shape
32	890011	23.4	24.5	3.7 / 3.8	7.1	169.7	8,101	Irregular Shape
33	890011	24.5	20.0	7.0	7.6	162.4	8,263	
34	890011	20.0	12.7	7.0	9.3	133.3	8,396	
35	890011	12.7	-	6.1	12.7	38.7	8,435	Irregular Shape
36	890011	15.5	23.4	7.0	9.1	156.6	8,592	
37	890006	7.0	7.0	67.2	67.2	470.4	9,062	
38	890006	7.0	7.0	67.2	65.7	465.2	9,527	
39	950001	7.0	7.0	65.7	65.3	458.5	9,986	
40	950005	7.0	7.0	65.3	66.2	460.3	10,446	
41	950005	7.0	7.0	66.2	66.4	464.1	10,910	
42	890009	7.0	7.0	66.4	66.3	464.5	11,374	
43	890009	7.0	7.0	66.3	64.7	458.5	11,833	
44	890010	7.0	7.0	64.7	63.0	447.0	12,280	
45	890010	7.0	7.0	63.0	61.4	435.4	12,715	
46	890008	7.0	7.0	61.4	59.2	422.1	13,137	
47	890008	7.0	7.0	59.2	56.8	406.0	13,543	
48	890015	7.0	7.0	56.8	54.4	389.2	13,933	
49	890015	7.0	7.0	54.4	51.6	371.0	14,304	
50	950001	7.0	6.0	51.6	45.3 / 5.5	356.5	14,660	Irregular Shape

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason I.e

PANEL LOG

Panel No.	Roll No.	North Side (m)	South Side (m)	East Side (m)	West Side (m)	Area (m ²)	Cumulative Area (m ²)	Comments
51	980001	7.0	6.5	31.3	27.3	197.8	14,858	
52	890010	6.5	15.5	7.0	11.5	101.8	14,960	
53	890012	7.0	7.0	68.3	67.2	474.3	15,434	
54	890012	7.0	7.0	69.5	68.3	482.3	15,916	
55	950002	7.0	7.0	71.0	69.5	491.8	16,408	
56	950002	7.4	7.0	68.1	71.0	500.8	16,909	
57	890013	7.4	7.0	58.4	60.7	428.8	17,337	
58	890013	7.4	7.0	56.2	58.4	412.6	17,750	
59	890014	7.4	7.0	54.5	56.2	398.5	18,149	
60	890014	7.4	7.0	49.3	54.5	373.7	18,522	
61	890014	30.8	27.0	7.5	7.0	209.5	18,732	
62	890003	33.3	30.8	7.5	7.0	232.4	18,964	
63	890003	32.4	33.3	7.5	7.0	238.2	19,202	
64	890003	7.5	7.0	25.0	28.3	193.2	19,395	
65	890003	7.5	7.0	21.9	25.0	170.0	19,565	
66	890013	7.5	7.0	18.4	21.9	146.1	19,712	
67	890013	7.5	7.0	14.3	18.4	118.5	19,830	
68	890013	1.5	4.4	14.4	14.3	31.5	19,862	Irregular Shape
Panel Extension	890013	1.5	1.5	7.4	7.4	5.6	19,867	

2.2

Destructive Test Log

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project:
Description:
QC Inspector:

Harrietsfield C & D Landfill
Cell Cap
Jason Le

DESTRUCTIVE TEST LOG

Test No.	Seam No.	Location	Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
DPF-01	07 / 08	N eos Trimmed Section	106	95	153	Pass	MM / #910
			102	110	159	Pass	
			93	117		Pass	
			115	108		Pass	
DPF-02	08 / 09	N eos Trimmed Section	83	106	142	Pass	TG / #911
			98	106	145	Pass	
			107	92		Pass	
			99	104		Pass	
DPF-03	14 / 15	N eos Trimmed Section	97	115	160	Pass	TG / #911
			106	99	153	Pass	
			89	113		Pass	
			99	106		Pass	
DPF-04	17 / 18	N eos Trimmed Section	98	99	155	Pass	MM / #910
			113	104	177	Pass	
			95	102		Pass	
			112	103		Pass	
DPF-05	32 / 33	E eos Trimmed Section	107	105	156	Pass	MM / #910
			94	104	158	Pass	
			105	99		Pass	
			85	85		Pass	
DPF-06	18 / 32	S eos Trimmed Section	99	105	143	Pass	TG / #911
			110	116	158	Pass	
			96	98		Pass	
			98	99		Pass	
DPF-07	34 / 35	E eos Trimmed Section	108	116	151	Pass	TG / #911
			97	102	158	Pass	
			110	98		Pass	
			105	99		Pass	
DPF-08	39 / 40	S eos Trimmed Section	102	89	149	Pass	RP / #910
			93	97	143	Pass	
			93	98		Pass	
			97	104		Pass	
DPF-09	40 / 41	S eos Trimmed Section	92	100	146	Pass	TG / #911
			79	81	147	Pass	
			85	91		Pass	
			87	86		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project:
Description:
QC Inspector:

Harrietsfield C & D Landfill
Cell Cap
Jason Le

DESTRUCTIVE TEST LOG

Test No.	Seam No.	Location	Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
DPF-10	43 / 44	Seos Trimmed Section	98	87	152	Pass	BM / #910
			103	92	148	Pass	
			112	96		Pass	
			102	100		Pass	
DPF-11	44 / 45	Seos Trimmed Section	86	93	146	Pass	TG / #910
			85	108	143	Pass	
			92	97		Pass	
			88	92		Pass	
DPF-12	47 / 48	Seos Trimmed Section	100	101	146	Pass	BM / #910
			83	88	141	Pass	
			92	98		Pass	
			108	95		Pass	
DPF-13	49 / 50	Seos Trimmed Section	88	105	147	Pass	TG / #910
			95	98	147	Pass	
			81	99		Pass	
			86	110		Pass	
DPF-14	36 / 52	E eos Trimmed Section	96	110	151	Pass	BM / #910
			101	104	148	Pass	
			86	93		Pass	
			85	103		Pass	
DPF-15	54 / 55	Seos Trimmed Section	88	86	141	Pass	BM / #910
			93	95	145	Pass	
			92	90		Pass	
			86	88		Pass	
DPF-16	57 / 58	Seos Trimmed Section	85	81	139	Pass	BM / #910
			96	95	142	Pass	
			93	93		Pass	
			87	88		Pass	
DPF-17	59 / 60	Seos Trimmed Section	97	92	153	Pass	TWJ / #911
			99	90	155	Pass	
			88	83		Pass	
			93	91		Pass	
DPF-18	67 / 68	Seos Trimmed Section	102	110	146	Pass	TWJ / #910
			97	99	155	Pass	
			100	95		Pass	
			105	103		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Lee

WEDGE WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Temp./Speed (°C) / (fpm)					
01	07/26/21	16:11	23	MM / #910	385 / 7.5	86	94	130	Pass	50mil Smooth - Smooth
						86	89	126	Pass	
						89	97		Pass	
02	07/26/21	16:10	23	TG / #911	385 / 7.5	84	79	123	Pass	
						84	91	129	Pass	
						85	85		Pass	
03	07/27/21	07:10	18	MM / #910	385 / 7.5	115	100	135	Pass	
						98	105	131	Pass	
						114	96		Pass	
04	07/27/21	07:20	18	TG / #911	385 / 7.5	89	97	137	Pass	
						92	101	135	Pass	
						81	90		Pass	
05	07/27/21	12:30	24	MM / #910	385 / 8.0	101	92	162	Pass	
						107	103	159	Pass	
						98	98		Pass	
06	07/27/21	12:30	24	TG / #911	385 / 8.0	100	101	154	Pass	
						94	100	161	Pass	
						88	100		Pass	
07	07/29/21	07:16	16	MM / #910	385 / 8.0	105	94	149	Pass	
						93	81	146	Pass	
						96	97		Pass	
08	07/29/21	07:16	16	TG / #911	385 / 8.0	85	103	142	Pass	
						92	103	148	Pass	
						97	100		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason I.e

WEDGE WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Temp./Speed (°C)/(fpm)					
09	07/29/21	12:30	23		MM / #910	101	94	123	Pass	
						95	91	121	Pass	
						104	94		Pass	
10	07/29/21	12:30	23		TG / #911	79	105	128	Pass	
						96	105	131	Pass	
						88	92		Pass	
11	08/03/21	07:10	13		MM / #910	95	112	152	Pass	
						91	108	132	Pass	
						108	118		Pass	
12	08/03/21	07:17	13		TG / #911	100	105	147	Pass	
						108	120	144	Pass	
						95	112		Pass	
13	08/03/21	12:30	23		MM / #910	105	100	158	Pass	
						81	95	168	Pass	
						94	91		Pass	
14	08/03/21	12:30	23		TG / #911	88	108	135	Pass	
						83	96	141	Pass	
						85	99		Pass	
15	08/09/21	09:18	18		TG / #705	88	95	148	Pass	
						90	85	121	Pass	
						82	92		Pass	
16	08/09/21	13:00	20		TG / #705	95	95	131	Pass	
						87	97	138	Pass	
						91	98		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project:
Description:
QC Inspector:

Harrietsfield C & D Landfill
Cell Cap
Jason Le

WEDGE WELDER QUALIFICATION DATA

Trial No	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Temp./Speed (°C)/(fpm)					
17	08/12/21	07:15	19	RP / #910	385 / 7.0	79	110	150	Pass	
						77	108	148	Pass	
						82	104		Pass	
18	08/12/21	07:20	19	TG / #911	385 / 7.0	86	108	150	Pass	
						81	89	151	Pass	
						84	94		Pass	
19	08/12/21	12:30	25	RP / #910	385 / 7.0	90	98	143	Pass	
						87	108	148	Pass	
						96	96		Pass	
20	08/12/21	12:30	25	TG / #911	385 / 7.0	96	107	151	Pass	
						88	93	153	Pass	
						102	106		Pass	
21	08/13/21	07:30	19	TG / #911	385 / 7.5	82	92	161	Pass	
						112	70	155	Pass	
						79	93		Pass	
22	08/13/21	07:30	19	BM / #910	385 / 7.5	107	98	155	Pass	
						106	110	152	Pass	
						107	94		Pass	
23	08/13/21	13:05	29	TG / #911	385 / 7.5	88	102	142	Pass	
						79	99	140	Pass	
						93	87		Pass	
24	08/13/21	13:05	29	BM / #910	385 / 7.5	90	77	128	Pass	
						86	92	137	Pass	
						83	87		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill

Description: Cell Cap

QC Inspector: Jason Lee

WEDGE WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Temp./Speed (°C) / (fpm)					
25	09/23/21	11:20	25	BM / #910	385 / 7.0	97	114	121	Pass	
						90	88	125	Pass	
						95	99		Pass	
26	09/23/21	11:20	25	RP / #911	385 / 7.0	108	103	137	Pass	
						109	91	132	Pass	
						106	100		Pass	
27	09/24/21	07:15	16	TJW / #911	385 / 7.0	107	104	131	Pass	
						92	104	132	Pass	
						106	108		Pass	
28	09/24/21	07:15	16	BM / #910	385 / 7.0	83	99	121	Pass	
						101	103	125	Pass	
						79	75		Pass	
29	09/24/21	13:30	21	TJW / #911	385 / 7.0	96	98	114	Pass	
						77	100	119	Pass	
						85	100		Pass	
30	09/24/21	13:50	21	BM / #910	385 / 7.0	94	68	99	Pass	
						93	70	97	Pass	
						85	96		Pass	
31	09/25/21	07:11	17	TJW / #910	385 / 7.0	100	95	126	Pass	
						100	112	122	Pass	
						102	115		Pass	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason I.e

