LAYFIELD Canada

Project Completion QA/QC Package
for

Winnipeg Environmental Remediation Inc
&
Miller Environmental Corporation

RC3 Containment Cell

Installation of HDPE 60mil Smooth Geomembrane

St. Baptiste, MB

Prepared By: Mark Tymecki

Reviewed By: Mark Tymecki

Date Submitted: October 7th, 2020

Layfield Canada Ltd.

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for

Winnipeg Environmental Remediation Inc

&

Miller Environmental Corporation

RC3 Containment Cell

Installation of HDPE 60mil Smooth Geomembrane

St. Baptiste, MB

New Construction

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New Construction

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF INSPECTION
OF SOIL SUBGRADE SURFACE

PROJECT NAME: WERI MEC Facility Rc3 cell
PROJECT NUMBER: CT001458
OWNER/CONTRACTOR: Miller Enviromental corp / WERI
LOCATION: Hwy 14 & 75, Saint Jean Baptiste, MB R0G 2B0

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☒ *found it to be an acceptable surface on which to install geomembrane; OR*
- ☐ *found it to be an Unacceptable surface on which to install geomembrane*

Area Inspected (☐Partial or ☒Complete): _____
Dimensions of Subgrade Inspection: 1585m x 109
Anchor Trench Dimensions: .5m x 1m for 3 trenches .5 x 3-3.5m for South Trench ~~Existing trench~~.
Comments:
Everything Installed & QC Tested

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

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

LAYFIELD REPRESENTATIVE:

Date: Sept 21/20
Signature:
Name: Thomas White
Title: Lead Hand

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: Sept 21/20
Signature:
Name: Duane McClinton
Title: Supervisor
Company: WERI

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/22

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
1	E0011242-011	158.5	6.8	22	Good	TW	Fair
2	E0011242-016	158.5	6.8	22	Good	TW	Fair
3	E0011242-004	158.5	6.8	22	Good	TW	Fair
4	E0011242-003	158.5	6.8	22	Good	TW	Fair
5	E0011242-017	158.5	6.8	22	Good	TW	Fair

TOTAL PAGE AREA 5389 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 1 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/23

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
6	E0011242-002	23	6.8	20	Good	TW	Fair
7	E0011242-002	16	6.8	20	Good	TW	Fair
8	E0011242-002	9	6.8	20	Good	TW	Fair
9	E0011242-002	3.5	3.5	20	Good	TW	Fair
10	E0011242-002	10.8	6.8	20	Good	TW	Fair
11	E0011242-002	13	6.8	20	Good	TW	Fair
12	E0011242-002	22	6.8	20	Good	TW	Fair
13	E0011242-002	22	6.8	20	Good	TW	Fair
14	E0011242-002	22	6.8	20	Good	TW	Fair
15	E0011242-001	23	6.8	20	Good	TW	Fair
16	E0011242-001	23	6.8	20	Good	TW	Fair
17	E0011242-001	23	6.8	20	Good	TW	Fair
18	E0011242-001	23	6.8	20	Good	TW	Fair
19	E0011242-001	23	6.8	20	Good	TW	Fair
20	E0011242-001	23	6.8	20	Good	TW	Fair
21	E0011242-010	23	6.8	20	Good	TW	Fair
22	E0011242-010	23	6.8	20	Good	TW	Fair
23	E0011242-010	23	6.8	20	Good	TW	Fair
24	E0011242-010	22	6.8	20	Good	TW	Fair
25	E0011242-010	22	6.8	20	Good	TW	Fair

TOTAL PAGE AREA 2656.09 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 2 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/23

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
26	E0011242-010	21	6.8	20	Good	TW	Fair
27	E0011242-005	20	6.8	20	Good	TW	Fair
28	E0011242-005	20	6.8	20	Good	TW	Fair
29	E0011242-005	20	6.8	20	Good	TW	Fair
30	E0011242-005	20.5	6.8	20	Good	TW	Fair
31	E0011242-005	15.5	6.8	20	Good	TW	Fair
32	E0011242-005	9	6.8	20	Good	TW	Fair
33	E0011242-005	9	6.8	20	Good	TW	Fair
34	E0011242-005	15	6.8	20	Good	TW	Fair
35	E0011242-005	21	6.8	20	Good	TW	Fair

TOTAL PAGE AREA 1162.8 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 3 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/25

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
36	E0011242-015	158.5	6.8	22	Good	TW	Fair
37	E0011242-012	158.5	6.8	22	Good	TW	Fair
38	E0011242-013	158.5	6.8	22	Good	TW	Fair

TOTAL PAGE AREA 3233.4 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 4 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/26

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
39	E0011242-014	158.5	6.8	22	Good	TW	Fair
40	E0011242-009	73.5	6.8	22	Good	TW	Fair
41	E0011242-001	14	6.8	22	Good	TW	Fair
42	E0011242-010	24	6.8	22	Good	TW	Fair
43	E0011242-005	8	6.8	22	Good	TW	Fair
44	E0011242-002	22	6.8	22	Good	TW	Fair

TOTAL PAGE AREA 2040 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 5 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/27

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
45	E0011242-009	18	6.8	12	Good	TW	Fair
46	E0011242-009	11.5	6.8	12	Good	TW	Fair
47	E0011242-009	4	4	12	Good	TW	Fair
48	E0011242-009	5.9	4.5	12	Good	TW	Fair
49	E0011242-009	11.7	6.8	12	Good	TW	Fair
50	E0011242-009	18.3	6.8	12	Good	TW	Fair
51	E0011242-009	18.5	6.8	12	Good	TW	Fair
52	E0011242-007	18.5	6.8	12	Good	TW	Fair
53	E0011242-007	18.5	6.8	12	Good	TW	Fair
54	E0011242-007	18.5	6.8	12	Good	TW	Fair
55	E0011242-007	18.5	6.8	12	Good	TW	Fair
56	E0011242-007	18.5	6.8	12	Good	TW	Fair
57	E0011242-007	18.5	6.8	12	Good	TW	Fair
58	E0011242-007	18.5	6.8	12	Good	TW	Fair
59	E0011242-007	18.5	6.8	12	Good	TW	Fair
60	E0011242-006	18.5	6.8	12	Good	TW	Fair
61	E0011242-006	18.7	6.8	12	Good	TW	Fair
62	E0011242-006	18.9	6.8	12	Good	TW	Fair
63	E0011242-006	19	6.8	12	Good	TW	Fair
64	E0011242-006	19.2	6.8	12	Good	TW	Fair

TOTAL PAGE AREA 2220.59 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 6 of 7

GEOMEMBRANE DEPLOYMENT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
DEPLOYMENT DATE 2020/09/27

PANEL NUMBER	ROLL NUMBER	LENGTH (m)	WIDTH (m)	AIR TEMP °C	PANEL CONDITION	CHECKED BY	SUBGRADE CONDITION
65	E0011242-006	19.4	6.8	12	Good	TW	Fair
66	E0011242-006	19.6	6.8	12	Good	TW	Fair
67	E0011242-006	19.8	6.8	12	Good	TW	Fair
68	E0011242-008	20	6.8	12	Good	TW	Fair
69	E0011242-008	20	5.8	12	Good	TW	Fair
70	E0011242-008	16	6.8	12	Good	TW	Fair
71	E0011242-008	9	6.8	12	Good	TW	Fair
72	E0011242-008	5.8	5	12	Good	TW	Fair
73	E0011242-008	12	6.8	12	Good	TW	Fair
74	E0011242-008	19.6	6.8	12	Good	TW	Fair

TOTAL PAGE AREA 1065.72 m²

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 7 of 7

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/22

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	056	1100	GR	22	65.0%	454°C	124	122	126	124	121	127	116	131	130	110	152	158	155	158	154	TW	Pass
2	039	1100	JL	16	65.0%	454°C	112	134	118	117	119	113	123	118	112	131	188	188	187	189	185	TW	Pass
3	039	1400	JL	15	65.0%	454°C	108	113	123	117	112	134	126	122	124	117	191	188	189	191	190	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
2 / 3	WEOS	EEOS	1314	22	GR	056	158.5	DS-2	AP+PS	9/23/2020	1102	1107	41	41	Pass	TW
1 / 2	WEOS	EEOS	1316	22	JL	039	158.5	DS-1	AP+PS	9/23/2020	1058	1103	42	42	Pass	TW
3 / 4	WEOS	EEOS	1427	22	JL	039	158.5	DS-3	AP+PS	9/23/2020	1105	1110	40	39	Pass	TW
4 / 5	WEOS	EEOS	1605	22	JL	039	158.5	DS-4	AP+PS	9/23/2020	1113	1118	40	39	Pass	TW
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PAGE TOTAL							634.0									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 1 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/23