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments	
			Operator / Machine No.	Temp./Speed (°C) / (fpm)	Time		Pressure (psi)			
					Begin	End	Start			End
01 / 02	07/26/21	16:50	MM / #910	385 / 7.5	09:02	09:07	34	34	Pass N eos → 1A (Downhill)	
01 / 02	07/26/21	17:10	MM / #910	385 / 7.5	08:46	08:51	35	35	Pass 1A → S eos (Downhill)	
02 / 03	07/26/21	16:51	TG / #911	385 / 7.5	08:55	09:00	35	35	Pass N eos → 1B (Downhill)	
02 / 03	07/26/21	17:11	TG / #911	385 / 7.5	08:56	09:01	35	35	Pass 1B → S eos (Downhill)	
03 / 04	07/27/21	08:20	MM / #910	385 / 7.5	09:20	09:25	33	32	Pass S eos → N eos (Uphill)	
04 / 05	07/27/21	08:20	TG / #911	385 / 7.5	09:20	09:25	32	29	Pass S eos → N eos (Uphill)	
05 / 06	07/27/21	09:43	TG / #911	385 / 7.5	10:39	10:44	32	32	Pass S eos → N eos (Uphill)	
06 / 07	07/27/21	09:40	MM / #910	385 / 7.5	10:42	10:47	30	30	Pass S eos → N eos (Uphill)	
07 / 08	07/27/21	11:15	MM / #910	385 / 7.5	11:52	11:57	30	30	Pass S eos → N eos (Uphill)	
08 / 09	07/27/21	11:15	TG / #911	385 / 7.5	11:52	11:57	35	32	Pass S eos → N eos (Uphill)	
09 / 10	07/27/21	13:25	MM / #910	385 / 7.5	13:58	14:03	32	32	Pass S eos → N eos (Uphill)	
10 / 11	07/27/21	13:25	TG / #911	385 / 7.5	12:53	12:58	31	31	Pass S eos → IQ (Uphill)	
10 / 11	07/27/21	13:40	TG / #911	385 / 7.5	14:39	14:44	35	35	Pass IQ → N eos (Uphill)	
11 / 12	07/27/21	14:45	MM / #910	385 / 7.5	15:06	15:11	32	30	Pass S eos → N eos (Uphill)	
12 / 13	07/27/21	14:47	TG / #911	385 / 7.5	15:09	15:14	35	32	Pass S eos → N eos (Uphill)	
13 / 14	07/27/21	16:12	MM / #910	385 / 7.5	16:36	16:41	30	30	Pass S eos → N eos (Uphill)	
14 / 15	07/27/21	16:12	TG / #911	385 / 7.5	16:37	16:42	30	30	Pass S eos → N eos (Uphill)	
15 / 16	07/27/21	17:02	TG / #911	385 / 7.5	14:56	15:01	31	30	Pass S eos → IR (Uphill)	
15 / 16	07/27/21	17:12	TG / #911	385 / 7.5	14:56	15:01	30	30	Pass IR → N eos (Uphill)	
01 / 17	07/29/21	08:12	TG / #911	385 / 8.0	13:46	13:51	34	34	Pass S eos → IS	
01 / 17	07/29/21	08:16	TG / #911	385 / 8.0	13:25	13:30	30	30	Pass IS → N eos	
17 / 18	07/29/21	08:12	MM / #910	385 / 8.0	08:38	08:43	30	27	Pass S eos → N eos (Uphill)	
19 / 20	07/29/21	11:12	TG / #911	385 / 8.0	11:50	11:55	30	27	Pass E eos → W eos (Uphill)	
20 / 21	07/29/21	11:12	MM / #910	385 / 8.0	11:59	12:04	32	32	Pass E eos → W eos (Uphill)	

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason Lee

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

WEDGE WELDER SEAM LOG

Seam No	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments	
			Operator / Machine No.	Temp/Speed (°C) / (fpm)	Time		Pressure (psi)			
					Begin	End	Start			End
18 / 22	07/29/21	13:45	TG / #911	385 / 8.0	14:17	14:22	33	33	Pass	S eos → N eos (Uphill)
22 / 23	07/29/21	14:00	MM / #910	385 / 8.0	14:22	14:27	31	30	Pass	S eos → N eos (Uphill)
21 / 24	07/29/21	15:00	MM / #910	385 / 8.0	15:53	16:00	30	30	Pass	W eos → E eos (Downhill)
18 / 21	07/29/21	15:00	TG / #911	385 / 8.0	09:39	09:44	32	31	Pass	S eos → N eos
18 / 20	07/29/21	15:03	TG / #911	385 / 8.0	EXTRUDED SEAM LENGTH					S eos → N eos
21 / 22	07/29/21	16:22	TG / #911	385 / 8.0	10:05	10:10	34	33	Pass	E eos → W eos
21 / 23	07/29/21	16:25	TG / #911	385 / 8.0	10:36	10:41	33	30	Pass	E eos → W eos
24 / 25	07/29/21	16:00	MM / #910	385 / 8.0	16:42	16:47	32	30	Pass	E eos → W eos (Uphill)
23 / 24	07/29/21	17:15	TG / #911	385 / 8.0	10:46	10:51	33	33	Pass	S eos → N eos (Uphill)
23 / 25	07/29/21	17:18	TG / #911	385 / 8.0	10:39	10:44	30	30	Pass	S eos → N eos (Uphill)
23 / 26	07/29/21	17:21	TG / #911	385 / 8.0	13:00	13:05	32	32	Pass	S eos → N eos (Uphill)
25 / 26	07/29/21	16:45	MM / #910	385 / 8.0	13:05	13:10	30	30	Pass	W eos → E eos (Downhill)
23 / 27	08/03/21	08:08	TG / #911	385 / 8.0	08:23	08:28	30	30	Pass	S eos → N eos (Uphill)
27 / 28	08/03/21	08:08	MM / #910	385 / 8.0	08:28	08:33	32	30	Pass	S eos → N eos (Uphill)
29 / 30	08/03/21	08:59	MM / #910	385 / 8.0	09:23	09:28	33	32	Pass	W eos → E eos (Uphill)
30 / 31	08/03/21	09:00	TG / #911	385 / 8.0	12:53	12:58	35	34	Pass	W eos → E eos
28 / 29	08/03/21	08:20	MM / #910	385 / 8.0	10:59	11:04	31	31	Pass	N eos → S eos
28 / 30	08/03/21	08:03	MM / #910	385 / 8.0	EXTRUDED SEAM LENGTH					N eos → S eos
28 / 31	08/03/21	08:06	MM / #910	385 / 8.0	EXTRUDED SEAM LENGTH					N eos → S eos
26 / 27	08/03/21	10:54	TG / #911	385 / 8.0	10:49	10:54	31	30	Pass	W eos → E eos (Downhill)
26 / 28	08/03/21	10:57	TG / #911	385 / 8.0	10:56	11:01	35	35	Pass	W eos → E eos (Downhill)
26 / 29	08/03/21	10:59	TG / #911	385 / 8.0	10:51	10:56	30	30	Pass	W eos → E eos (Downhill)
32 / 33	08/03/21	14:15	MM / #910	385 / 8.0	14:40	14:45	34	32	Pass	W eos → E eos (Uphill)
33 / 34	08/03/21	14:15	TG / #911	385 / 8.0	16:04	16:09	33	33	Pass	W eos → E eos (Uphill)

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Lee

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test				Pass or Fail	Comments
			Operator / Machine No.	Temp./Speed (°C) / (fpm)	Time		Pressure (psi)			
					Begin	End	Start	End		
34 / 35	08/03/21	15:00	TG / #911	385 / 8.0	15:30	15:35	33	32	Pass	W eos → E eos (Uphill)
32 / 36	08/03/21	15:55	TG / #911	385 / 8.0	16:50	16:55	34	32	Pass	W eos → E eos (Uphill)
16 / 32	08/03/21	17:00	TG / #911	385 / 8.0	15:00	15:05	40	39	Pass	N eos → S eos
16 / 33	08/03/21	17:01	TG / #911	385 / 8.0	15:52	15:57	31	31	Pass	N eos → S eos
16 / 34	08/03/21	17:04	TG / #911	385 / 8.0	16:17	16:22	31	31	Pass	N eos → S eos
16 / 35	08/03/21	17:07	TG / #911	385 / 8.0	16:18	16:23	37	37	Pass	N eos → S eos
37 / 38	08/12/21	11:21	RP / #910	385 / 7.0	14:37	14:42	32	32	Pass	N eos → S eos (Uphill)
38 / 39	08/12/21	11:21	TG / #911	385 / 7.0	14:37	14:42	35	34	Pass	N eos → S eos (Uphill)
39 / 40	08/12/21	14:00	RP / #910	385 / 7.0	14:44	14:49	35	35	Pass	N eos → S eos (Uphill)
40 / 41	08/12/21	14:00	TG / #911	385 / 7.0	13:51	13:56	32	32	Pass	N eos → S eos (Uphill)
41 / 42	08/12/21	16:18	RP / #910	385 / 7.0	17:11	17:16	30	30	Pass	N eos → S eos (Uphill)
42 / 43	08/12/21	16:18	TG / #911	385 / 7.0	17:12	17:17	34	34	Pass	N eos → S eos (Uphill)
43 / 44	08/13/21	08:30	BM / #910	385 / 7.5	11:25	11:30	33	32	Pass	N eos → S eos (Uphill)
44 / 45	08/13/21	08:30	TG / #911	385 / 7.5	10:13	10:18	30	30	Pass	N eos → S eos (Uphill)
45 / 46	08/13/21	09:55	BM / #910	385 / 7.5	10:30	10:35	32	32	Pass	N eos → S eos (Uphill)
46 / 47	08/13/21	09:55	TG / #911	385 / 7.5	10:30	10:35	32	32	Pass	N eos → S eos (Uphill)
47 / 48	08/13/21	11:50	BM / #910	385 / 7.5	14:15	14:20	33	33	Pass	N eos → S eos (Uphill)
48 / 49	08/13/21	11:50	TG / #911	385 / 7.5	13:25	13:30	32	32	Pass	N eos → S eos (Uphill)
49 / 50	08/13/21	13:48	TG / #910	385 / 7.5	14:20	14:25	32	31	Pass	N eos → S eos (Uphill)
36 / 50	08/13/21	14:02	BM / #910	385 / 7.5	EXTRUDED SEAM LENGTH					S eos → N eos
36 / 52	08/13/21	15:00	BM / #911	385 / 7.5	15:40	15:45	30	30	Pass	E eos → W eos
50 / 51	08/13/21	14:20	TG / #911	385 / 7.5	07:50	07:55	32	32	Pass	W eos → E eos
50 / 52	08/13/21	15:10	TG / #911	385 / 7.5	EXTRUDED SEAM LENGTH					N eos → S eos (Uphill)
32 / 50	08/13/21	15:55	TG / #911	385 / 7.5	EXTRUDED SEAM LENGTH					N eos → S eos

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Le

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments
			Operator / Machine No.	Temp./Speed (°C)/ (fpm)	Time	Pressure (psi)			
						Begin	End		
51 / 52	08/13/21	15:49	TG / #911	385 / 7.5	EXTRUDED SEAM LENGTH			E eos → W eos	
03 / 37	08/17/21	08:01	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
04 / 37	08/17/21	08:06	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
04 / 38	08/17/21	08:16	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
05 / 38	08/17/21	08:21	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
05 / 39	08/17/21	08:31	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
06 / 39	08/17/21	08:36	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
06 / 40	08/17/21	08:46	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
07 / 40	08/17/21	08:51	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
07 / 41	08/17/21	09:01	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
08 / 41	08/17/21	09:06	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
08 / 42	08/17/21	09:16	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
09 / 42	08/17/21	09:21	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
09 / 43	08/17/21	09:31	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
10 / 43	08/17/21	09:36	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
10 / 44	08/17/21	09:46	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
11 / 44	08/17/21	09:51	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
11 / 45	08/17/21	10:01	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
12 / 45	08/17/21	10:06	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
12 / 46	08/17/21	10:16	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
13 / 46	08/17/21	10:21	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
13 / 47	08/17/21	10:31	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
14 / 47	08/17/21	10:36	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	
14 / 48	08/17/21	10:46	RD / #1		EXTRUDED SEAM LENGTH			E eos → W eos (Butt Seam)	

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Lee

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments		
			Operator / Machine No	Temp / Speed (°C) / (fpm)	Time		Pressure (psi)				
					Begin	End	Start			End	
15 / 48	08/17/21	10:51	RD / #1						E eos → W eos (Butt Seam)		
15 / 49	08/17/21	11:01	RD / #1						E eos → W eos (Butt Seam)		
16 / 49	08/17/21	11:06	RD / #1						E eos → W eos (Butt Seam)		
16 / 50	08/17/21	11:16	RD / #1						E eos → W eos (Butt Seam)		
32 / 50	08/17/21	11:21	RD / #1						E eos → W eos (Butt Seam)		
P-18	08/09/21	11:30	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-17	08/09/21	11:33	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-16	08/09/21	11:36	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-15	08/09/21	11:39	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-14	08/09/21	11:42	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-13	08/09/21	11:45	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-12	08/09/21	11:48	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-11	08/09/21	11:51	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
P-10	08/09/21	11:54	TG / #705	385	7.5	12:45	12:50	30	28	Pass	E eos → W eos (Wrinkle Relief- South Side)
37 / 53	09/23/21	11:40	BM / #910	385	7.0	13:00	13:05	31	31	Pass	S eos → N eos (Downhill)
53 / 54	09/23/21	13:42	RP / #911	385	7.0	14:22	14:27	33	30	Pass	S eos → N eos (Downhill)
54 / 55	09/23/21	13:45	BM / #910	385	7.0	14:23	14:28	32	32	Pass	S eos → N eos (Downhill)
03 / 53	09/23/21	15:50	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
02 / 53	09/23/21	15:48	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
02 / 54	09/23/21	15:46	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
01 / 54	09/23/21	15:44	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
01 / 55	09/23/21	15:42	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
17 / 55	09/23/21	15:40	RP / #911	385	7.0	EXTRUDED SEAM LENGTH				E eos → W eos	
55 / 56	09/24/21	08:00	BM / #910	385	7.0	08:54	08:59	35	35	Pass	S eos → N eos (Downhill)

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason Lee

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yyyy)	Time	Equipment		Air Pressure Test				Pass or Fail	Comments
			Operator / Machine No.	Temp / Speed (°C) / (fpm)	Time		Pressure (psi)			
					Begin	End	Start	End		
56 / 57	09/24/21	08:00	TJW / #911	385 / 7.0	08:40	08:45	34	34	Pass	S eos → N eos (Downhill)
57 / 58	09/24/21	09:01	BM / #910	385 / 7.0	08:37	08:42	35	35	Pass	S eos → N eos (Downhill)
56 / PE-01	09/24/21	09:05	TJW / #911	385 / 7.0	13:19	13:24	34	34	Pass	S eos → N eos
19 / PE-01	09/24/21	09:10	RP / #1		EXTRUDED SEAM LENGTH					S eos → N eos
17 / 56	09/24/21	09:30	RP / #1		EXTRUDED SEAM LENGTH					E eos → W eos
18 / 56	09/24/21	09:50	RP / #1		EXTRUDED SEAM LENGTH					E eos → W eos
18 / PE-01	09/24/21	10:10	RP / #1		EXTRUDED SEAM LENGTH					E eos → W eos
58 / 59	09/24/21	10:33	BM / #910	385 / 7.0	11:04	11:09	31	28	Pass	S eos → N eos (Downhill)
59 / 60	09/24/21	10:33	TJW / #911	385 / 7.0	09:00	09:05	35	35	Pass	S eos → N eos (Downhill)
60 / 61	09/24/21	11:25	TJW / #911	385 / 7.0	11:20	11:25	34	32	Pass	W eos → E eos (Downhill)
57 / PE-01	09/24/21	11:47	TJW / #911	385 / 7.0	EXTRUDED SEAM LENGTH					E eos → W eos
20 / 57	09/24/21	11:42	TJW / #911	385 / 7.0	EXTRUDED SEAM LENGTH					E eos → W eos
20 / 58	09/24/21	11:38	TJW / #911	385 / 7.0	14:13	14:18	34	32	Pass	E eos → W eos
20 / 59	09/24/21	11:34	TJW / #911	385 / 7.0	09:02	09:07	35	32	Pass	E eos → W eos
20 / 60	09/24/21	11:30	TJW / #911	385 / 7.0	09:02	09:07	30	27	Pass	E eos → W eos
19 / 61	09/24/21	11:15	BM / #910	385 / 7.0	12:45	12:50	34	34	Pass	W eos → E eos
61 / 62	09/24/21	14:15	TJW / #911	385 / 7.0	09:14	09:19	34	34	Pass	W eos → E eos
62 / 63	09/24/21	14:45	TJW / #911	385 / 7.0	10:40	10:45	38	38	Pass	W eos → E eos
60 / 64	09/24/21	15:36	BM / #910	385 / 7.0	08:42	08:47	30	30	Pass	S eos → N eos
64 / 65	09/24/21	15:36	TJW / #911	385 / 7.0	16:28	16:33	35	35	Pass	S eos → N eos
65 / 66	09/24/21	16:20	BM / #910	385 / 7.0	08:40	08:45	33	33	Pass	S eos → N eos
66 / 67	09/24/21	16:20	TJW / #911	385 / 7.0	08:11	08:16	35	34	Pass	S eos → N eos
60 / 62	09/24/21	16:50	TJW / #911	385 / 7.0	08:45	08:50	30	27	Pass	S eos → N eos
60 / 63	09/24/21	16:53	TJW / #911	385 / 7.0	EXTRUDED SEAM LENGTH					S eos → N eos

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Le

WEDGE WELDER SEAM LOG

Seam No	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments	
			Operator / Machine No.	Temp./Speed (°C)/(fpm)	Time		Pressure (psi)			
					Begin	End	Start			End
60/64	09/24/21	16:56	TJW / #911	385 / 7.0	08:42	08:47	30	30	Pass S eos → N eos	
63/64	09/24/21	17:05	TJW / #911	385 / 7.0	EXTRUDED SEAM LENGTH				Pass S eos → N eos	
63/65	09/24/21	17:08	TJW / #911	385 / 7.0	08:13	08:18	33	30	Pass S eos → N eos	
63/66	09/24/21	17:11	TJW / #911	385 / 7.0	08:13	08:18	30	28	Pass S eos → N eos	
63/67	09/24/21	17:14	TJW / #911	385 / 7.0	08:11	08:16	30	28	Pass S eos → N eos	
63/68	09/25/21	08:00	TJW / #911	385 / 7.0	08:15	08:20	30	30	Pass S eos → N eos	
67/68	09/25/21	07:50	TJW / #911	385 / 7.0	14:30	14:35	30	30	Pass S eos → N eos	

2.5

Extrusion Welder Qualification Data

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Lee

EXTRUSION WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Preheat Temp. (°F)	Peel Strength (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Barrel Temp. (°F)					
01	08/04/21	07:20	18	RD / #10	500	500	68	143	Pass	50mm Microdrum
							71	160	Pass	
							69		Pass	
02	08/04/21	12:45	23	RD / #10	500	500	70	152	Pass	
							65	147	Pass	
							69		Pass	
03	08/05/21	12:45	20	RD / #10	500	500	73	155	Pass	
							69	149	Pass	
							68		Pass	
04	08/09/21	13:00	20	RD / #10	500	500	68	144	Pass	
							75	159	Pass	
							71		Pass	
05	08/11/21	12:30	26	RP / #10	500	500	68	139	Pass	
							66	137	Pass	
							70		Pass	
06	08/16/21	08:00	16	RD / #1	510	500	109	139	Pass	
							155	141	Pass	
							124		Pass	
07	09/23/21	13:00	25	RP / #1	510	510	71	145	Pass	
							65	147	Pass	
							68		Pass	
08	09/24/21	12:30	25	RP / #1	510	510	75	138	Pass	
							70	141	Pass	
							67		Pass	

2.6

Extrusion Welder Seam Log

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason Le

EXTRUSION WELDER SEAM LOG

Defect Number: 1

Defect No.	Weld Date	Type	Seam Panel	Location	Oper # Equip #	V - Test	AM / PM	Comments
A	08/04/21	P	01 / 02	40.0m S of Neos	RD / #10	OK	PM	IO
B	08/04/21	P	02 / 03	40.0m S of Neos	RD / #10	OK	PM	BO
C	08/04/21	Bd	P-08	2.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
D	08/04/21	Bd	P-08	5.0m N, 5.0m W of SE corner	RD / #10	OK	PM	Damage by Wind
E	08/04/21	Bd	P-08	5.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
F	08/04/21	Bd	P-08	3.5m N, 5.0m W of SE corner	RD / #10	OK	PM	Damage by Wind
G	08/04/21	Bd	P-08	8.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
H	08/04/21	Bd	P-08	6.5m N, 5.0m W of SE corner	RD / #10	OK	PM	Damage by Wind
J	08/04/21	Bd	P-08	11.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
K	08/04/21	Bd	P-08	9.5m N, 5.0m W of SE corner	RD / #10	OK	PM	Damage by Wind
L	08/04/21	Bd	P-08	14.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
M	08/04/21	Bd	P-08	12.5m N, 5.0m W of SE corner	RD / #10	OK	PM	Damage by Wind
N	08/04/21	Bd	P-08	17.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
P	08/04/21	Bd	P-08	20.0m N, 2.5m W of SE corner	RD / #10	OK	PM	Damage by Wind
Q	08/04/21	Bd	10 / 11	31.3m N of Seos	RD / #10	OK	PM	IO
R	08/04/21	Bd	15 / 16	1.2m S of Neos	RD / #10	OK	PM	IO
S	08/04/21	Bd	01 / 17	9.0m N of Seos	RD / #10	OK	PM	IO
T	08/04/21	P	18 / 21 / 22	Intersection	RD / #10	OK	PM	WS
W	08/04/21	T	18 / 20 / 21	Intersection	RD / #10	OK	AM	
X	08/04/21	T	21 / 22 / 23	Intersection	RD / #10	OK	AM	
Y	08/04/21	P	21 / 23 / 24	Intersection	RD / #10	OK	AM	WS
Z	08/04/21	P	23 / 24 / 25	Intersection	RD / #10	OK	AM	WS

P-xx - PANEL INSTALLED
 DSF or DSX - DESTRUCTIVE TEST
 P - PATCH
 B - PIPE BOOT
 D - INSTALLATION DAMAGE
 BO - FUSION WELDER BURN
 FTS - FIELD TEST STRIP
 WS - WELDER START/STOP
 FSL - FAILED SEAM LENGTH
 Bd - EXTRUSION BEAD

EX-xx - EXISTING PANEL
 EXT-xx- PANEL EXTENSION
 CS - CAP STRIP
 MD - MANUFACTURE DAMAGE
 CD - CONTRACTOR DAMAGE
 PT - PRESSURE TEST CUT
 T - THREE PANEL INTERSECTION
 IO - INSUFFICIENT OVERLAP
 WR - WRINKLE RELIEF
 ESL - EXTRUDED SEAM LENGTH



103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Le

EXTRUSION WELDER SEAM LOG

Defect Number: 2

Defect No	Weld Date	Type	Seam Panel	Location	Oper # Equip #	V - Test	AM / PM	Comments
A	08/04/21	T	23 / 25 / 26	Intersection	RD / #10	OK	AM	
B	08/04/21	P	23 / 26 / 27	Intersection	RD / #10	OK	AM	WS
C	08/04/21	T	26 / 27 / 28	Intersection	RD / #10	OK	AM	
D	08/04/21	P	P-28	0.5m S, 1.0m E of NW corner	RD / #10	OK	AM	WR
E	08/04/21	P	26 / 28 / 29	Intersection	RD / #10	OK	AM	WS
F	08/04/21	T	28 / 29 / 30	Intersection	RD / #10	OK	AM	
G	08/04/21	T	28 / 30 / 31	Intersection	RD / #10	OK	AM	
H	08/04/21	P	26 / 28	1.6m E of W eos	RD / #10	OK	AM	WS
J	08/04/21	B	P-34	1.5m S, 2.8m W of NE corner	RD / #10	OK	AM	Ø1.2m Vertical Pipe Boot
K	08/05/21	P	P-32	1.5m S, 20.8m E of NW corner	RD / #10	OK	PM	WR
L	08/05/21	P	16 / 32 / 33	Intersection	RD / #10	OK	PM	
M	08/05/21	T	16 / 34 / 35	Intersection	RD / #10	OK	PM	
N	08/05/21	P	16 / 33 / 34	Intersection	RD / #10	OK	PM	BO
P	08/09/21	P	18 / 22	1.0m N of S Swale Center line	RD / #10	OK	PM	Seam on seam intersections for wrinkle relief purpose on South slope
Q	08/09/21	P	17 / 18	1.0m N of S Swale Center Line	RD / #10	OK	PM	
R	08/09/21	P	01 / 17	1.0m N of S Swale Center Line	RD / #10	OK	PM	
S	08/09/21	P	01 / 02	1.0m N of S Swale Center Line	RD / #10	OK	PM	
T	08/09/21	P	02 / 03	1.0m N of S Swale Center Line	RD / #10	OK	PM	
W	08/09/21	P	03 / 04	1.0m N of S Swale Center Line	RD / #10	OK	PM	
X	08/09/21	P	04 / 05	1.0m N of S Swale Center Line	RD / #10	OK	PM	
Y	08/09/21	P	05 / 06	1.0m N of S Swale Center Line	RD / #10	OK	PM	
Z	08/09/21	P	P-05	3.4m W of 2Y	RD / #10	OK	PM	BO

P-xx - PANEL INSTALLED
DSF or DSX - DESTRUCTIVE TEST
P - PATCH
B - NPE BOOT
D - INSTALLATION DAMAGE
BO - FUSION WELDER BURN
FIS - FIELD TEST STRIP
WS - WELDER START/STOP
FSL - FAILED SEAM LENGTH
Bd - EXTRUSION BEAD

EX-xx - EXISTING PANEL
EXT-xx - PANEL EXTENSION
CS - CAP STRIP
MD - MANUFACTURE DAMAGE
CD - CONTRACTOR DAMAGE
PT - PRESSURE TEST CUT
T - THREE PANEL INTERSECTION
IO - INSUFFICIENT OVERLAP
WR - WRINKLE RELIEF
ESL - EXTRUDED SEAM LENGTH

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason Le

EXTRUSION WELDER SEAM LOG

Defect Number: 3

Defect No.	Weld Date	Type	Seam Panel	Location	Oper.# Equip.#	V - Test	AM / PM	Comments
A	08/09/21	P	06 / 07	1.0m N of S Swale Center Line	RD / #10	OK	PM	WR
B	08/09/21	P	07 / 08	1.0m N of S Swale Center Line	RD / #10	OK	PM	WR
C	08/09/21	P	P-08	1.6m W of 3B	RD / #10	OK	PM	D
D	08/09/21	P	08 / 09	1.0m N of S Swale Center Line	RD / #10	OK	PM	WR
E	08/09/21	P	P-09	4.5m W of 3D	RD / #10	OK	PM	D
F	08/11/21	P	15 / 16	2.0m N of S eos	RD / #10	OK	PM	WR
G	08/17/21	P	38 / 39	15.2m S of N eos	RD / #10	OK	AM	BO
H	08/17/21	P	39 / 40	1.5m S of N eos	RD / #10	OK	AM	BO
J	08/17/21	P	42 / 43	1.0m S of N eos	RD / #10	OK	AM	BO
K	08/17/21	P	45 / 46	1.0m S of N eos	RD / #10	OK	AM	BO
L	08/16/21	P	47 / 48	15.5m N of S eos	RD / #1	OK	AM	IO
M	08/16/21	P	47 / 48	18.6m N of S eos	RD / #1	OK	AM	IO
N	08/16/21	T	03 / 04 / 37	Intersection	RD / #1	OK	AM	
P	08/16/21	T	04 / 37 / 38	Intersection	RD / #1	OK	AM	
Q	08/16/21	T	04 / 05 / 38	Intersection	RD / #1	OK	AM	
R	08/16/21	P	05 / 38 / 39	Intersection	RD / #1	OK	AM	WS
S	08/16/21	T	05 / 06 / 39	Intersection	RD / #1	OK	AM	
T	08/16/21	T	06 / 39 / 40	Intersection	RD / #1	OK	AM	
W	08/16/21	T	06 / 07 / 40	Intersection	RD / #1	OK	AM	
X	08/16/21	T	07 / 40 / 41	Intersection	RD / #1	OK	AM	
Y	08/16/21	P	07 / 08 / 41	Intersection	RD / #1	OK	AM	WS
Z	08/16/21	P	08 / 41 / 42	Intersection	RD / #1	OK	AM	WS