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	039	830	JL	15	50.0%	454°C	140	137	146	144	129	122	130	136	119	126	188	180	186	187	180	TW	Pass
2	039	1230	JL	20	50.0%	454°C	133	126	131	138	121	131	126	123	136	124	162	158	165	159	159	TW	Pass
3	039	1530	JL	20	50.0%	454°C	119	121	133	142	131	128	128	127	121	126	188	191	190	189	187	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
6 / 7	EEOS	WEOS	845	20	JL	039	16.0		AP+PS	9/23/2020	1250	1255	40	39	Pass	TW
7 / 8	EEOS	WEOS	907	20	JL	039	9.0		AP+PS	9/23/2020	1255	1300	40	40	Pass	TW
12n / 13n	SEOS	NEOS	930	20	JL	039	10.5		AP+PS	9/23/2020	1436	1441	41	40	Pass	TW
12s / 13s	SEOS	NEOS	934	20	JL	039	12.0		AP+PS	9/23/2020	1155	1200	40	39	Pass	TW
13 / 14	SEOS	NEOS	946	20	JL	039	23.0		AP+PS	9/23/2020	1438	1443	40	39	Pass	TW
11 / 12	SEOS	NEOS	954	20	JL	039	13.0		AP+PS	9/23/2020	1159	1204	42	41	Pass	TW
10 / 11	SEOS	NEOS	1019	20	JL	039	10.8		AP+PS	9/23/2020	1158	1203	40	40	Pass	TW
9 / 10	SEOS	NEOS	1030	20	JL	039	3.5		AP+PS	9/23/2020	1153	1158	40	40	Pass	TW
8 / 9	NWEOS	SEEOS	1040	20	JL	039	4.0		AP+PS	9/23/2020	1300	1305	40	39	Pass	TW
14 / 15	SEOS	NEOS	1054	20	JL	039	23.0	DS-7	AP+PS	9/23/2020	1439	1444	40	40	Pass	TW
15 / 16	SEOS	NEOS	1106	20	JL	039	23.0		AP+PS	9/23/2020	1443	1448	40	39	Pass	TW
16 / 17	SEOS	NEOS	1121	20	JL	039	23.0		AP+PS	9/23/2020	1444	1449	40	39	Pass	TW
17 / 18	SEOS	NEOS	1133	20	JL	039	23.0		AP+PS	9/23/2020	1445	1450	40	39	Pass	TW
18 / 19	SEOS	NEOS	1144	20	JL	039	23.0		AP+PS	9/23/2020	1622	1627	40	40	Pass	TW
19 / 20	SEOS	NEOS	1155	20	JL	039	23.0	DS-6	AP+PS	9/24/2020	958	1003	41	41	Pass	TW
20 / 21	SEOS	NEOS	1211	20	JL	039	23.0		AP+PS	9/24/2020	959	1004	40	40	Pass	TW
21 / 22	SEOS	NEOS	1249	20	JL	039	23.0		AP+PS	9/24/2020	1000	1005	40	40	Pass	TW
22 / 23	SEOS	NEOS	1305	20	JL	039	23.0		AP+PS	9/24/2020	1001	1006	40	39	Pass	TW
23 / 24	SEOS	NEOS	1320	20	JL	039	23.0		AP+PS	9/24/2020	1008	1013	40	39	Pass	TW
24 / 25	SEOS	NEOS	1329	20	JL	039	23.0	DS-15	AP+PS	9/24/2020	1009	1014	40	40	Pass	TW
						PAGE TOTAL	354.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED
PS - POINT STRESS | & VAC BOX

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 2 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/23

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
2	039	1230	JL	20	50.0%	454°C	133	126	131	138	121	131	126	123	136	124	162	158	165	159	159	TW	Pass
3	039	1530	JL	20	50.0%	454°C	119	121	133	142	131	128	128	127	121	126	188	191	190	189	187	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
25 / 26	SEOS	NEOS	1351	20	JL	039	23.0		AP+PS	9/24/2020	1010	1015	40	40	Pass	TW
26 / 27	SEOS	NEOS	1408	20	JL	039	23.0		AP+PS	9/24/2020	1011	1016	40	39	Pass	TW
27 / 28	SEOS	NEOS	1423	20	JL	039	23.0		AP+PS	9/24/2020	1018	1023	40	39	Pass	TW
28 / 29	SEOS	NEOS	1441	20	JL	039	23.0	DS-14	AP+PS	9/24/2020	1019	1024	40	40	Pass	TW
29 / 30	SEOS	NEOS	1532	20	JL	039	23.0		AP+PS	9/24/2020	1044	1049	40	40	Pass	TW
30s / 31s	NEOS	SEOS	1551	20	JL	039	12.0		AP+PS	9/25/2020	1045	1050	40	39	Pass	TW
30n / 31n	NEOS	SEOS	1555	20	JL	039	3.5		AP+PS	9/25/2020	1045	1050	40	39	Pass	TW
31 / 32	NEOS	SEOS	1637	20	JL	039	9.0		AP+PS	9/25/2020	1045	1050	40	39	Pass	TW
33 / 34	WEOS	EEOS	1659	20	JL	039	9.0		AP+PS	9/25/2020	1052	1057	40	39	Pass	TW
34 / 35	WEOS	EEOS	1713	20	JL	039	15.0		AP+PS	9/25/2020	1057	1102	40	39	Pass	TW
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PAGE TOTAL							163.5									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 3 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	056	1300	JL	18	50.0%	454°C	121	122	143	132	122	117	117	121	118	113	176	175	176	175	173	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
8 / 10	NEEOS	SWEOS	1328	20	JL	056	7.8		AP+PS	9/25/2020	1255	1300	40	40	Pass	TW
10 / 7	NEEOS	SWEOS	1331	20	JL	056	2.5		AP+PS	9/25/2020	1255	1300	40	40	Pass	TW
11 / 7	NEEOS	SWEOS	1332	20	JL	056	7.5		AP+PS	9/25/2020	1250	1255	40	39	Pass	TW
11 / 6	NEEOS	SWEOS	1335	20	JL	056	2.5		AP+PS	9/25/2020	1245	1250	40	39	Pass	TW
12 / 6	NEEOS	SWEOS	1338	20	JL	056	7.5		AP+PS	9/25/2020	1245	1250	40	39	Pass	TW
30 / 35	SEEOS	NWEOS	1440	20	JL	056	9.0		AP+PS	9/25/2020	1105	1110	40	39	Pass	TW
31 / 34	SEEOS	NWEOS	1445	20	JL	056	9.0		AP+PS	9/25/2020	1057	1102	40	40	Pass	TW
32 / 33	SWEOS	NWEOS	1450	20	JL	056	11.0		AP+PS	9/25/2020	1052	1057	40	39	Pass	TW
5e / 6e	WEOS	EEOS	1536	20	JL	056	17.0		AP+PS	9/26/2020	1155	1200	40	39	Pass	TW
5w / 6w	WEOS	EEOS	1538	20	JL	056	6.6		AP+PS	9/25/2020	1155	1200	40	39	Pass	TW
5 / 12	EEOS	WEOS	1544	20	JL	056	6.8		AP+PS	9/25/2020	1155	1200	40	39	Pass	TW
5 / 13	EEOS	WEOS	1548	20	JL	056	6.8		AP+PS	9/25/2020	1155	1200	40	39	Pass	TW
5 / 14	EEOS	WEOS	1552	20	JL	056	6.8		AP+PS	9/25/2020	1145	1150	40	39	Pass	TW
5 / 15	EEOS	WEOS	1556	20	JL	056	6.8		AP+PS	9/25/2020	1145	1150	40	39	Pass	TW
5 / 16	EEOS	WEOS	1600	20	JL	056	6.8		AP+PS	9/25/2020	1140	1145	40	39	Pass	TW
5 / 17	EEOS	WEOS	1604	20	JL	056	6.8		AP+PS	9/25/2020	1135	1140	40	39	Pass	TW
5 / 18	EEOS	WEOS	1608	20	JL	056	6.8		AP+PS	9/25/2020	1135	1140	40	39	Pass	TW
5 / 19	EEOS	WEOS	1612	20	JL	056	6.8		AP+PS	9/25/2020	1130	1135	40	39	Pass	TW
5 / 20	EEOS	WEOS	1616	20	JL	056	6.8		AP+PS	9/25/2020	1130	1135	40	39	Pass	TW
5 / 21	EEOS	WEOS	1620	20	JL	056	6.8		AP+PS	9/25/2020	1120	1125	40	39	Pass	TW
						PAGE TOTAL	148.4									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 4 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/24

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	056	1300	JL	18	50.0%	454°C	121	122	143	132	122	117	117	121	118	113	176	175	176	175	173	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
5 / 22	EEOS	WEOS	1624	20	JL	056	6.8		AP+PS	9/25/2020	1120	1125	40	39	Pass	TW
5 / 23	EEOS	WEOS	1628	20	JL	056	6.8		AP+PS	9/25/2020	1115	1120	40	40	Pass	TW
5 / 24	EEOS	WEOS	1632	20	JL	056	6.8		AP+PS	9/25/2020	1115	1120	40	40	Pass	TW
5 / 25	EEOS	WEOS	1636	20	JL	056	6.8		AP+PS	9/25/2020	1115	1120	40	39	Pass	TW
5 / 26	EEOS	WEOS	1640	20	JL	056	6.8		AP+PS	9/25/2020	1115	1120	40	39	Pass	TW
5 / 27	EEOS	WEOS	1644	20	JL	056	6.8		AP+PS	9/25/2020	1110	1115	40	40	Pass	TW
5 / 28	EEOS	WEOS	1648	20	JL	056	6.8		AP+PS	9/25/2020	1110	1115	40	40	Pass	TW
5 / 29	EEOS	WEOS	1652	20	JL	056	6.8		AP+PS	9/25/2020	1105	1110	40	39	Pass	TW
35 / 5	WEOS	EEOS	1656	18	JL	056	22.0		AP+PS	9/25/2020	1105	1110	40	39	Pass	TW
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PAGE TOTAL							76.4									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 5 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/25