P-xx - PANEL INSTALLED
 DSF or DSX - DESTRUCTIVE TEST
 P - PATCH
 B - PIPE BOOT
 D - INSTALLATION DAMAGE
 BO - FUSION WELDER BURN
 FTS - FIELD TEST STRIP
 WS - WELDER START/STOP
 FSL - FAILED SEAM LENGTH
 Bd - EXTRUSION BEAD

EX-xx - EXISTING PANEL
 EXT-xx- PANEL EXTENSION
 CS - CAP STRIP
 MD - MANUFACTURE DAMAGE
 CD - CONTRACTOR DAMAGE
 PT - PRESSURE TEST CUT
 T - THREE PANEL INTERSECTION
 IO - INSUFFICIENT OVERLAP
 WR - WRINKLE RELIEF
 ESL - EXTRUDED SEAM LENGTH



ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap
QC Inspector: Jason Le

EXTRUSION WELDER SEAM LOG

Defect Number: 4

Defect No.	Weld Date	Type	Seam Panel	Location	Oper.# Equip.#	V - Test	AM/ PM	Comments
A	08/16/21	P	08 / 09 / 21	Intersection	RD / #1	OK	AM	WS
B	08/16/21	T	09 / 42 / 43	Intersection	RD / #1	OK	AM	
C	08/16/21	T	09 / 10 / 43	Intersection	RD / #1	OK	AM	
D	08/16/21	T	10 / 43 / 44	Intersection	RD / #1	OK	AM	
E	08/16/21	T	10 / 11 / 44	Intersection	RD / #1	OK	AM	
F	08/16/21	T	11 / 44 / 45	Intersection	RD / #1	OK	AM	
G	08/16/21	T	11 / 12 / 45	Intersection	RD / #1	OK	AM	
H	08/16/21	T	12 / 45 / 46	Intersection	RD / #1	OK	AM	
J	08/16/21	T	12 / 13 / 46	Intersection	RD / #1	OK	PM	
K	08/16/21	T	13 / 46 / 47	Intersection	RD / #1	OK	PM	
L	08/16/21	T	13 / 14 / 47	Intersection	RD / #1	OK	PM	
M	08/16/21	T	14 / 47 / 48	Intersection	RD / #1	OK	PM	
N	08/16/21	T	14 / 15 / 48	Intersection	RD / #1	OK	PM	
P	08/16/21	T	15 / 48 / 49	Intersection	RD / #1	OK	PM	
Q	08/16/21	T	15 / 16 / 49	Intersection	RD / #1	OK	PM	
R	08/16/21	T	16 / 49 / 50	Intersection	RD / #1	OK	PM	
S	08/16/21	T	16 / 32 / 50	Intersection	RD / #1	OK	PM	
T	08/16/21	P	32 / 36 / 50	Intersection	RD / #1	OK	PM	WS
W	08/16/21	P	32 / 36	2.0m W of E eos	RD / #1	OK	PM	WR
X	08/16/21	P	36 / 50 / 52	Intersection	RD / #1	OK	PM	WS
Y	08/16/21	P	50 / 51 / 52	Intersection	RD / #1	OK	PM	WS
Z	08/16/21	P	P-50	3.0m E of 4T	RD / #1	OK	PM	WR

P-xx - PANEL INSTALLED
DSF or DSX - DESTRUCTIVE TEST
P - PATCH
B - PIPE BOOT
D - INSTALLATION DAMAGE
BO - FUSION WELDER BURN
FTS - FIELD TEST STRIP
WS - WELDER START/STOP
FSL - FAILED SEAM LENGTH
Bd - EXTRUSION BEAD

EX-xx - EXISTING PANEL
EXT-xx- PANEL EXTENSION
CS - CAP STRIP
MD - MANUFACTURE DAMAGE
CD - CONTRACTOR DAMAGE
PT - PRESSURE TEST CUT
T - THREE PANEL INTERSECTION
IO - INSUFFICIENT OVERLAP
WR - WRINKLE RELIEF
ESL - EXTRUDED SEAM LENGTH

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap
 QC Inspector: Jason Le

EXTRUSION WELDER SEAM LOG

Defect Number: 5

Defect No.	Weld Date	Type	Seam Panel	Location	Oper # Equip #	V - Test	AM / PM	Comments
A	08/16/21	P	36 / 50	1.0m N of 4T	RD / #1	OK	PM	BO
B	08/16/21	P	36 / 50	2.0m N of 4T	RD / #1	OK	PM	BO
C	08/16/21	P	50 / 52	2.0m S of 4Y	RD / #1	OK	PM	BO
D	08/16/21	P	50 / 52	1.2m N of 4X	RD / #1	OK	PM	BO
E	08/16/21	P	32 / 50	2.0m S of 4T	RD / #1	OK	PM	BO
F	08/16/21	Bd	33 / 34	1.5m S of Neos	RD / #1	OK	PM	IO (3.0m Bead)
G	09/24/21	P	03 / 37 / 53	Intersection	RP / #1	OK	PM	WS
H	09/24/21	T	02 / 03 / 53	Intersection	RP / #1	OK	PM	
J	09/24/21	T	02 / 53 / 54	Intersection	RP / #1	OK	PM	
K	09/24/21	T	01 / 02 / 54	Intersection	RP / #1	OK	PM	
L	09/24/21	P	01 / 54 / 55	Intersection	RP / #1	OK	PM	IO
M	09/24/21	T	01 / 17 / 55	Intersection	RP / #1	OK	PM	
N	09/24/21	P	17 / 55 / 56	Intersection	RP / #1	OK	PM	WS
P	09/24/21	T	17 / 18 / 56	Intersection	RP / #1	OK	PM	
Q	09/24/21	P	18 / 56 / PE-01	Intersection	RP / #1	OK	PM	BO
R	09/24/21	P	18 / 19 / 20 / PE-01	Intersection	RP / #1	OK	PM	Multi-Panel Intersection
S	09/24/21	P	19 / 56 / 57 / PE-01	Intersection	RP / #1	OK	PM	Multi-Panel Intersection
T	09/24/21	T	19 / 57 / 58	Intersection	RP / #1	OK	PM	
W	09/24/21	T	19 / 58 / 59	Intersection	RP / #1	OK	PM	
X	09/24/21	T	19 / 59 / 60	Intersection	RP / #1	OK	PM	
Y	09/24/21	P	19 / 60 / 61	Intersection	RP / #1	OK	PM	IO
Z	09/25/21	P	60 / 61 / 62	Intersection	DL / #1	OK	AM	WS

P-xx - PANEL INSTALLED
 DSP or DSX - DESTRUCTIVE TEST
 P - PATCH
 B - PIPE BOOT
 D - INSTALLATION DAMAGE
 BO - FUSION WELDER BURN
 FTS - FIELD TEST STRIP
 WS - WELDER START/STOP
 FSL - FAILED SEAM LENGTH
 Bd - EXTRUSION BEAD

EX-xx - EXISTING PANEL
 EXT-xx- PANEL EXTENSION
 CS - CAP STRIP
 MD - MANUFACTURE DAMAGE
 CD - CONTRACTOR DAMAGE
 PT - PRESSURE TEST CUT
 T - THREE PANEL INTERSECTION
 IO - INSUFFICIENT OVERLAP
 WR - WRINKLE RELIEF
 ESL - EXTRUDED SEAM LENGTH

3.1

Panel Log

Project: Harrietsfield C & D Landfill
 Description: Cell Cap Extension
 QC Inspector: Jason Ie

Project: Harrietsfield C & D Landfill
 Description: Cell Cap Extension
 QC Inspector: Jason Ie

ATLANTIC POLY LINERS INC.

103 Park Road
 Elmsdale, NS
 B2S 2J3

PANEL LOG

Panel No.	Roll No.	North Side (m)	South Side (m)	East Side (m)	West Side (m)	Area (m ²)	Cumulative Area (m ²)	Comments
01	890007	26.7	24.7	7.0	7.0	179.9	180	50mil Microdrain Geomembrane (AGRU)
02	890007	28.6	26.7	7.0	7.0	193.6	373	50mil Microdrain Geomembrane (AGRU)
03	890007	30.7	28.6	7.0	7.0	207.6	581	50mil Microdrain Geomembrane (AGRU)
04	890007	32.1	30.7	7.0	7.1	221.4	802	50mil Microdrain Geomembrane (AGRU)
05	890007	30.5	27.2	7.0	7.4	202.0	1,004	50mil Microdrain Geomembrane (AGRU)
06	890015	4.9	4.9	7.0	7.0	34.3	1,039	50mil Microdrain Geomembrane (AGRU)
07	890015	40.9	35.4	7.0	7.7	267.1	1,306	50mil Microdrain Geomembrane (AGRU)
08	890015	29.8	24.4	7.0	9.6	189.7	1,495	50mil Microdrain Geomembrane (AGRU)
09	890015	16.5	16.5	7.0	7.0	115.5	1,611	50mil Microdrain Geomembrane (AGRU)
10	149856	49.9	46.3	7.0	6.7 / 5.3	354.2	1,965	SOLMAX
11	149856	44.1	49.9	7.0	9.0	329.0	2,294	SOLMAX
12	D2V141006N	42.7	44.1	6.0	6.2	260.4	2,555	60mil Textured Geomembrane(ATARFIL)
13	D2V141006N	40.4	42.7	6.0	6.4	249.3	2,804	60mil Textured Geomembrane(ATARFIL)
14	D2V141006N	34.3	40.4	6.0	8.6	224.1	3,028	60mil Textured Geomembrane(ATARFIL)
15	149856	30.9	29.3	7.0	7.8	210.7	3,239	SOLMAX
16	149856	5.0	5.0	7.0	7.0	35.0	3,274	SOLMAX
17	DIV140027N	34.1	35.9	6.0	6.8	210.0	3,484	60mil Textured Geomembrane(ATARFIL)
18	DIV140027N	32.1	34.1	6.0	6.8	198.6	3,682	60mil Textured Geomembrane(ATARFIL)
19	DIV140027N	31.2	32.1	6.0	6.8	189.9	3,872	60mil Textured Geomembrane(ATARFIL)
20	DIV140027N	29.8	31.2	6.0	6.8	183.0	4,055	60mil Textured Geomembrane(ATARFIL)
21	DIV140027N	19.3	20.7	6.0	6.8	120.0	4,175	60mil Textured Geomembrane(ATARFIL)
22	D2V141006N	9.8	9.1	6.0	6.0	56.7	4,232	60mil Textured Geomembrane(ATARFIL)
23	DIV140043N	28.0	29.1	6.0	6.8	171.3	4,403	60mil Textured Geomembrane(ATARFIL)
24	890005	7.0	7.0	7.5	7.5	52.5	4,456	50mil Microdrain Geomembrane (AGRU)
25	890005	7.0	7.0	7.0	7.5	50.8	4,506	50mil Microdrain Geomembrane (AGRU)

3.2

Destructive Test Log

3.3

Wedge Welder Qualification Data

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap Extension
 QC Inspector: Jason I.e

WEDGE WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp. (°C)	Equipment		Inner Tk. Peel (lb)	Outer Tk. Peel (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Temp./Speed (°C) / (fpm)					
01	09/29/21	13:30	13	TJW / #910	385 / 7.5	88	106	139	Pass	50mil HDPE MICRODRAIN
						96	108	135	Pass	S-S
						98	106		Pass	
02	09/30/21	07:25	11	TJW / #910	385 / 7.5	87	112	155	Pass	50mil HDPE MICRODRAIN
						98	114	161	Pass	S-S
						95	96		Pass	
03	09/30/21	08:10	11	BM / #921	385 / 7.0	125	128	170	Pass	60mil HDPE
						98	109	169	Pass	S-S
						92	96		Pass	
04	09/30/21	13:00	11	TJW / #701	385 / 7.0	120	124	168	Pass	60mil HDPE
						118	121	161	Pass	S-S
						108	120		Pass	
05	09/30/21	13:00	11	BM / #921	385 / 7.0	115	125	171	Pass	60mil HDPE
						123	127	165	Pass	S-S
						119	120		Pass	
06	10/01/21	07:10	10	TJW / #701	385 / 7.0	122	108	168	Pass	60mil HDPE
						101	109	175	Pass	S-S
						104	112		Pass	
07	10/01/21	07:15	10	BM / #921	385 / 7.0	141	138	173	Pass	60mil HDPE
						130	129	171	Pass	S-S
						135	131		Pass	