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	056	820	JL	18	50.0%	454°C	129	118	138	139	121	128	123	128	140	132	196	192	196	197	189	TW	Pass
2	056	1240	JL	22	50.0%	454°C	138	127	122	121	117	122	124	135	136	122	188	184	188	186	181	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
38 / 39	EEOS	WEOS	1000	18	JL	056	158.5	DS-13	AP+PS	9/29/2020	735	740	40	40	Pass	TW
36 / 37	EEOS	WEOS	1401	18	JL	056	158.5	DS-9	AP+PS	9/29/2020	735	740	40	40	Pass	TW
37 / 38	EEOS	WEOS	1506	18	JL	056	158.5	DS-12	AP+PS	9/29/2020	735	740	40	40	Pass	TW
36 / 1	EEOS	WEOS	1607	18	JL	056	158.5	DS-8	AP+PS	9/29/2020	735	740	40	40	Pass	TW
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PAGE TOTAL							634.0									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 6 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/26

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	008	815	JL	13	65.0%	454°C	140	134	142	113	140	137	122	126	134	112	180	177	172	182	175	TW	Pass
2	008	1200	JL	22	65.0%	454°C	108	112	119	119	118	114	117	116	116	118	166	166	175	177	169	TW	Pass
3	008	1530	JL	22	50.0%	454°C	109	111	112	104	110	124	115	119	118	119	156	157	171	165	165	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
40 / 41	NEOS	SEOS	1300	23	JL	008	6.8		AP+PS	9/29/2020	835	840	40	40	Pass	TW
41 / 42	NEOS	SEOS	1318	23	JL	008	6.8		AP+PS	9/29/2020	835	840	40	40	Pass	TW
42 / 43	NEOS	SEOS	1341	23	JL	008	6.8		AP+PS	9/29/2020	836	841	40	40	Pass	TW
43 / 44	NEOS	SEOS	1412	23	JL	008	6.8		AP+PS	9/29/2020	838	843	40	40	Pass	TW
39 / 40	EEOS	WEOS	1622	23	JL	008	94.5	DS-10	AP+PS	9/29/2020	735	740	40	40	Pass	TW
39 / 41	WEOS	EEOS	1651	23	JL	008	8.2		AP+PS	9/29/2020	831	836	40	40	Pass	TW
39 / 42	WEOS	EEOS	1656	23	JL	008	19.5		AP+PS	9/29/2020	836	841	40	40	Pass	TW
39 / 43	WEOS	EEOS	1717	23	JL	008	7.5		AP+PS	9/29/2020	836	841	40	40	Pass	TW
39 / 44	WEOS	EEOS	1723	23	JL	008	21.9	DS-11	AP+PS	9/29/2020	838	843	40	40	Pass	TW
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PAGE TOTAL							178.8									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 7 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	008	745	JL	12	50.0%	454°C	117	122	112	134	118	113	123	122	124	116	185	182	188	189	188	TW	Pass
2	008	1140	JL	12	50.0%	454°C	115	117	119	118	112	131	123	123	121	114	157	154	155	154	152	TW	Pass
3	008	1535	JL	12	50.0%	454°C	118	117	116	118	111	121	123	121	119	119	177	176	177	174	177	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
45 / 46	WEOS	EEOS	751	18	JL	008	11.5		AP+PS	9/29/2020	844	849	40	40	Pass	TW
46 / 47	WEOS	EEOS	759	18	JL	008	3.8		AP+PS	9/29/2020	848	853	40	40	Pass	TW
49 / 50	SEOS	NEOS	829	18	JL	008	11.7		AP+PS	9/29/2020	843	848	40	40	Pass	TW
48 / 49	SEOS	NEOS	836	18	JL	008	6.0		AP+PS	9/29/2020	845	850	40	40	Pass	TW
50 / 51	SEOS	NEOS	839	18	JL	008	18.3		AP+PS	9/29/2020	839	844	40	40	Pass	TW
51 / 52	SEOS	NEOS	844	18	JL	008	18.5		AP+PS	9/29/2020	835	840	40	40	Pass	TW
52 / 53	SEOS	NEOS	856	18	JL	008	18.5		AP+PS	9/29/2020	835	840	40	40	Pass	TW
53 / 54	SEOS	NEOS	910	18	JL	008	18.5	DS-16	AP+PS	9/29/2020	832	837	40	40	Pass	TW
54 / 55	SEOS	NEOS	923	18	JL	008	18.5		AP+PS	9/29/2020	828	833	40	40	Pass	TW
55 / 56	SEOS	NEOS	936	18	JL	008	18.5		AP+PS	9/29/2020	825	830	40	40	Pass	TW
56 / 57	SEOS	NEOS	944	18	JL	008	18.5		AP+PS	9/29/2020	819	824	40	40	Pass	TW
57 / 58	SEOS	NEOS	958	18	JL	008	18.5		AP+PS	9/29/2020	815	820	40	40	Pass	TW
58 / 59	SEOS	NEOS	1013	18	JL	008	18.5		AP+PS	9/29/2020	812	817	40	40	Pass	TW
59 / 60	SEOS	NEOS	1027	18	JL	008	18.5		AP+PS	9/29/2020	809	914	40	40	Pass	TW
60 / 61	SEOS	NEOS	1042	18	JL	008	18.5		AP+PS	9/29/2020	805	810	40	40	Pass	TW
61 / 62	SEOS	NEOS	1056	18	JL	008	18.5	DS-17	AP+PS	9/29/2020	804	809	40	40	Pass	TW
62 / 63	SEOS	NEOS	1118	18	JL	008	18.5		AP+PS	9/29/2020	803	808	40	40	Pass	TW
63 / 64	SEOS	NEOS	1132	18	JL	008	18.5		AP+PS	9/29/2020	755	800	40	40	Pass	TW
64 / 65	SEOS	NEOS	1148	18	JL	008	18.5	DS-18	AP+PS	9/29/2020	753	758	40	40	Pass	TW
65 / 66	SEOS	NEOS	1205	18	JL	008	19.0		AP+PS	9/29/2020	751	756	40	40	Pass	TW
						PAGE TOTAL	329.3									

TEST METHOD
AL - AIR LANCE
AP - AIR PRESSURE
PS - POINT STRESS
ST - SPARK TEST
VB - EXTRUDED & VAC BOX

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 8 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	008	745	JL	12	50.0%	454°C	117	122	112	134	118	113	123	122	124	116	185	182	188	189	188	TW	Pass
2	008	1140	JL	12	50.0%	454°C	115	117	119	118	112	131	123	123	121	114	157	154	155	154	152	TW	Pass
3	008	1535	JL	12	50.0%	454°C	118	117	116	118	111	121	123	121	119	119	177	176	177	174	177	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
66 / 67	SEOS	NEOS	1229	18	JL	008	19.0		AP+PS	9/29/2020	746	751	40	40	Pass	TW
67 / 68	SEOS	NEOS	1241	18	JL	008	19.0		AP+PS	9/29/2020	745	750	40	40	Pass	TW
68 / 69	SEOS	NEOS	1259	18	JL	008	19.0		AP+PS	9/29/2020	749	754	40	40	Pass	TW
69 / 70	SEOS	NEOS	1335	18	JL	008	16.0		AP+PS	9/29/2020	742	747	40	40	Pass	TW
70 / 71	SEOS	NEOS	1344	18	JL	008	9.0		AP+PS	9/29/2020	740	745	40	40	Pass	TW
73 / 74	EEOS	WEOS	1419	18	JL	008	12.0	DS-19	AP+PS	9/29/2020	741	746	40	40	Pass	TW
72 / 73	EEOS	WEOS	1432	18	JL	008	5.8		AP+PS	9/29/2020	735	740	40	40	Pass	TW
45 / 50	SEEOS	NWEOS	1500	12	JL	008	9.0		AP+PS	9/29/2020	843	848	40	40	Pass	TW
46 / 49	SEEOS	NWEOS	1510	12	JL	008	9.0		AP+PS	9/29/2020	848	853	40	40	Pass	TW
47 / 48	SEEOS	NWEOS	1515	12	JL	008	5.0		AP+PS	9/29/2020	848	853	40	40	Pass	TW
71 / 72	SWEOS	NEEOS	1540	15	JL	008	4.5		AP+PS	9/29/2020	735	740	40	40	Pass	TW
71 / 73	SWEOS	NEEOS	1543	15	JL	008	5.5		AP+PS	9/29/2020	735	740	40	40	Pass	TW
70 / 73	SWEOS	NEEOS	1546	15	JL	008	5.0		AP+PS	9/29/2020	735	740	40	40	Pass	TW
70 / 74	SWEOS	NEEOS	1550	15	JL	008	4.6		AP+PS	9/29/2020	735	740	40	40	Pass	TW
69 / 74	SWEOS	NEEOS	1554	15	JL	008	5.8		AP+PS	9/29/2020	741	746	40	40	Pass	TW
74 / 40	WEOS	EEOS	1621	18	JL	008	19.6		AP+PS	9/29/2020	735	740	40	40	Pass	TW
40 / 69	SEOS	NEOS	1634	15	JL	008	2.7		AP+PS	9/29/2020	741	746	40	40	Pass	TW
40 / 68	SEOS	NEOS	1635	15	JL	008	6.8		AP+PS	9/29/2020	745	750	40	40	Pass	TW
40 / 67	SEOS	NEOS	1639	15	JL	008	6.8		AP+PS	9/29/2020	745	750	40	40	Pass	TW
40 / 66	SEOS	NEOS	1643	15	JL	008	6.8		AP+PS	9/29/2020	751	756	40	40	Pass	TW
						PAGE TOTAL	190.9									