3.4

Wedge Welder Seam Log

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap Extension
 QC Inspector: Jason Le

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure / Test			Pass or Fail	Comments	
			Operator / Machine No.	Temp. / Speed (°C) / (fpm)	Time		Pressure (psi)			
					Begin	End	Start			End
01 / 02	09/29/21	14:14	TJW / #910	385 / 7.5	15:25	15:30	34	33	Pass	E eos → W eos
02 / 03	09/29/21	14:30	TJW / #910	385 / 7.5	15:25	15:30	33	31	Pass	E eos → W eos
03 / 04	09/29/21	14:45	TJW / #910	385 / 7.5	15:25	15:30	34	34	Pass	E eos → W eos
05 / 06	09/29/21	16:04	TJW / #910	385 / 7.5	EXTRUSION SEAM LENGTH:					S eos → N eos
04 / 05	09/29/21	16:16	TJW / #910	385 / 7.5	14:10	14:15	30	28	Pass	E eos → W eos
04 / 06	09/29/21	16:14	TJW / #910	385 / 7.5	14:10	14:15	33	30	Pass	E eos → W eos
05 / 07	09/29/21	16:39	TJW / #910	385 / 7.5	14:07	14:12	30	30	Pass	E eos → W eos
06 / 07	09/29/21	16:37	TJW / #910	385 / 7.5	14:07	14:12	30	30	Pass	E eos → W eos
07 / 08	09/30/21	08:26	TJW / #910	385 / 7.5	14:10	14:15	30	30	Pass	E eos → W eos
07 / 09	09/30/21	08:18	TJW / #910	385 / 7.5	14:10	14:15	31	30	Pass	E eos → W eos
08 / 10	09/30/21	08:36	BM / #921	385 / 7.0	10:25	10:30	33	33	Pass	E eos → W eos
09 / 10	09/30/21	08:30	BM / #921	385 / 7.0	10:25	10:30	33	33	Pass	E eos → W eos
10 / 11	09/30/21	09:04	TJW / #921	385 / 7.0	14:05	14:10	30	30	Pass	E eos → W eos
11 / 12	09/30/21	09:27	TJW / #701	385 / 7.0	09:56	10:01	30	30	Pass	E eos → 1A
12 / 13	09/30/21	09:37	BM / #921	385 / 7.0	10:35	10:40	31	31	Pass	E eos → W eos
11 / 12	09/30/21	09:12	TJW / #701	385 / 7.0	10:35	10:40	40	39	Pass	1A → W eos
13 / 14	09/30/21	10:33	TJW / #701	385 / 7.0	12:35	12:40	38	38	Pass	E eos → W eos
14 / 15	09/30/21	11:32	TJW / #701	385 / 7.0	12:45	12:50	35	34	Pass	E eos → W eos
14 / 16	09/30/21	11:30	TJW / #701	385 / 7.0	12:45	12:50	35	34	Pass	E eos → W eos
15 / 16	09/30/21	11:06	TJW / #701	385 / 6.0	11:23	11:28	34	33	Pass	S eos → N eos
15 / 17	09/30/21	14:25	TJW / #701	385 / 7.0	14:53	14:58	38	37	Pass	E eos → W eos
16 / 17	09/30/21	14:23	TJW / #701	385 / 7.0	14:53	14:58	38	37	Pass	E eos → W eos
17 / 18	09/30/21	14:25	BM / #921	385 / 7.5	14:53	14:58	34	34	Pass	E eos → W eos
18 / 19	09/30/21	14:50	BM / #921	385 / 7.5	16:05	16:10	35	32	Pass	E eos → W eos

ATLANTIC POLY LINERS INC.
 103 Park Road
 Elmsdale, NS
 B2S 2L3

Project: Harrietsfield C & D Landfill
 Description: Cell Cap Extension
 QC Inspector: Jason Lee

WEDGE WELDER SEAM LOG

Seam No.	Seam Date (mm/dd/yy)	Time	Equipment		Air Pressure Test			Pass or Fail	Comments	
			Operator/ Machine No	Temp/Speed (°C)/(fpm)	Begin	End	Start			Eird
19/20	09/30/21	14:50	TJW / #701	385 / 7.5	16:05	16:10	40	40	Pass	E eos → W eos
21/22	09/30/21	16:17	TJW / #701	385 / 7.5	14:01	14:06	30	30	Pass	S eos → N eos
20/21	09/30/21	16:33	TJW / #701	385 / 7.5	16:45	16:50	40	37	Pass	E eos → W eos
20/22	09/30/21	16:30	TJW / #701	385 / 7.5	16:45	16:50	40	37	Pass	E eos → W eos
08/09	10/01/21	08:18	TJW / #701	385 / 7.5	EXTRUSION/SEAM LENGTH				N eos → S eos	
21/23	10/01/21	07:30	BM / #921	385 / 7.0	08:41	08:46	32	32	Pass	E eos → W eos
22/23	10/01/21	07:25	BM / #921	385 / 7.0	08:41	08:46	32	32	Pass	E eos → W eos
24/25	10/01/21	07:48	TJW / #701	385 / 7.0	07:58	08:03	33	33	Pass	S eos → N eos
25/26	10/01/21	07:56	BM / #921	385 / 7.0	07:58	08:03	33	31	Pass	S eos → N eos
26/27	10/01/21	07:58	BM / #921	385 / 7.0	08:05	08:10	31	30	Pass	S eos → N eos
23/24	10/01/21	08:28	TJW / #701	385 / 7.0	14:05	14:10	30	28	Pass	E eos → W eos
23/25	10/01/21	08:25	TJW / #701	385 / 7.0	14:05	14:10	30	28	Pass	E eos → W eos
23/26	10/01/21	08:22	TJW / #701	385 / 7.0	14:05	14:10	30	28	Pass	E eos → W eos
23/27	10/01/21	08:19	TJW / #701	385 / 7.0	14:05	14:10	30	28	Pass	E eos → W eos

ATLANTIC POLY LINERS INC.

103 Park Road
Elmsdale, NS
B2S 2L3

Project: Harrietsfield C & D Landfill
Description: Cell Cap Extension
QC Inspector: Jason Le

EXTRUSION WELDER QUALIFICATION DATA

Trial No.	Date (mm/dd/yy)	Time	Air Temp (°C)	Equipment			Peel Strength (lb)	Shear Strength (lb)	Pass or Fail	Comments
				Operator / Machine No.	Barrel Temp (°F)	Preheat Temp (°F)				
01	10/01/21	09:15	10	RP / #1	510	510	115	135	Pass	
							118	128	Pass	
							103		Pass	
02	10/01/21	12:45	16	RP / #1	510	510	111	131	Pass	
							107	138	Pass	
							115		Pass	

4.1

Bill of Lading



PACKING SLIP

NUMBER: VS-000001582

DATE: 14-Oct-2020

SOLD TO:

Atlantic Poly Liners, Inc.
103 PARK ROAD
ELMSDALE,NS,B2S 2L3
Canada

SHIP TO:

ATLANTIC POLY LINER
C/O ENVISOROIL LIMITED
927 ROCKY LAKE DRIVE QUARRY ENTRANCE

ASK AT SCALEHOUSE FOR FURTHER SITE DIRECTIONS

BEDFORD,NS,B4A 3Z2
Canada

CUSTOMER REFERENCE		SOLMAX ORDER	PROJECT NAME		FREIGHT MODE			
APLIPO#2009		SO-000819	Envirosoil		B-TRAIN			
PART DESCRIPTION	ROLL NUMBER	CONTAINER	DIMENSIONS		SURFACE	U/M	WEIGHT (LBS)	WEIGHT (KG)
			WIDTH	LENGTH	QUANTITY			
1042792, HDPE 1.50 mm Black Textured								
	1001-149852	N/A	6.80	164.60	1,119.28	SQMT	4,024.00	1,825.26
	1001-149853	N/A	6.80	164.60	1,119.28	SQMT	4,014.00	1,820.72
	1001-149854	N/A	6.80	164.60	1,119.28	SQMT	3,970.00	1,800.76
	1001-149855	N/A	6.80	164.60	1,119.28	SQMT	3,955.00	1,793.96
	1001-149856	N/A	6.80	164.60	1,119.28	SQMT	3,957.00	1,794.86
	1001-149857	N/A	6.80	164.60	1,119.28	SQMT	3,971.00	1,801.22
	1001-149858	N/A	6.80	164.60	1,119.28	SQMT	3,973.00	1,802.12
	1001-149859	N/A	6.80	164.60	1,119.28	SQMT	3,969.00	1,800.31
	1001-149860	N/A	6.80	164.60	1,119.28	SQMT	4,015.00	1,821.17
	1001-149861	N/A	6.80	164.60	1,119.28	SQMT	3,932.00	1,783.52
	1001-149862	N/A	6.80	164.60	1,119.28	SQMT	3,931.00	1,783.07
	1001-149864	N/A	6.80	164.60	1,119.28	SQMT	3,930.00	1,782.62
	1001-149865	N/A	6.80	164.60	1,119.28	SQMT	3,953.00	1,793.05
TOTAL PART CODE:			13	Pieces	14,550.64	SQMT	51,594.00	23,402.64
Net Weight							50,723.00	23,007.56

SOLMAX INTERNATIONAL INC.

2801 RTE MARIE-VICTORIN
VARENNES CAN

MF-LOG-02
REV 03/2007-06-01

SOLD TO:
Atlantic Poly Liners, Inc.

 103 PARK ROAD
 ELMSDALE, NS, B2S 2L3
 Canada

SHIP TO:
ATLANTIC POLY LINER

 C/O ENVISOROIL LIMITED
 927 ROCKY LAKE DRIVE QUARRY ENTRANCE

ASK AT SCALEHOUSE FOR FURTHER SITE DIRECTIONS

 BEDFORD, NS, B4A 3Z2
 Canada

NOTICE: Every roll must be individually unloaded with two (2) slings to prevent any risk of injury to the operator or equipment.

Dimensions May Vary +/- 1%

	PIECES	WEIGHT (LBS)	WEIGHT (KG)
Gross of Material	13	51,594.00	23,402.64
Gross		51,594.00	23,402.64

SOLMAX INTERNATIONAL INC.

 2801 RTE MARIE-VICTORIN
 VARENNES CAN

 MF-LOG-02
 REV.03/2007-06-01



Harrietsfield C&D LF
 Watershed Geosynthetics
 AECOM c/o Nova Scotia Lands Inc
 Halifax, NS B3V1B2

SC#: 0000854

FG-HDMCDR050BBBEG	22 rolls @ 500	253,000 ft. ²	6858

Roll #	Width ft.	English		Area ft. ²	Item	Count	Weight lbs.	Resin Lot #	MQC
		Length ft.							
GTB0057730014	23	500	11,500	11,500	FG-HDMCDR050BBBEG	1	3838	PMFB21380	6858
GTB0058500156	23	500	11,500	11,500	FG-HDMCDR050BBBEG	2	3992	PMCB20420	6858
GTB0058500157	23	500	11,500	11,500	FG-HDMCDR050BBBEG	3	3880	PMCB20420	6858
GTB0058500158	23	500	11,500	11,500	FG-HDMCDR050BBBEG	4	3900	PMCB20420	6858
GTB0058500159	23	500	11,500	11,500	FG-HDMCDR050BBBEG	5	3886	PMCB20420	6858
GTB0058500160	23	500	11,500	11,500	FG-HDMCDR050BBBEG	6	4120	PMCB20420	6858
GTB0058500161	23	500	11,500	11,500	FG-HDMCDR050BBBEG	7	4098	PMCB20420	6858
GTB0061890003	23	500	11,500	11,500	FG-HDMCDR050BBBEG	8	4017	PMFB21380	6858
GTB0061890004	23	500	11,500	11,500	FG-HDMCDR050BBBEG	9	3994	PMFB21380	6858
GTB0061890005	23	500	11,500	11,500	FG-HDMCDR050BBBEG	10	3994	PMFB21380	6858
GTB0061890006	23	500	11,500	11,500	FG-HDMCDR050BBBEG	11	3934	PMFB21380	6858
GTB0061890007	23	500	11,500	11,500	FG-HDMCDR050BBBEG	12	3924	PMFB21380	6858
GTB0061890008	23	500	11,500	11,500	FG-HDMCDR050BBBEG	13	3900	PMFB21380	6858
GTB0061890009	23	500	11,500	11,500	FG-HDMCDR050BBBEG	14	3950	PMFB21380	6858
GTB0061890010	23	500	11,500	11,500	FG-HDMCDR050BBBEG	15	3978	PMFB21380	6858
GTB0061890011	23	500	11,500	11,500	FG-HDMCDR050BBBEG	16	3870	PMFB21380	6858
GTB0061890012	23	500	11,500	11,500	FG-HDMCDR050BBBEG	17	3876	PMFB21380	6858
GTB0061890013	23	500	11,500	11,500	FG-HDMCDR050BBBEG	18	3684	PMFB21380	6858
GTB0061890014	23	500	11,500	11,500	FG-HDMCDR050BBBEG	19	3821	PMFB21380	6858
GTB0061890015	23	500	11,500	11,500	FG-HDMCDR050BBBEG	20	3854	PMFB21380	6858
GTB0061950001	23	500	11,500	11,500	FG-HDMCDR050BBBEG	21	3840	PMFB21380	6858
GTB0061950002	23	500	11,500	11,500	FG-HDMCDR050BBBEG	22	3868	PMFB21380	6858

253,000
 total for order



CoA Date: 05/23/2020

Certificate of Analysis

Shipped To: AGRU AMERICA INC:GEORGETOWN
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

Delivery #: 80204525
PO #: 17315
Weight: 181700.000 LB
Ship Date: 05/23/2020
Package: BULK
Mode: Hopper Car
Car #: CPCX815572
Seal No: 206371

Product:
MARLEX K307 POLYETHYLENE in Bulk

Lot Number: PME820030

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.24	g/10min
HLMI Flow Rate	ASTM D1238	20	g/10min
Density	D1505 or D4883	0.938	g/cm3
Pellet Count	P02.08.03	24	pelet/gram
Production Date		05/01/2020	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807



CoA Date: 04/16/2020

Certificate of Analysis

Shipped To: AGRU AMERICA INC:MULLINS
171 Highway 905
CONWAY SC 29526-6801
USA

Delivery #: 80178176
PO #: 17194
Weight: 185700.000 LB
Ship Date: 04/16/2020
Package: BULK
Mode: Hopper Car
Car #: NAHX620360
Seal No: 192768

Recipient: PALMER
Fax:

Product:
MARLEX K307 POLYETHYLENE in Bulk

Lot Number: PMC820420

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.23	g/10min
HLMI Flow Rate	ASTM D1238	20	g/10min
Density	D1505 or D4883	0.937	g/cm3
Pellet Count	P02.08.03	24	pelet/gram
Production Date		03/07/2020	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807



CoA Date: 07/31/2020

Certificate of Analysis

Shipped To: AGRU AMERICA INC:MULLINS
171 Highway 905
CONWAY SC 29526-6801
USA

Recipient: PALMER
Fax:

Delivery #: 80249929
PO #: 17474
Weight: 184100.000 LB
Ship Date: 07/31/2020
Package: BULK
Mode: Hopper Car
Car #: CPCX815711
Seal No: 193246

Product:
MARLEX K307 POLYETHYLENE in Bulk

Lot Number: PMF821380

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.24	g/10min
HLMI Flow Rate	ASTM D1238	19	g/10min
Density	D1505 or D4883	0.937	g/cm3
Pellet Count	P02.08.03	25	pelet/gram
Production Date		06/22/2020	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Erin Xiao
Quality Systems Coordinator

For CoA questions contact Shannon Blacknall at +1-832-813-4807

4.3

Resin Certification



Vergil H. Rhodes, PE, CPlasT - Tech Svc & App. Dev Engineer, Geomembranes
Highways 60 & 123, Bartlesville Research and Technology Center, Room 103 PTC
Bartlesville, OK 74003
■ 918-977-4229 ■ rhodevh@cpchem.com ■ Fax: 918-977-7599 ■ www.cpchem.com

September 9, 2019

Filename: Agru Oven and QUV Exposure for HP-OIT Testing_2019_090919.pdf

Nathan Ivy - Corporate Quality Control/Technical Manager
Agru America, Inc.
800 Rockmead #122
Kingwood, TX 77339
281-358-4741

Dear Mr. Ivy:

Please recall your request for testing of oven-exposed and UV-exposed geomembrane samples produced primarily from Marlex® 7104 LLDPE and Marlex® K307 MDPE. Agru blended other components with each of these polyethylenes to produce the geomembrane samples for testing. Textured geomembrane samples have been received from Agru, and test specimens were taken from the smooth border of the samples. Test results are reported below. The samples were tested for HP-OIT in their as-received condition and were also tested after oven and UV exposures of 90 days and 1600 hours of irradiance, respectively, in accordance with GRI-GM13 and GRI-GM17 requirements.

The following geomembrane sheet samples were received from Agru in April 2019 and were reported to be primarily composed of each of the Chevron Phillips Chemical Company grades in the description below:

- K307 Lot # HJM810770, Agru Roll # GTF0029510004, black sheet, textured, nominal 0.060" thick.
- 7104 Lot # CJE811700, Agru Roll # GTA0031290012, black sheet, textured, nominal 0.050" thick.

The exposure and testing conditions along with the corresponding test results are tabulated on the next page. GM-13 and GM-17 require a minimum % HP-OIT retention after a 90-day oven exposure and after a 1600-hour UV irradiance exposure. These test results indicate the GM-13 and GM-17 minimum % HP-OIT retentions were exceeded by the Agru-supplied K307 and 7104 sheet samples, respectively.

If you have any questions, please feel free to contact me (contact information given above).

Sincerely,

Vergil Rhodes
Polyethylene Technical Service and Applications Development, Geomembrane

NOTICES

Technical Information - By using any Technical Information contained herein, Recipient agrees that said Technical Information is given by CPChem for convenience only, without any warranty or guarantee of any kind, and is accepted and used at your sole risk. Recipients are encouraged to verify independently any such information to their reasonable satisfaction. As used in this paragraph, "Technical Information" includes any technical advice, recommendations, testing, or analysis, including, without limitation, information as it may relate to the selection of a product for a specific use and application.

The following oven aging and UV exposure test methods were conducted in accordance with the GRI-GM13 (HDPE) and GRI-GM17 (LLDPE) requirements:

Test Name	Exposure Conditions	Test Method
Oven Aging	90 days in an oven at 85 °C	ASTM D5721
UV Exposure	1600 UV irradiance hours. Cycle: 20 hours UVA-340 at 75 °C followed by 4 hours dark with condensation at 60 °C. Irradiance was 0.78 W/m ² at wavelength 340 nm. Note: This implies a total UV chamber residence time of 1920 hours, e.g., 1600 hours of irradiance and 320 hours of dark/condensation.	ASTM D7238
HP-OIT	150 °C in an oxygen atmosphere at 500 psi	ASTM D5885

Oven Aging Results:

Sample	Initial HP-OIT (min)	HP-OIT after 90 days of oven aging (min)	% HP-OIT Retained after 90 days of oven aging.	GRI-GM13 and GRI-GM17 minimum % HP-OIT requirements after 90 days of oven aging
K307 Lot # HJM810770, Agru Roll # GTT0029510004, black sheet, textured, nominal 0.060" thick	1303	1130	86.7%	GRI-GM13: % HP-OIT: 80% minimum
7104 Lot #CF1810540, Agru Roll #G15B434055, black sheet, smooth, nominal 0.040" thick	904	838	92.6%	GRI-GM17: % HP-OIT: 60% minimum

Continued on Page 3 - - -

NOTICES
 Technical Information - By using any Technical Information contained herein, Recipient agrees that said Technical Information is given by CPChem for convenience only, without any warranty or guarantee of any kind, and is accepted and used at your sole risk. Recipients are encouraged to verify independently any such information to their reasonable satisfaction. As used in this paragraph, "Technical Information" includes any technical recommendations, testing, or analysis, including, without limitation, information as it may relate to the selection of a product for a specific use and application.

UV Aging Results:

Sample	Initial HP-OIT (min)	HP-OIT after 1600 hrs of UV exposure (min)	% HP-OIT Retained after 1600 hrs of UV exposure.	GRI-GM13 and GRI-GM17 minimum % HP-OIT requirements after 1600 hours of UV exposure. GRI-GM13: % HP-OIT: 50% minimum GRI-GM17: % HP-OIT: 35% minimum
K307 Lot # HJM810770, Agru Roll # GTF0029510004, black sheet, textured, nominal 0.060" thick	1310	1025	78.2%	
7104 Lot #CFJ810540, Agru Roll #G15B434055, black sheet, smooth, nominal 0.040" thick	919	650	70.7%	

Notes:

- 1600 hours of UV exposure in accordance with ASTM D7238 implies a total UV chamber residence time of 1920 hours, e.g., 1600 hours of irradiance and 320 hours of darkness with condensation.
- Sheet samples were aged with the shiny side of the sheet facing the UV bulbs.

NOTICES

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5.0

Tensiometer Certification



CALIBRATION CERTIFICATE

Tensiometer Model:

Pro-Tester [T-0100/A] or T-0100SE/A]

Device Calibrated:

S-Type load cell

Calibration Apparatus:

Range:

0 - 750 lbs. Tensile

Model No:

M2405-750#

Pro-Cal unit, model TC-0100/A

Serial No:

58794

A/D Module Model No

T-029

Dead Weight:

W1

2

Reference Cell:

R1

2

A/D Module Serial No

230319

W2

152

R2

152

Channel No:

N/A

W3

302

R3

302

Indicator reading with no load:

0

Offset:

-5.781412

Scale:

3.317714

Applied Force lbs.

2
52
102
152
202
252
302

Cell Response:

2
52
102
152
202
252
302

Deviation Error:

0.00
0.00
0.00
0.00
0.00
0.00
0.00

Total Deviation Error (%):

0.00%

Temperature at time of calibration:

73 degrees F

Excitation Voltage:

5

V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable

Calibration Technician:

Bridon Ousley

Date:

05/24/21

Signature:



CALIBRATION CERTIFICATE

Tensiometer Model:

Pro-Tester [T-0100/A or T-0100SE/A]

Device Calibrated:

S-Type load cell

Calibration Apparatus:

Range:

0 - 750 lbs. Tension

Model No:

M2405-750#

Pro-Cal unit, model TC-0100/A

Serial No:

31625

A/D Module Model No:

T-029

Dead Weight:

Reference Cell:

A/D Module Serial No:

1536

W1

2

R1

2

Channel No:

N/A

W2

152

R2

152

W3

302

R3

302

Indicator reading with no load:

0

Offset: **-4.913670**

Scale: **3.322634**

Applied Force lbs.

2
52
102
152
202
252
302

Cell Response:

2
52
102
152
202
252
302

Deviation Error:

0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00

Total Deviation Error (%):

0.00%

Temperature at time of calibration: 73 degrees F

Excitation Voltage: 5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

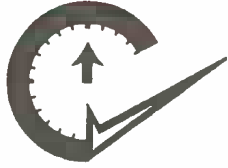
Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable

Calibration Technician:

B. Brandon Ousle

Date: 06/08/21

Signature:



CAL-CHEK CANADA INC.

250 Governors Road - Dundas ON L9H 3K3
Telephone: (905) 628-4636
www.calchek.ca



Calibration Report & Certificate

This is to certify that the following described machine and/or instrument has been calibrated in accordance with ASTM E4-20 and/or CSA A23.2-14 and found to be within the prescribed tolerances of $\pm 1.0\%$ and in/within the uncertainty except where noted.

Customer:
Atlantic Poly Liners Inc.
103 Park Road
Elmsdale, Nova Scotia B2S 2L3

Certificate Number: 20210134
Instrument: Wegener Machine
Model: Utilitest 500/B
Serial #: 96021

Date Calibrated: February 16, 2021
Date Issued: February 22, 2021

Room Temperature: 17.4 °C

Calibrating Apparatus

Device Code	Serial #	Capacity	Class "A" Loading Range	Calibration Laboratory	Verification & Due Date	Load Cell Manufacturer
A3	P-7995	1,000 / 10,000 lbf	T 20.0 / C 20.0 lbf	Morehouse	27/09/19 - 27/09/21	Morehouse

Load value corrected for temperature of 23 °C.

Max uncertainty = +/- 1.56% of indicated reading (k=2)

Method of verification and pertinent data is in accordance with ASTM E4-20 Sections 7, 9, 10, 11, 12, 14, 15, 16, 17, 18, X1 & X2 and/or CSA A23.2-14. The testing device(s) used for this calibration have been verified per ASTM E74-18 and are directly traceable through NIST to the International Systems of Units (SI units). This calibration is in conformance with the requirements of ISO/IEC 17025.

Pass/Fail statements are based on data from measurements made, procedures utilized, professional experience and the uncertainty associated with this calibration. It is the responsibility of the user of this equipment to determine if the results identified meet specific requirements for its intended application.

Calibration Technician: Kevin Newitt

Authorized Signatory: Roni Newitt

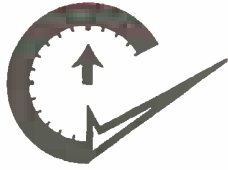
Suggested Due Date: February 2022

All calibrations performed at customer location unless otherwise noted.

Certificate shall not be reproduced except in full, without the written approval of Cal-Chek Canada Inc.

Due dates appearing on the certificate of calibration and label are determined by client for administrative purposes and do not imply continued conformance to specifications.

The decision rule that data obtained during calibration, independent of its uncertainty, will be used to determine an items pass/fail (if applicable).



CAL-CHEK CANADA INC.