TEST METHOD
AL - AIR LANCE | ST - SPARK TEST
AP - AIR PRESSURE | VB - EXTRUDED & VAC BOX
PS - POINT STRESS

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 9 of 10

GEOMEMBRANE SEAM & TEST LOG

PROJECT NUMBER CT001458 | AREA / LAYER Primary
PROJECT TITLE Miller Hazardous Waste Landfill | SEAM DATE 2020/09/27

TRIAL SEAMS

#	MACHINE NUMBER	TIME	TECH	AIR TEMP °C	SPEED	TEMP/ SETTING	INSIDE PEEL (PPI)					OUTSIDE PEEL (PPI)					SHEAR (PPI)					CHK'D BY	LINER TO LINER TYPE AND REMARKS
1	008	745	JL	12	50.0%	454°C	117	122	112	134	118	113	123	122	124	116	185	182	188	189	188	TW	Pass
2	008	1140	JL	12	50.0%	454°C	115	117	119	118	112	131	123	123	121	114	157	154	155	154	152	TW	Pass
3	008	1535	JL	12	50.0%	454°C	118	117	116	118	111	121	123	121	119	119	177	176	177	174	177	TW	Pass

WELD SEAMS

PANEL NUMBERS	SEAM SECTION FROM	SEAM SECTION TO	START TIME	AIR TEMP °C	WELD TECH	MACHINE NUMBER	WELD LENGTH	DESTRUCT NUMBER	QC TEST METH.	QC TEST DATE Y-M-D	AIR PRESSURE TEST (PSI) TIME START	TIME END	PRESSURE START	PRESSURE END	VERIFY PASS	VERIFY QC TECH
40 / 65	SEOS	NEOS	1648	15	JL	008	6.8		AP+PS	9/29/2020	751	756	40	40	Pass	TW
40 / 64	SEOS	NEOS	1652	15	JL	008	6.8		AP+PS	9/29/2020	755	800	40	40	Pass	TW
40 / 63	SEOS	NEOS	1656	15	JL	008	6.8		AP+PS	9/29/2020	755	800	40	40	Pass	TW
40 / 62	SEOS	NEOS	1700	15	JL	008	6.8		AP+PS	9/29/2020	804	809	40	40	Pass	TW
40 / 61	SEOS	NEOS	1705	15	JL	008	6.8		AP+PS	9/29/2020	804	809	40	40	Pass	TW
40 / 60	SEOS	NEOS	1709	15	JL	008	6.8		AP+PS	9/29/2020	809	814	40	40	Pass	TW
40 / 59	SEOS	NEOS	1713	15	JL	008	6.8		AP+PS	9/29/2020	809	814	40	40	Pass	TW
40 / 58	SEOS	NEOS	1725	15	JL	008	5.0		AP+PS	9/29/2020	815	820	40	40	Pass	TW
41 / 57	SEOS	NEOS	1729	15	JL	008	6.8		AP+PS	9/29/2020	815	820	40	40	Pass	TW
41 / 56	SEOS	NEOS	1734	15	JL	008	6.8		AP+PS	9/29/2020	825	830	40	40	Pass	TW
41 / 55	SEOS	NEOS	1738	15	JL	008	3.0		AP+PS	9/29/2020	825	830	40	40	Pass	TW
42 / 55	SEOS	NEOS	1749	15	JL	008	3.8		AP+PS	9/29/2020	828	833	40	40	Pass	TW
42 / 54	SEOS	NEOS	1753	12	JL	008	6.8		AP+PS	9/29/2020	828	833	40	40	Pass	TW
42 / 53	SEOS	NEOS	1757	12	JL	008	6.8		AP+PS	9/29/2020	835	840	40	40	Pass	TW
42 / 52	SEOS	NEOS	1801	12	JL	008	1.8		AP+PS	9/29/2020	835	840	40	40	Pass	TW
43 / 52	SEEOS	NWEOS	1803	12	JL	008	5.0		AP+PS	9/29/2020	835	840	40	40	Pass	TW
51 / 43	SEEOS	NWEOS	1806	12	JL	008	3.0		AP+PS	9/29/2020	835	840	40	40	Pass	TW
44 / 51	SEEOS	NWEOS	1811	12	JL	008	3.0		AP+PS	9/29/2020	843	848	40	40	Pass	TW
44 / 45	WEOS	EEOS	1816	18	JL	008	18.0		AP+PS	9/29/2020	843	848	40	40	Pass	TW
/																
						PAGE TOTAL	117.4									

TEST METHOD

AL - AIR LANCE	ST - SPARK TEST
AP - AIR PRESSURE	VB - EXTRUDED
PS - POINT STRESS	& VAC BOX

REMARKS:

QC TECH Thomas White
SUPERVISOR Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 10 of 10

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001458 AREA / LAYER Primary

PROJECT TITLE Miller Hazardous Waste Landfill

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	018	2020/09/25	815	GR	18	243°C	243°C	118	117	126	131	124	171	168	155	154	165	TW	Pass
2	018	2020/09/25	1250	GR	22	243°C	243°C	110	112	108	117	107	170	182	187	180	179	TW	Pass
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	9 / 10	P 8	T	G&W	018	2020/09/25	829	GR	18	2020/09/29	VB+PS	TW
1B	8 / 7	P 10	T	G&W	018	2020/09/25	848	GR	18	2020/09/29	VB+PS	TW
1C	11 / 10	P 7	T	G&W	018	2020/09/25	858	GR	18	2020/09/29	VB+PS	TW
1D	6 / 7	P 11	T	G&W	018	2020/09/25	913	GR	18	2020/09/29	VB+PS	TW
1E	11 / 12	P 6	T	G&W	018	2020/09/25	925	GR	18	2020/09/29	VB+PS	TW
1F	12 / 13	P 5	T	G&W	018	2020/09/25	937	GR	18	2020/09/29	VB+PS	TW
1G	13 / 14	P 5	T	G&W	018	2020/09/25	952	GR	18	2020/09/29	VB+PS	TW
1H	14 / 15	P 5	T	G&W	018	2020/09/25	1007	GR	18	2020/09/29	VB+PS	TW
1I	15 / 16	P 5	T	G&W	018	2020/09/25	1018	GR	18	2020/09/29	VB+PS	TW
1J	16 / 17	P 5	T	G&W	018	2020/09/25	1031	GR	18	2020/09/29	VB+PS	TW
1K	17 / 18	P 5	T	G&W	018	2020/09/25	1042	GR	18	2020/09/29	VB+PS	TW
1L	18 / 19	P 5	T	G&W	018	2020/09/25	1046	GR	18	2020/09/29	VB+PS	TW
1M	19 / 20	P 5	T	G&W	018	2020/09/25	1055	GR	18	2020/09/29	VB+PS	TW
1N	20 / 21	P 5	T	G&W	018	2020/09/25	1107	GR	18	2020/09/29	VB+PS	TW
1O	21 / 22	P 5	T	G&W	018	2020/09/25	1131	GR	18	2020/09/29	VB+PS	TW
1P	22 / 23	P 5	T	G&W	018	2020/09/25	1147	GR	18	2020/09/29	VB+PS	TW
1Q	23 / 24	P 5	T	G&W	018	2020/09/25	1158	GR	18	2020/09/29	VB+PS	TW
1R	24 / 25	P 5	T	G&W	018	2020/09/25	1205	GR	18	2020/09/29	VB+PS	TW
1S	25 / 26	P 5	T	G&W	018	2020/09/25	1259	GR	18	2020/09/29	VB+PS	TW
1T	26 / 27	P 5	T	G&W	018	2020/09/25	1308	GR	18	2020/09/29	VB+PS	TW