250 Governors Road - Dundas ON L9H 3K3
Telephone: (905) 628-4636
www.caichek.ca



Calibration Report & Certificate

Customer:
Atlantic Poly Liners Inc.
103 Park Road
Elmsdale, Nova Scotia B2S 2L3

Certificate Number: 20210134
Instrument: Wegener Machine
Model: Utilitest 500/B
Serial #: 96021

Date Calibrated: February 16, 2021
Date Issued: February 22, 2021

Room Temperature: 17.4 °C

Machine Range: 500 lbf - 1ST SET
Force Range: 50 - 500 lbf

Direction Type: Tensile
Machine Range: 500 lbf - 2ND SET
Force Range: 50 - 500 lbf

Machine Reading lbf	Device Reading lbf	Machine Error		Device Code
			%	
500.00	497.55	-2.45	-0.49	A3
400.00	398.26	-1.74	-0.44	A3
300.00	299.07	-0.93	-0.31	A3
200.00	199.54	-0.46	-0.23	A3
100.00	100.07	+0.07	0.07	A3
50.00	50.32	+0.32	0.64	A3

Machine Reading lbf	Device Reading lbf	Machine Error		Device Code	Repeat Error %
			%		
500.00	497.80	-2.20	-0.44	A3	0.05
400.00	398.56	-1.44	-0.36	A3	0.08
300.00	299.32	-0.68	-0.23	A3	0.08
200.00	199.82	-0.18	-0.09	A3	0.14
100.00	100.35	+0.35	0.35	A3	0.28
50.00	50.41	+0.41	0.82	A3	0.18

Return to Zero Reading: 0 lbf

Return to Zero Reading: 0 lbf

Resolution: 0.1 lbf

Max Error: 0.82%

Readings: No Adjustments

The percent difference between the first run & second run for each verification reading is the Repeat Error. This must be within +/- 1.0%

6.0

Completion Certification



Geomembrane Acceptance Form

Project	NS LAND - HARRIETSFIELD - CAP
Location	1275 OLD GAMBRO, HARRIETSFIELD, NS
Site Manager	DEVIN SINCLAIR
Date	9/25/21
Description of Area to be accepted	P-01 → P-68 OF MICRODRAIN LINER ARE INSTALLED, TESTED & REPAIRED TO EXCEED PROJECT SPECIFICATION.
Sketch of area	

I, the undersigned, duly representative of ARCP, do hereby take over and accept the work described above from the date hereof and confirm to the best of my knowledge the work has been completed in accordance with the specifications and the terms and conditions of the contract.

Name	Paul Kelly
Signature	
Title	Proj. Manager
Date	Oct 6/21

Accepted by Atlantic Poly Liners representative

Name	JASON LE
Signature	

Acceptance No: 01

Accepted to Date: 100 %



Geomembrane Acceptance Form

Project	NS LAND - HARRIETSFIELD - CAP EXTENSION
Location	OLD SAUBRO - HARRIETSFIELD - NS
Site Manager	DEVIN SINCLAIR
Date	10/1/21
Description of Area to be accepted	PANEL 01 → 27 OF 50 mil MICRODRAIN AND 60 mil TEXTURED GEOMEMBRANE ARE INSTALLED, TESTED AND REPAIRED TO EXCEED PROJECT SPECIFICATION.
Sketch of area	

I, the undersigned, duly representative of ARCP, do hereby take over and accept the work described above from the date hereof and confirm to the best of my knowledge the work has been completed in accordance with the specifications and the terms and conditions of the contract.

Name	Paul Kelly
Signature	
Title	Proj Manager
Date	Oct 6/21

Accepted by Atlantic Poly Liners representative

Name	JASON UE
Signature	

Acceptance No: 1

Accepted to Date: 100 %

7.0

Sub-Grade Certification



Subgrade Acceptance Form

Project	NS LAND - HARRIETSFIELD CAP
Location	1275 OLD SAMBRO, HARRIETSFIELD, NS
Site Manager	DEVIN SINCLAIR
Date	9/25/21

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Atlantic Poly Liners does not accept responsibility for compaction, elevation or moisture content, nor for the surface maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the owner or the earthwork contractor.

Description of Area to be accepted	THE SUBGRADE IS OF SUFFICIENT TOP QUALITY FOR THE PLACEMENT OF THE LINER (AREA COVERED BY P-01 → P-68)
Sketch of area	

For Owner/Contractor

Name	Paul Kelly
Signature	
Title	Proj. Manager
Date	Oct 6/21

For Atlantic Poly Liners

Name	JASON W
Signature	

Acceptance No: 1

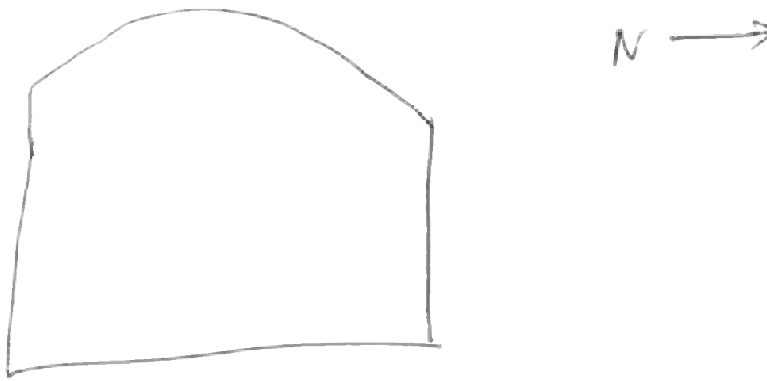
Accepted to Date: 10/25/21




Subgrade Acceptance Form

Project	NS LANDS - HARRIETSFIELD - CAP EXTENSION
Location	1275 OLD SAMPRO, HARRIETSFIELD, NS
Site Manager	DEVIN SINCLAIR
Date	10/1/21

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Atlantic Poly Liners does not accept responsibility for compaction, elevation or moisture content, nor for the surface maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the owner or the earthwork contractor.

Description of Area to be accepted	THE SUBGRADE IS OF SUFFICIENT QUALITY FOR THE PLACEMENT OF LINER. (AREA COVERED BY P-01 → P-27)
Sketch of area	

For Owner/Contractor	
Name	Paul Kelly
Signature	
Title	Proj. Manager
Date	Oct 6/21
For Atlantic Poly Liners	

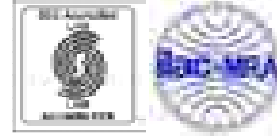
Name	JASON LE
Signature	

Acceptance No: 1

Accepted to Date: 100 %

8.0

Record Drawings



ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil
AECOM CANADA LTD

Date: October 18, 2021
 Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
 Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams Produced Using Thermo-Fusion Methods ASTM D6392-12(2018)

TEST CONDITIONS: Sample(s) not conditioned; Apparatus used: Dynamometer with a Constant Rate of Extension (CRE);
 Note: SE1= Break in outer edge of seam; BRK= Break in sheeting; SIP= Separation in the plane of the sheet; AD-BRK= Break in first seam after some adhesion failure; AD= Adhesion failure (side A or B). Extrusion: SE3=Break at seam edge in the bottom sheet and SE2=in the top sheet.
 Crosshead speed (mm/min.): 50
 Date of test: October 18, 2021

RESULTS:	Individual Data					Avg.	S.D.	% CV
DPF-01								
SHEAR								
Maximum Strength (kN/m):	22.3	22.0	22.4			22.2	0.2	0.9
Maximum Strength (lb/in):	127.3	125.6	127.8			126.9	1.2	0.9
Locus of break:	BRK	BRK	BRK					
Elongation at break (%):	>50	>50	>50					
PEEL Side A								
Maximum Strength (kN/m):	16.6	17.1	18.2	18.1	17.1	17.4	0.7	4.0
Maximum Strength (lb/in):	95.0	97.8	104.1	103.3	97.5	99.5	4.0	4.0
Locus of break:	SE1	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0	0			
PEEL Side B								
Maximum Strength (kN/m):	17.8	17.9	17.9	17.3	17.7	17.7	0.2	1.4
Maximum Strength (lb/in):	101.8	102.1	102.0	98.5	101.1	101.1	1.5	1.5
Locus of break:	SE1	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0	0			

Prepared by:
 Jacinthe Benoit,
 Technician

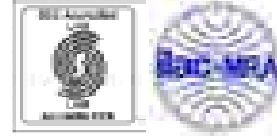
Approved by:
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

****For any information concerning this report, please contact Omar Kamla.****

The reports are identified by an alphanumeric code, the letter preceding "-en" refers to the revision number, emitted in ascending order. The electronic copy sent by CTT Group is the official report. The reported identification is based on what was observed on the received sample and/or information provided by the customer. The samples in relation to this report are retained for a period of 30 days following transmission of the report. The above reported results refer exclusively to the samples submitted for evaluation. This analysis report cannot be partly used or reproduced, unless in whole, without CTT Group prior written consent. ‡ The ISO/IEC 17025 Scope of Accreditation of CTT Group is available at www.gcttg.com. In this report, the tests which number is followed by the symbol ‡ are not covered by this accreditation. For customer's complete address, please refer to the email.





ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil

Date: October 18, 2021

AECOM CANADA LTD

Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
 Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams
 Produced Using Thermo-Fusion Methods ASTM D6392-12(2018)

RESULTS (CONT):	Individual Data			Avg.	S.D.	% CV
DSF-04						
Maximum Strength (kN/m):	22.7	21.5		22.1	0.8	3.8
Maximum Strength (lb/in):	129.8	122.6		126.2	5.1	4.0
Locus of break:	BRK	BRK				
Elongation at break (%):	>50	>50				
PEEL	Side A					
Maximum Strength (kN/m):	15.3	15.8	15.4	15.5	0.3	1.7
Maximum Strength (lb/in):	87.5	90.1	87.7	88.4	1.4	1.6
Locus of break:	SE1	SE1	SE1			
Separation (%):	0	0	0			
PEEL	Side B					
Maximum Strength (kN/m):	18.1	18.2	16.3	17.5	1.1	6.1
Maximum Strength (lb/in):	103.1	103.8	92.8	99.9	6.2	6.2
Locus of break:	SE1	SE1	SE1			
Separation (%):	0	0	0			

Prepared by:

Jacinte Benoit
 Jacinte Benoit,
 Technician

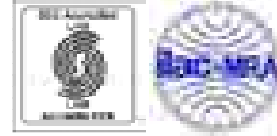
Approved by:

Omar Kamla
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

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ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil

Date: October 18, 2021

AECOM CANADA LTD

Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
 Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams
 Produced Using Thermo-Fusion Methods ASTM D6392-12(2018)

RESULTS (CONT):	Individual Data			Avg.	S.D.	% CV
DSF-06						
Maximum Strength (kN/m):	21.9	22.4		22.2	0.4	1.6
Maximum Strength (lb/in):	125.2	128.0		126.6	2.0	1.6
Locus of break:	BRK	BRK				
Elongation at break (%):	>50	>50				
PEEL	Side A					
Maximum Strength (kN/m):	16.3	16.2	15.3	15.9	0.6	3.5
Maximum Strength (lb/in):	93.1	92.4	87.2	90.9	3.2	3.5
Locus of break:	SE1	SE1	SE1			
Separation (%):	0	0	0			
PEEL	Side B					
Maximum Strength (kN/m):	16.9	17.9	15.9	16.9	1.0	5.9
Maximum Strength (lb/in):	96.5	102.3	91.0	96.6	5.7	5.8
Locus of break:	SE1	SE1	SE1			
Separation (%):	0	0	0			

Prepared by:

Jacinte Benoit
 Jacinte Benoit,
 Technician

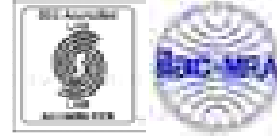
Approved by:

Omar Kamla
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

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ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil

Date: October 18, 2021

AECOM CANADA LTD

Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
 Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams
 Produced Using Thermo-Fusion Methods

ASTM D6392-12(2018)

RESULTS (CONT):	Individual Data				Avg.	S.D.	% CV
DSF-07							
Maximum Strength (kN/m):	24.5	24.1			24.3	0.3	1.2
Maximum Strength (lb/in):	140.0	137.4			138.7	1.8	1.3
Locus of break:	BRK	BRK					
Elongation at break (%):	>50	>50					
PEEL	Side A						
Maximum Strength (kN/m):	15.2	16.8	17.5	16.3	16.5	1.0	5.9
Maximum Strength (lb/in):	86.8	95.9	99.7	93.0	93.9	5.4	5.8
Locus of break:	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0			
PEEL	Side B						
Maximum Strength (kN/m):	14.3	15.7	13.2	18.2	15.4	2.2	14.1
Maximum Strength (lb/in):	81.7	89.7	75.4	104.2	87.8	12.4	14.2
Locus of break:	AD-BRK	AD-BRK	AD-BRK	SE1			
Separation (%):	100	100	100	0			

Prepared by:

Jacinte Benoit
 Jacinte Benoit,
 Technician

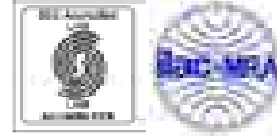
Approved by:

Omar Kamla
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

****For any information concerning this report, please contact Omar Kamla.****

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ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil
AECOM CANADA LTD

Date: October 18, 2021
 Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
 Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams Produced Using Thermo-Fusion Methods ASTM D6392-12(2018)

RESULTS (CONT):	Individual Data				Avg.	S.D.	% CV
DSF-13							
Maximum Strength (kN/m):	24.3	24.3			24.3	0.0	0.0
Maximum Strength (lb/in):	139.0	138.5			138.8	0.4	0.3
Locus of break:	BRK	BRK					
Elongation at break (%):	>50	>50					
PEEL	Side A						
Maximum Strength (kN/m):	16.7	17.7	17.0	16.3	16.9	0.6	3.5
Maximum Strength (lb/in):	95.2	101.0	96.8	92.8	96.5	3.5	3.6
Locus of break:	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0			
PEEL	Side B						
Maximum Strength (kN/m):	15.5	17.9	18.5	17.6	17.4	1.3	7.5
Maximum Strength (lb/in):	88.2	102.3	105.7	100.7	99.2	7.6	7.7
Locus of break:	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0			

Prepared by:

Jacinte Benoit
 Jacinte Benoit,
 Technician

Approved by:

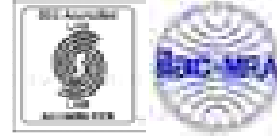
Omar Kamla
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

****For any information concerning this report, please contact Omar Kamla.****

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ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil

Date: October 18, 2021

AECOM CANADA LTD

Report: 5858-004S-1A-en

IDENTIFICATION: Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18
Received: October 18, 2021

STANDARD:

TEST: Determining the Integrity of Nonreinforced Geomembrane-Seams
Produced Using Thermo-Fusion Methods

ASTM D6392-12(2018)

RESULTS (CONT):	Individual Data					Avg.	S.D.	% CV
DPF-18								
Maximum Strength (kN/m):	21.1	21.5	20.9			21.2	0.3	1.4
Maximum Strength (lb/in):	120.2	122.8	119.2			120.7	1.9	1.5
Locus of break:	BRK	BRK	BRK					
Elongation at break (%):	>50	>50	>50					
PEEL	Side A							
Maximum Strength (kN/m):	16.8	15.8	15.8	15.3	17.0	16.1	0.7	4.5
Maximum Strength (lb/in):	96.0	90.4	90.0	87.1	97.1	92.1	4.3	4.6
Locus of break:	SE1	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0	0			
PEEL	Side B							
Maximum Strength (kN/m):	16.2	16.8	14.8	14.9	15.6	15.7	0.9	5.4
Maximum Strength (lb/in):	92.3	95.7	84.5	85.2	88.8	89.3	4.7	5.3
Locus of break:	SE1	SE1	SE1	SE1	SE1			
Separation (%):	0	0	0	0	0			

Prepared by:

Jacinte Benoit
Jacinte Benoit,
Technician

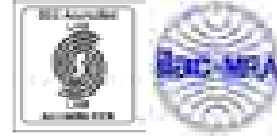
Approved by:

Omar Kamla
Omar Kamla, Eng.
Project Leader

Date: October 18, 2021

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ANALYSIS REPORT
SCC Accreditation No.: 40‡

Mr. Rory McNeil
AECOM CANADA LTD

Date: October 18, 2021
 Report: 5858-004S-1A-en

IDENTIFICATION:	Geomembrane seam: DPF-01, DSF-04, DSF-06, DSF-07, DSF-13, DPF-18 Received: October 18, 2021		
STANDARD:			
TEST:	Determining the Integrity of Nonreinforced Geomembrane-Seams Produced Using Thermo-Fusion Methods	ASTM D6392-12(2018)	
RESULTS (CONT):	Individual Data	Avg.	S.D. % CV
REMARKS:	From Sample DPF-01 to DPF-18 The size of the sample received was not sufficient to cut the number of specimens required by the test method.		

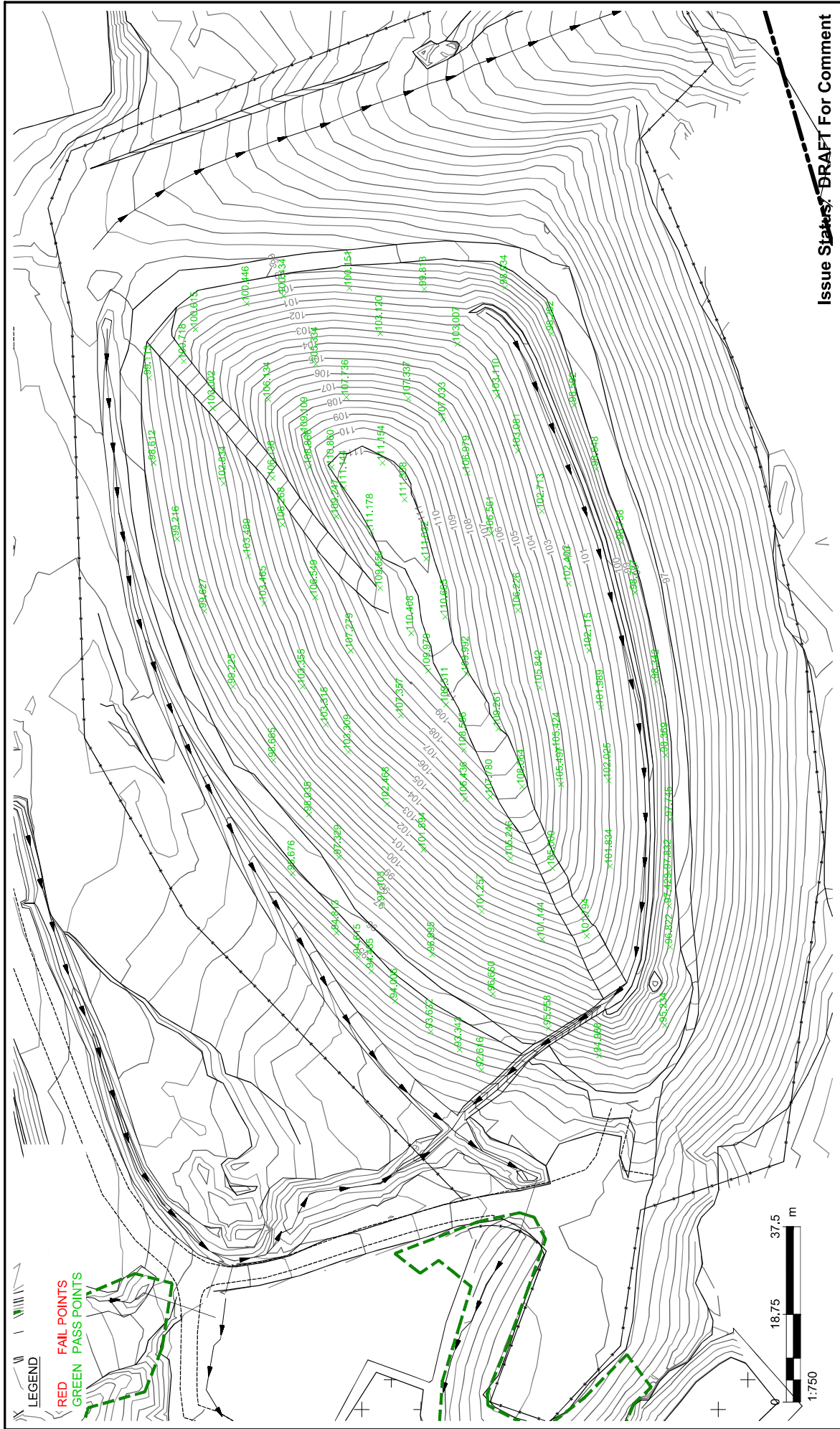
Prepared by: 
 Jacinthe Benoit,
 Technician

Approved by: 
 Omar Kamla, Eng.
 Project Leader

Date: October 18, 2021

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LEGEND
 RED FAIL POINTS
 GREEN PASS POINTS
 Sand Infill Survey
 Go / No Go

Harrietsfield Lanfill
August 13th, 2021
Elona Ford Site Visit

I met with Greg Billard(APL) and Justin Ogden(AECOM) on site August 13th. Currently, APL is installing SGN membrane on the western side of the closure. As of this date, approximately 75% of the SGN membrane has been installed and approx. half of the turf is installed on top of the SGN membrane.

A small amount of soil fill(sub-grade) is required for the top of the closure area. Greg, Justin and I walked the installed materials to date and the following are my observations as discussed with them APL & AECOM on site.

Example of turf installed on the South side of the cap. Grade breaks are ballasted.



An example of a seam that meets WG specifications for wedge welding. All seams were welded from the top of the slope to the bottom. The selvage edge was trimmed correctly.



Example of a wedge welded seam with excess selvage not trimmed correctly. Selvage should not be seen after wedge welding. Corrective measures are required to meet WG specifications.



Examples of melted turf fibers outside the wedge welded seam area. Corrective measures such as a cap strip should be placed over these areas in small, isolated locations. The cap strip requires a fully made hand weld and should not exceed approx. 4-6 inches from the defected area, per WG Specifications. Larger areas with this defect should be a complete cut out of the seam and rewelded prior to placing a new panel.



WG specification requires that the patches are 100% hand welded, not just the outer edge. Corrective measures are required to meet the WG specifications.



APL performed proper wrinkle management of the SGN membrane during installation and snapped the wedge welded seams as required by WG specifications. Example of SGN membrane during the heat of the day.



SGN membrane in a contracted state the following Monday morning. Based on the previous day photos and following day photos, it appears the SGN membrane is laying down relatively smooth. AECOM issued WG the Monday morning photo.



Examples of liner and turf areas that may require corrective measures if they fold over in the morning during cooler temperature. Stone will be placed in the solution trench.



An area of loose turf that requires corrective measures to meet WG specifications. There is a wrinkle in the liner that may require corrective measures if exceeding the wrinkle specification. APL and AECOM were made aware of these from WG and will evaluate the SGN membrane in this area during the morning when it's in a cooler state.



The liner in the anchor trench is partially backfilled around the perimeter of the cap. The turf is installed but doesn't have any backfill on it. In some areas the SGN membrane is not in contact with the crest of the anchor trench and pushed up with a wrinkle and a void. AECOM is aware of the issue. WG provided suggestions to AECOM on how to manage this when backfilling.



APL will self-perform the sand infill and HydroBinder componenta. Greg and I discussed trafficking, equipment ground pressure and backfilling the anchor trench prior to installing the sand infill and HydroBinder. APL will place additional sand where required by WG specifications.

Some corrective measures are required to meet WaterShed Geo's Specifications as discussed with APL and AECOM.

Gentleman, as I stated Watershed Geos's 11-2-2021 on site meeting, WG is providing an overview from our observations and discussions with Rob McCullough, Rory McNeil, Justin Ogden (AECOM) and Dale Haverstock (Atlantic Poly Liners). We are also outlining some expectations for future long-term maintenance associated with existing conditions. The following outlines items addressed on site.

Turf seams

- Turf wedge welded seams that have been overheated and exhibit melted tuft blades requires a small turf patch in order for the sand infill to perform. As discussed, over time voids such as this have the potential to expose the geotextile.



- Turf wedge welded seams that have excess selvage extending outside the top wedge welded seams are due to improper trimming. The

excess selvage creates a void overtime when the sand infill is not present. The void is created by the excess selvage trapping the tuft blades and will eventually lead to geotextile exposure. These areas require that the excess selvage be trimmed or patched and covered with sand infill.



Turf/membrane Ripples

- Areas with ripples where sand has migrated off the peak areas with exposed geotextiles after the installation requires corrective measures. Ripples may be consolidated and repaired to minimize the number of repairs. Additional sand should be added to the top of any small ripples, however the sand infill will not stay over time. When maintenance is performed not to exceed 5-years from the end of construction, these types of areas will require an armoring application (WG to provide additional information at a later time) to protect the geotextile backing long term.





- Wrinkles in the turf and/or the liner exist along the anchor trench and the along the road area require corrective measures. Wrinkles are required by WG specifications to be corrected prior to signing off on a project, this can be achieved by excavating a small portion of the road or anchor trench and pushing the turf and/or membrane down into the excavated area prior to backfilling. Another option is placing additional road material to cover the wrinkles along the road section or anchor trench. Wrinkles in other areas of the closure require repair and sand infill to be placed and brushed once the repair is complete.



Turf Repairs

- All existing turf repairs should be re-examined. Several repairs were found to not be properly repaired as required by WG specifications and require corrective measures.



Sand infill

- There are some large areas on the slopes with exposed geotextile backing that were located during the walkthrough. Several other areas with minimal voids were discovered as well. Sand infill will need to be installed and brushed in these areas to meet the WG specifications. The entire system should be inspected to assure that the sand infill depth meets WG specifications.



HydroBinder Infill

- There are many areas where the HydroBinder infill was not installed to the correct thickness or hydrated properly. Turf tuft blades are trapped. The thickness of the HydroBinder is not consistent. There are many areas where the HydroBinder is too thick and areas where the geotextiles are exposed.



- Wrinkles in the turf should have been corrected prior to the installation of the HydroBinder. Unfortunately, several wrinkles are now

trapped. APL was in the process of installing HydroBinder in the collection trench the day of the walk through. WG HydroBinder installation specifications have been provided and discussed during this project. These areas require corrective measures.



We trust the information is consistent with the discussions held on site on 11-2-2021 and subsequent communications.

Please contact me for anything.