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
HAW - HOT AIR WELD	C - CAP	

REMARKS

QC TECH Thomas White

SUPERVISOR Thomas White

SUBMISSION DATE 2020/01/05

SHEET NUMBER 1 of 5

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001458 AREA / LAYER Primary

PROJECT TITLE Miller Hazardous Waste Landfill

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	018	2020/09/24	1315	GR	18	243°C	243°C	110	111	104	109	116	171	173	171	170	170	TW	Pass
2	056	2020/09/24	1500	JL	18	243°C	243°C	108	101	106	111	115	182	187	180	185	182	TW	Pass
3	018	2020/09/25	815	GR	18	243°C	243°C	118	117	126	131	124	171	168	155	154	165	TW	Pass
4	018	2020/09/25	1250	GR	22	243°C	243°C	110	112	108	117	107	170	182	187	180	179	TW	Pass
5	018	2020/09/28	747	GR	18	243°C	243°C	121	123	117	113	127	186	186	188	182	184	TW	Pass
6	018	2020/09/28	1145	JL	20	243°C	243°C	112	113	118	119	115	188	189	191	191	185	TW	Pass

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	27 / 28	P 5	T	G&W	018	2020/09/25	1322	GR	18	2020/09/29	VB+PS	TW
2B	28 / 29	P 5	T	G&W	018	2020/09/25	1331	GR	18	2020/09/29	VB+PS	TW
2C	6 / 12	P 5	T	G&W	018	2020/09/25	1401	GR	18	2020/09/29	VB+PS	TW
2D	12 / 13	10.5m from N trench	WS	P	018	2020/09/25	1423	GR	18	2020/09/29	VB+PS	TW
2E	5 / 6	17m from E trench	WS	P	018	2020/09/25	1430	GR	18	2020/09/29	VB+PS	TW
2F	5 / 6	In Trench	PT	P	018	2020/09/25	1455	GR	18	2020/09/29	VB+PS	TW
2G	30 / 35	P 5	WS	G&W	018	2020/09/25	1516	GR	18	2020/09/29	VB+PS	TW
2H	30 / 31	34/35	T	G&W	018	2020/09/25	1527	GR	18	2020/09/29	VB+PS	TW
2I	31 / 32	33/34	T	G&W	018	2020/09/25	1543	GR	18	2020/09/29	VB+PS	TW
2J	30 / 31	3.5m from N trench	WS	P	018	2020/09/25	1604	GR	18	2020/09/29	VB+PS	TW
2K	1 / 2	35m from W trench	DS 1	P	018	2020/09/29	1001	GR	22	2020/09/29	VB+PS	TW
2L	2 / 3	35m from W trench	DS 2	P	018	2020/09/29	1018	GR	22	2020/09/29	VB+PS	TW
2M	1 / 2	22m from w trench	P	B	018	2020/09/24	1600	GR	18	2020/09/29	VB+PS	TW
2N	46 / 47	48/49	T	P	018	2020/09/28	806	GR	20	2020/09/29	VB+PS	TW
2O	45 / 46	49/50	T	G&W	018	2020/09/28	812	GR	20	2020/09/29	VB+PS	TW
2P	44 / 45	10m from E trench	WS	G&W	018	2020/09/28	820	GR	20	2020/09/29	VB+PS	TW
2Q	44 / 45	17m from E trench	WS	P	018	2020/09/28	831	GR	20	2020/09/29	VB+PS	TW
2R	44 / 45	17.9m from E trench	T	G&W	018	2020/09/28	835	GR	20	2020/09/29	VB+PS	TW
2S	43 / 44	P 51	T	G&W	018	2020/09/28	849	GR	20	2020/09/29	VB+PS	TW
2T	51 / 52	P 43	T	G&W	018	2020/09/28	903	GR	20	2020/09/29	VB+PS	TW

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
HAW - HOT AIR WELD	C - CAP	

REMARKS

QC TECH Thomas White

SUPERVISOR Thomas White

SUBMISSION DATE 2020/01/05

SHEET NUMBER 2 of 5

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001458 AREA / LAYER Primary

PROJECT TITLE Miller Hazardous Waste Landfill

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	018	2020/09/28	747	GR	18	243°C	243°C	121	123	117	113	127	186	186	188	182	184	TW	Pass
2	018	2020/09/28	1145	JL	20	243°C	243°C	112	113	118	119	115	188	189	191	191	185	TW	Pass
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
3A	43 / 44	P 39	T	G&W	018	2020/09/28	917	GR	20	2020/09/29	VB+PS	TW
3B	42 / 43	P 39	T	G&W	018	2020/09/28	924	GR	20	2020/09/29	VB+PS	TW
3C	42 / 43	P 52	T	G&W	018	2020/09/28	938	GR	20	2020/09/29	VB+PS	TW
3D	52 / 53	P 42	T	G&W	018	2020/09/28	951	GR	20	2020/09/29	VB+PS	TW
3E	53 / 54	P 42	T	G&W	018	2020/09/28	1005	GR	20	2020/09/29	VB+PS	TW
3F	54 / 55	P 42	T	G&W	018	2020/09/28	1014	GR	20	2020/09/29	VB+PS	TW
3G	41 / 42	P 55	WS	P	018	2020/09/28	1020	GR	20	2020/09/29	VB+PS	TW
3H	55 / 56	P 41	T	G&W	018	2020/09/28	1024	GR	20	2020/09/29	VB+PS	TW
3I	56 / 57	P 41	T	G&W	018	2020/09/28	1107	GR	20	2020/09/29	VB+PS	TW
3J	40 / 41	57/58	WS	G&W	018	2020/09/28	1112	GR	20	2020/09/29	VB+PS	TW
3K	58 / 59	P 40	WS	P	018	2020/09/28	1118	GR	20	2020/09/29	VB+PS	TW
3L	40 / 41	P 39	T	G&W	018	2020/09/28	1121	GR	20	2020/09/29	VB+PS	TW
3M	39 / 40	8.2m from P 41	WS	P	018	2020/09/28	1126	GR	20	2020/09/29	VB+PS	TW
3N	59 / 60	P 40	T	G&W	018	2020/09/28	1130	GR	20	2020/09/29	VB+PS	TW
3O	60 / 61	P 40	T	G&W	018	2020/09/28	1137	GR	20	2020/09/29	VB+PS	TW
3P	61 / 62	P 40	T	G&W	018	2020/09/28	1145	GR	20	2020/09/29	VB+PS	TW
3Q	62 / 63	P 40	T	G&W	018	2020/09/28	1151	GR	20	2020/09/29	VB+PS	TW
3R	63 / 64	P 40	T	G&W	018	2020/09/28	1203	GR	20	2020/09/29	VB+PS	TW
3S	64 / 65	P 40	T	G&W	018	2020/09/28	1247	GR	20	2020/09/29	VB+PS	TW
3T	65 / 66	P 40	T	G&W	018	2020/09/28	1255	GR	20	2020/09/29	VB+PS	TW

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
HAW - HOT AIR WELD	C - CAP	

REMARKS

QC TECH Thomas White

SUPERVISOR Thomas White

SUBMISSION DATE 2020/01/05

SHEET NUMBER 3 of 5

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001458 AREA / LAYER Primary

PROJECT TITLE Miller Hazardous Waste Landfill

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	018	2020/09/25	815	GR	18	243°C	243°C	118	117	126	131	124	171	168	155	154	165	TW	Pass
2	018	2020/09/25	1250	GR	22	243°C	243°C	110	112	108	117	107	170	182	187	180	179	TW	Pass
3	018	2020/09/28	747	GR	18	243°C	243°C	121	123	117	113	127	186	186	188	182	184	TW	Pass
4	018	2020/09/28	1145	JL	20	243°C	243°C	112	113	118	119	115	188	189	191	191	185	TW	Pass
5	018	2020/09/29	806	JL	18	243°C	243°C	103	114	105	101	110	192	191	191	190	196	TW	Pass
6	018	2020/09/29	1215	JL	22	243°C	243°C	121	117	112	113	118	171	163	167	180	165	TW	Pass

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
4A	66 / 67	P 40	T	G&W	018	2020/09/28	1303	GR	20	2020/09/29	VB+PS	TW
4B	67 / 68	P 40	T	G&W	018	2020/09/28	1311	GR	20	2020/09/29	VB+PS	TW
4C	68 / 69	P 40	T	G&W	018	2020/09/28	1316	GR	20	2020/09/29	VB+PS	TW
4D	69 / 74	P 40	WS	P	018	2020/09/28	1324	GR	20	2020/09/29	VB+PS	TW
4E	69 / 70	P74	T	G&W	018	2020/09/28	1330	GR	20	2020/09/29	VB+PS	TW
4F	73 / 74	P 70	T	G&W	018	2020/09/28	1335	GR	20	2020/09/29	VB+PS	TW
4G	70 / 71	P 73	T	G&W	018	2020/09/28	1340	GR	20	2020/09/29	VB+PS	TW
4H	72 / 73	P 71	T	G&W	018	2020/09/28	1345	GR	20	2020/09/29	VB+PS	TW
4I	39 / 40	40.5m from W trench	WR	P	018	2020/09/28	1400	GR	20	2020/09/29	VB+PS	TW
4J	39 / 40	45.5m from W trench	DS 10	P	018	2020/09/29	815	GR	22	2020/09/29	VB+PS	TW
4K	38 / 39	45.5m from W trench	DS 13	P	018	2020/09/29	824	GR	22	2020/09/29	VB+PS	TW
4L	38 / 39	20m from E trench	WR	P	018	2020/09/28	1430	GR	20	2020/09/29	VB+PS	TW
4M	38 / 39	35m from E trench	WS	G&W	018	2020/09/28	1445	GR	20	2020/09/29	VB+PS	TW
4N	1 / 2	in E trench	EXT	G&W	018	2020/09/29	1100	GR	22	2020/09/29	VB+PS	TW
4O	36 / 1	2m from E trench	MD	G&W	018	2020/09/28	1500	GR	20	2020/09/29	VB+PS	TW
4P	36 / 1	4m from E trench	MD	G&W	018	2020/09/28	1505	GR	20	2020/09/29	VB+PS	TW
4Q	1 / 36	21m from E trench	WR	P	018	2020/09/28	1535	GR	20	2020/09/29	VB+PS	TW
4R	1 / 36	28m from W trench	WS	G&W	018	2020/09/25	1633	GR	18	2020/09/29	VB+PS	TW
4S	1 / 36	20m from W trench	WR	P	018	2020/09/25	1645	GR	18	2020/09/29	VB+PS	TW
4T	1 / 1	in W trench	EXT	G&W	018	2020/09/29	900	GR	22	2020/09/29	VB+PS	TW

DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
HAW - HOT AIR WELD	C - CAP	

REMARKS

QC TECH Thomas White

SUPERVISOR Thomas White

SUBMISSION DATE 2020/01/05

SHEET NUMBER 4 of 5

GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT001458 AREA / LAYER Primary

PROJECT TITLE Miller Hazardous Waste Landfill

TRIAL SEAMS

#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY	REMARKS
1	018	2020/09/29	806	JL	18	243°C	243°C	103	114	105	101	110	192	191	191	190	196	TW	Pass
2	018	2020/09/29	1215	JL	22	243°C	243°C	121	117	112	113	118	171	163	167	180	165	TW	Pass
3																			
4																			
5																			
6																			

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
5A	2 / 2	in W trench	PT	P	018	2020/09/29	940	GR	22	2020/09/29	VB+PS	TW
5B	4 / 4	18m from E trench	D	P	018	2020/09/29	1030	GR	22	2020/09/29	VB+PS	TW
5C	42 / 43	8m from P 43	D	P	018	2020/09/29	1315	GR	22	2020/09/29	VB+PS	TW
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DETAIL TYPE:

AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:

AL - AIR LANCE	VB - VAC BOX
PS - POINT STRESS	ST - SPARK TEST

REPAIR TYPE:

G&W - GRIND & WELD	B - BOOT	P - PATCH
HAW - HOT AIR WELD	C - CAP	

REMARKS

QC TECH Thomas White

SUPERVISOR Thomas White

SUBMISSION DATE 2020/01/05

SHEET NUMBER 5 of 5

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
3RD PARTY
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☐

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-1	SPF	1/2	2020/09/24	18		Pass		109	117	111	122	120	120	128	118	132	128	194	197	198	194	193
35m from W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-2	SPF	2/3	2020/09/24	18		Pass		122	115	119	119	120	113	114	112	105	109	194	198	196	198	199
32m from W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-3	SPF	3/4	2020/09/24	18		Pass		114	109	120	120	100	119	128	106	120	119	197	189	191	191	195
W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-4	SPF	4/5	2020/09/24	18		Pass		116	134	117	146	126	112	112	130	113	132	191	192	194	201	200
W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-5	SPF	5/6	2020/09/25	22		Pass		117	145	125	138	152	131	152	149	152	115	199	191	194	195	195
E trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-6	SPF	19/20	2020/09/24	18		Pass		121	114	131	123	125	124	112	121	115	120	200	202	202	203	198
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-7	SPF	14/15	2020/09/24	18		Pass		144	131	137	126	121	144	135	140	133	134	202	206	204	206	203
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-8	SPF	36/1	2020/09/26	22		Pass		143	138	111	109	136	140	108	139	145	126	191	190	190	192	188
E trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Thomas White
SUBMITTED BY Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 1 of 3

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
3RD PARTY
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☐

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-9	SPF	36/37	2020/09/29	23		Pass		124	116	119	124	124	127	145	126	156	102	188	188	186	188	189
W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-10	SPF	39/40	2020/09/29	23		Pass		121	120	11	136	114	114	109	110	114	126	189	190	186	185	186
46m from W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-11	SPF	39/44	2020/09/29	23		Pass		126	130	135	134	146	130	110	136	144	134	185	184	186	187	185
E trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-12	SPF	37/38	2020/09/29	23		Pass		107	114	139	118	134	136	133	121	128	128	178	177	177	180	179
W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-13	SPF	38/39	2020/09/29	23		Pass		124	128	121	124	118	138	129	136	141	131	191	189	186	189	186
45m from W trench								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-14	SPF	28/29	2020/09/24	18		Pass		119	117	118	132	133	117	121	127	127	123	203	205	204	204	200
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-15	SPF	24/25	2020/09/24	18		Pass		133	136	116	110	124	124	129	137	122	138	190	185	187	187	184
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-16	SPF	53/54	2020/09/29	23		Pass		135	140	130	134	146	134	122	148	144	150	191	190	189	193	192
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk

TYPE OF SEAM:
SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

QC TECH Thomas White
SUBMITTED BY Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 2 of 3

GEOMEMBRANE DESTRUCT LOG

PROJECT NUMBER CT001458
PROJECT TITLE Miller Hazardous Waste Landfill
AREA / LAYER Primary
3RD PARTY
ARCHIVE LAYFIELD ☐ OWNER ☐ ENGINEER ☐

DESTRUCT SAMPLE NUMBER	TYPE OF SEAM	PANEL NUMBERS	TEST DATE YYYY-MM-DD	TEST TEMP °C	INITIALS 3RD PARTY PRESENT	INITIALS LAYFIELD PASS	INITIALS 3RD PARTY LAB PASS	INSIDE PEEL STRENGTH (PPI)					OUTSIDE PEEL STRENGTH (PPI)					SHEAR STRENGTH (PPI)				
SAMPLE LOCATION								LOCUS OF BREAK					LOCUS OF BREAK					LOCUS OF BREAK				
DS-17	SPF	61/62	2020/09/29	23		Pass		101	135	119	125	112	127	118	125	132	104	193	192	193	192	191
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-18	SPF	64/65	2020/09/29	23		Pass		117	118	115	113	125	131	139	114	117	135	195	193	191	193	191
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-19	SPF	73/74	2020/09/29	23		Pass		144	127	131	147	117	143	138	115	134	137	187	193	184	185	188
Cut off								se1	se1	se1	se1	se1	se1	se1	se1	se1	se1	brk	brk	brk	brk	brk
DS-																						
DS-																						
DS-																						
DS-																						
DS-																						

TYPE OF SEAM: SPF - SPLIT FUSION SOF - SOLID FUSION SLV - SOLVENT
EXT - EXTRUSION HAF - HOT AIR FUSION

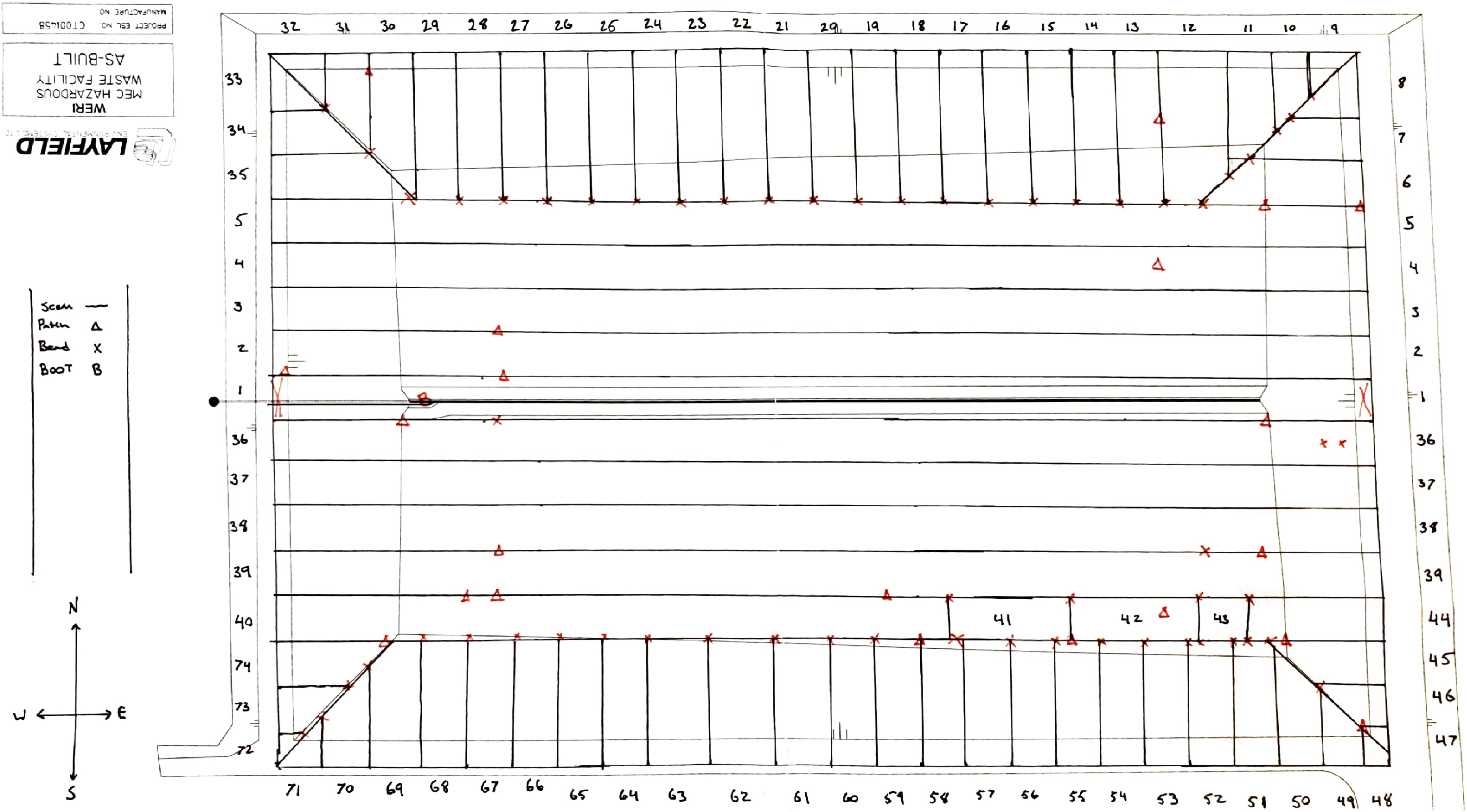
QC TECH Thomas White
SUBMITTED BY Thomas White
SUBMISSION DATE 2020/01/05
SHEET NUMBER 3 of 3

LAYFIELD

WERI
MEC HAZARDOUS
WASTE FACILITY
AS-BUILT

PROJECT ESL NO.	CT00I458
MANUFACTURE NO.	

DWG: I OF I	SCALE:	N.T.S.
DWN:	CHKD:	APP'D:
DATE:	REVISION:	



NO.	REVISIONS	DATE (MM/DD/YY)	BY

ANSI B Size Page (Horizontal)

LAYFIELD
ENVIRONMENTAL CONTAINMENT

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: WERI MEC Facility Rc 3 cell
PROJECT NUMBER: CT001458 **DATE:** Sept 29/2020
OWNER: Miller Environmental Corp
LOCATION: Hwy 14 & 75 Saint Jean Baptiste MB, R0G2B0

Scope of Installation(s): **THE WORK**
Area/Layer: Primary Area Inspected: ☐ Partial or ☒ Complete
Dimensions: 109 m x 158.5 m

Part 1 – LAYFIELD CANADA LTD.

I, Thomas White, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:
Name: Thomas White
Title: Lead Hand
Date: Sept 29/20 **Signature:**

Part 2 – OWNER (or Representative)

I, Duane McClinton, a duly appointed representative of WERI, do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:
Name: Duane McClinton.
Title: Supervisor.
Company: WERI.
Date: Sept 29 2020 **Signature:**

Comments:

INVENTORY LOG

PROJECT NUMBER: CT001458
PROJECT TITLE: Miller Hazardous Waste Landfill
DATE OF INVENTORY: 2020/09/21
PRODUCT TYPE: HDPE
MATERIAL MANUFACTURER: Layfield

#	ROLL NUMBER	MATERIAL DIMENSIONS			REMARKS
		THICKNESS	LENGTH (m)	WIDTH (m)	
1	E0011242-001	60 Mil	158.5	6.8	Stored on rocks
2	E0011242-002	60 Mil	158.5	6.8	Stored on rocks
3	E0011242-003	60 Mil	158.5	6.8	Stored on rocks
4	E0011242-004	60 Mil	158.5	6.8	Stored on rocks
5	E0011242-005	60 Mil	158.5	6.8	Stored on rocks
6	E0011242-006	60 Mil	158.5	6.8	Stored on rocks
7	E0011242-007	60 Mil	158.5	6.8	Stored on rocks
8	E0011242-008	60 Mil	158.5	6.8	Stored on rocks
9	E0011242-009	60 Mil	158.5	6.8	Stored on rocks
10	E0011242-010	60 Mil	158.5	6.8	Stored on rocks
11	E0011242-011	60 Mil	158.5	6.8	Stored on rocks
12	E0011242-012	60 Mil	158.5	6.8	Stored on rocks
13	E0011242-013	60 Mil	158.5	6.8	Stored on rocks
14	E0011242-014	60 Mil	158.5	6.8	Stored on rocks
15	E0011242-015	60 Mil	158.5	6.8	Stored on rocks
16	E0011242-016	60 Mil	158.5	6.8	Stored on rocks
17	E0011242-017	60 Mil	158.5	6.8	Stored on rocks
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

TOTAL PAGE AREA: 18322.6 m^2

QC TECH: Thomas White
SUPERVISOR: Thomas White
SUBMISSION DATE: 2020/01/05

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job #	E0011242		
Start Date	8/19/2020	**Customer Name**	MILLIER ENVIRONMENTAL HAZARDOUS WASTE FACILITY
Req Delivery Date	8/20/2020	**Job Description**	HDPE 270"x520' 60MIL
Close Date		**Warehouse**	45
		Qty Manufactured	8905 FT

Inspection #	42170	**Job**	E0011242	**Status**	Active	**Result**	Pass
Stock Code	605270060	HDPE 270"x520' 60MIL		**Inspection Date**	8/19/2020	**Completion Date**	8/20/2020
Notes							

Serial	Result	Roll Length (ft)	Roll Weight - Net lbs	Sheet Width (270 in +/- 2.7 in)	Roll Area m2	Thickness - Average ASTM D5994 (60 mils min.)	Thickness - Minimum ASTM D5994 (54 mils min.)
605270060-E0011242-001	Pass	520	3536	270.0	1086.95652173913	60.8	59.7
605270060-E0011242-002	Pass	520	3551	270.3	1086.95652173913	61.31	59.9
605270060-E0011242-003	Pass	520	3551	270.3	1086.95652173913	60.32	59
605270060-E0011242-004	Pass	520	3546	270.5	1086.95652173913	60.5	59.9
605270060-E0011242-005	Pass	520	3551	270.5	1086.95652173913	60.43	59
605270060-E0011242-006	Pass	520	3551	270.5	1086.95652173913	60.32	59.6
605270060-E0011242-007	Pass	520	3546	270.5	1086.95652173913	60.45	59.2
605270060-E0011242-008	Pass	520	3551	270.3	1086.95652173913	60.31	59.6
605270060-E0011242-009	Pass	520	3986	270.3	1086.95652173913	60.83	59.9
605270060-E0011242-010	Pass	520	3546	270.0	1086.95652173913	60.58	59.5
605270060-E0011242-011	Pass	520	3551	270.0	1086.95652173913	60.31	59.3
605270060-E0011242-012	Pass	520	3546	270.5	1086.95652173913	60.72	59.7
605270060-E0011242-013	Pass	520	3541	270.5	1086.95652173913	60.21	59.2
605270060-E0011242-014	Pass	520	3541	269.3	1086.95652173913	60.09	59.1
605270060-E0011242-015	Pass	520	3551	270.3	1086.95652173913	60.63	59.1
605270060-E0011242-016	Pass	520	3561	270.3	1086.95652173913	60.68	59.1
605270060-E0011242-017	Pass	520	3576	270.3	1086.95652173913	60.51	59.5

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job #	E0011242		
Start Date	8/19/2020	**Customer Name**	MILLIER ENVIRONMENTAL HAZARDOUS WASTE FACILITY
Req Delivery Date	8/20/2020	**Job Description**	HDPE 270"x520' 60MIL
Close Date		**Warehouse**	45
		Qty Manufactured	8905 FT

Inspection #	42170	**Job**	E0011242	**Status**	Active	**Result**	Pass
Stock Code	605270060	HDPE 270"x520' 60MIL		**Inspection Date**	8/19/2020	**Completion Date**	8/20/2020
Notes							

Serial	Strength at Yield - MD Average ASTM D6693 IV (126 lbs/in min.)	Elongation at Yield - MD Average ASTM D6693 IV (12 % min.)	Strength at Break - MD Average ASTM D6693 IV (228 lbs/in min.)	Elongation at Break - MD Average ASTM D6693 IV (700 % min.)	Strength at Yield - TD Average ASTM D6693 IV (126 lbs/in min.)	Elongation at Yield - TD Average ASTM D6693 IV (12 % min.)	Strength at Break - TD Average ASTM D6693 IV (228 lbs/in min.)
605270060-E0011242-001							
605270060-E0011242-002	156.72	20.4	284.64	781.8	165.38	18.8	301.96
605270060-E0011242-003	156.72	20.4	284.64	781.8	165.38	18.8	301.96
605270060-E0011242-004	156.72	20.4	284.64	781.8	165.38	18.8	301.96
605270060-E0011242-005	156.72	20.4	284.64	781.8	165.38	18.8	301.96
605270060-E0011242-006	156.72	20.4	284.64	781.8	150.98	18.8	304.7
605270060-E0011242-007	156.72	20.4	284.64	781.8	150.98	18.8	304.7
605270060-E0011242-008	146.48	20.8	289.98	834.6	150.98	18.8	304.7
605270060-E0011242-009	146.48	20.8	289.98	834.6	150.98	18.8	304.7
605270060-E0011242-010	146.48	20.8	289.98	834.6	150.98	18.8	304.7
605270060-E0011242-011	158.16	21.2	289.32	789	164.84	18.2	307.4
605270060-E0011242-012	158.16	21.2	289.32	789	164.84	18.2	307.4
605270060-E0011242-013	158.16	21.2	289.32	789	164.84	18.2	307.4
605270060-E0011242-014	158.16	21.2	289.32	789	164.84	18.2	307.4
605270060-E0011242-015	158.16	21.2	289.32	789	164.84	18.2	307.4
605270060-E0011242-016	159.52	20.6	306.44	820.8	164.48	18.4	316.12
605270060-E0011242-017	159.52	20.6	306.44	820.8	164.48	18.4	316.12

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job #	E0011242		
Start Date	8/19/2020	**Customer Name**	MILLIER ENVIRONMENTAL HAZARDOUS WASTE FACILITY
Req Delivery Date	8/20/2020	**Job Description**	HDPE 270"x520' 60MIL
Close Date		**Warehouse**	45
		Qty Manufactured	8905 FT

Inspection #	42170	**Job**	E0011242	**Status**	Active	**Result**	Pass
Stock Code	605270060	HDPE 270"x520' 60MIL		**Inspection Date**	8/19/2020	**Completion Date**	8/20/2020
Notes							

Serial	Elongation at Break - TD Average ASTM D6693 IV (700 % min.)	Tear Strength - MD Average ASTM D1004 (42 lbs min.)	Tear Strength - TD Average ASTM D1004 (42 lbs min.)	Puncture Strength - Average ASTM D4833 (108 lbs min.)	Carbon Black Content ASTM D4218 (2 % to 3 %)	Density ASTM D1505 (0.94 g/cc to 0.96 g/cc)	Carbon Black Dispersion ASTM D5596
605270060-E0011242-001				144.8		0.949	>= 9 in Category 1 or 2
605270060-E0011242-002	863.6	48.4	52	144.8	2.41	0.949	>= 9 in Category 1 or 2
605270060-E0011242-003	863.6	48.4	52	144.8	2.41	0.949	>= 9 in Category 1 or 2
605270060-E0011242-004	863.6	48.4	52	144.8	2.41	0.949	>= 9 in Category 1 or 2
605270060-E0011242-005	863.6	48.4	52	144.8	2.41	0.949	>= 9 in Category 1 or 2
605270060-E0011242-006	907.6	48.4	52	144.8	2.57	0.949	>= 9 in Category 1 or 2
605270060-E0011242-007	907.6	48.4	52	144.8	2.57	0.949	>= 9 in Category 1 or 2
605270060-E0011242-008	907.6	48.4	52	144.8	2.57	0.949	>= 9 in Category 1 or 2
605270060-E0011242-009	907.6	48.4	52	144.8	2.57	0.949	>= 9 in Category 1 or 2
605270060-E0011242-010	907.6	48.4	52	144.8	2.57	0.949	>= 9 in Category 1 or 2
605270060-E0011242-011	876.4	50.8	52.4	146	2.56	0.949	>= 9 in Category 1 or 2
605270060-E0011242-012	876.4	50.8	52.4	146	2.56	0.949	>= 9 in Category 1 or 2
605270060-E0011242-013	876.4	50.8	52.4	146	2.56	0.949	>= 9 in Category 1 or 2
605270060-E0011242-014	876.4	50.8	52.4	146	2.56	0.949	>= 9 in Category 1 or 2
605270060-E0011242-015	876.4	50.8	52.4	146	2.56	0.949	>= 9 in Category 1 or 2
605270060-E0011242-016	929.2	50.8	52.4	146	2.32	0.949	>= 9 in Category 1 or 2
605270060-E0011242-017	929.2	50.8	52.4	146	2.32	0.949	>= 9 in Category 1 or 2

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job #	E0011242		
Start Date	8/19/2020	**Customer Name**	MILLIER ENVIRONMENTAL HAZARDOUS WASTE FACILITY
Req Delivery Date	8/20/2020	**Job Description**	HDPE 270"x520' 60MIL
Close Date		**Warehouse**	45
		Qty Manufactured	8905 FT

Inspection #	42170	**Job**	E0011242	**Status**	Active	**Result**	Pass
Stock Code	605270060	HDPE 270"x520' 60MIL		**Inspection Date**	8/19/2020	**Completion Date**	8/20/2020
Notes							

Serial	OIT - High Pressure ASTM D5885
605270060-E0011242-001	Pass > 400 mins
605270060-E0011242-002	Pass > 400 mins
605270060-E0011242-003	Pass > 400 mins
605270060-E0011242-004	Pass > 400 mins
605270060-E0011242-005	Pass > 400 mins
605270060-E0011242-006	Pass > 400 mins
605270060-E0011242-007	Pass > 400 mins
605270060-E0011242-008	Pass > 400 mins
605270060-E0011242-009	Pass > 400 mins
605270060-E0011242-010	Pass > 400 mins
605270060-E0011242-011	Pass > 400 mins
605270060-E0011242-012	Pass > 400 mins
605270060-E0011242-013	Pass > 400 mins
605270060-E0011242-014	Pass > 400 mins
605270060-E0011242-015	Pass > 400 mins
605270060-E0011242-016	Pass > 400 mins
605270060-E0011242-017	Pass > 400 mins

LAYFIELD CANADA LTD.
17720 – 129 Avenue NW Edmonton, Alberta T5V 0C4 Canada
Phone: (780) 453-6731
Fax: (780) 452-9495
Toll Free: 1 800 840-2884
Web: www.layfieldgroup.com
E-Mail: edm@layfieldgroup.com

INSTALLATION WARRANTY

Layfield Reference No. : (Job #) CT001458

LAYFIELD CANADA LTD. (LAYFIELD) hereby warrants to Winnipeg Environmental Remediation Inc ; (the Customer) that the work performed by LAYFIELD on the Installation described as MEC St. Jean Baptiste Facility RC3 Cell will:

1. Meet the field seam specifications set out in the contract between LAYFIELD and the Customer (as amended by LAYFIELD's quotation), all workmanship to meet the requirements of LAYFIELD's Field Installation Quality Assurance program, and be free of defects at the time of completion of the Installation; and

2. Be free of installation defects from the date of the completion of the Installation (September 29th, 2020), for a period of 1 (one) year so long as the completed Installation is used for the purposes and in the manner for which the Installation was designed.

Should damage or defects within the scope of the aforesaid warranties occur, LAYFIELD shall repair the damage or defects, PROVIDED THAT the area to be repaired must first be made ready by the Customer and be in a clean, dry, unencumbered condition, free from all water, soil, sludge, residuals, and liquids of any kind.

To enable LAYFIELD to investigate and determine the cause of any alleged damage or defect, notice and details of any claim hereunder must be presented in writing to LAYFIELD within thirty (30) days after the alleged damage or defect was first noticed or observed. Failure to provide such notice and details shall invalidate all warranties provided hereunder.

The liability of LAYFIELD under the aforesaid warranties are subject to the following conditions:

a. LAYFIELD's only obligation shall be to repair or replace any defective workmanship and in no event shall LAYFIELD be liable for any amount in excess of the cost of the Installation;

b. No allowance will be made for repairs, replacements or alterations made by the Customer unless with the prior written consent of LAYFIELD;

c. The warranties hereunder extend only to the Customer and are not transferable;

d. The warranties hereunder shall not apply to any damage or defects resulting from misuse, mechanical abuse by machinery, equipment or persons, excessive pressures or stresses, exposure of the completed Installation of harmful chemicals, unusual weather conditions, casualty catastrophe such as (but not limited to) earthquake, flood, hail, tornado, or any other act of God;

e. Under no circumstances shall LAYFIELD be liable for any special, direct, indirect, or consequential damages including the loss of use of the Installation howsoever caused;

f. The warranties hereunder are given in lieu of all other warranties, express, implied, statutory, or otherwise, and the Customer expressly waives all other warranties and claims whatsoever except those specifically given herein, and the Customer acknowledges that the warranties hereunder are accepted in preference to and to the exclusion of any or all other warranties; and

g. An Installation Warranty will not be provided for lining projects unless the installation is completed by LAYFIELD personnel or designated LAYFIELD subcontractors.

LAYFIELD CANADA LTD.

Jon Feenstra, Senior Project Manager

LAYFIELD CANADA LTD.

for Cameron Forster, Vice President