APPENDIX K

Geomembrane Production Seam and Non-Destructive Test Logs

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
8/19/2011	13:20	W-39	VS	F	1-001-002-509-0	509	DWH	0-509	30-30	DS	P	AT OK	DWH
8/19/2011	13:50	W-32	TS	F	1-003-004-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/19/2011	14:22	W-32	TS	F	1-001-003-0-22	22	DWH	0-22	30-27	DS	P	AT OK	DWH
8/19/2011	14:29	W-32	TS	F	1-002-004-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/19/2011	14:42	W-39	VS	F	1-002-005-507-0	507	DWH	0-507	30-29	DS	P	AT OK	DWH
8/19/2011	15:05	W-32	TS	F	1-005-006-517-0	517	DWH	0-517	30-30	DS	P	AT OK	DWH
8/19/2011	15:50	W-39	VS	F	1-006-007-520-0	520	DWH	0-520	30-30	DS	P	AT OK	DWH
8/19/2011	16:43	W-32	TS	F	1-004-008-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/19/2011	17:15	W-32	TS	F	1-008-009-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/19/2011	17:21	W-39	VS	F	1-007-011-510-0	510	DWH	0-510	30-30	DS	P	AT OK	DWH
8/19/2011	17:45	W-32	TS	F	1-009-010-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/19/2011	18:20	W-32	TS	F	1-007-010-0-22	22	DWH	0-22	30-27	DS	P	AT OK	DWH
8/19/2011	18:25	W-32	TS	F	1-006-009-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
8/19/2011	18:28	W-32	TS	F	1-005-008-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
8/19/2011	18:30	W-39	VS	F	1-010-012-165-0	165	DWH	0-165	30-29	DS	P	AT OK	DWH
8/19/2011	18:45	W-32	TS	F	1-011-012-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
8/20/2011	8:35	W-39	VS	F	1-013-014-516-0	516	DWH	0-516	30-30	DS	P	AT OK	DWH
8/20/2011	8:57	W-20	TS	F	1-014-015-514-0	514	DWH	0-514	30-30	DS	P	AT OK	DWH
8/20/2011	9:45	W-39	VS	F	1-015-016-519-0	519	DWH	0-519	30-30	DS	P	AT OK	DWH
8/20/2011	10:15	W-20	TS	F	1-016-017-517-0	517	DWH	0-517	30-30	DS	P	AT OK	DWH
8/20/2011	10:41	W-39	VS	F	1-017-018-521-0	521	DWH	0-521	30-30	DS	P	AT OK	DWH
8/20/2011	13:06	W-39	VS	F	1-011-013-512-0	512	DWH	0-512	30-30	DS	P	AT OK	DWH
8/20/2011	13:25	W-20	TS	F	1-019-020-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	13:47	W-20	TS	F	1-012-019-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	14:08	W-20	TS	F	1-020-021-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	14:10	W-32	DS	F	1-022-023-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	14:21	W-39	VS	F	1-018-025-516-0	516	DWH	0-516	30-30	DS	P	AT OK	DWH
8/20/2011	14:37	W-32	DS	F	1-023-024-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	14:40	W-20	TS	F	1-021-022-173-0	173	DWH	0-173	30-30	DS	P	AT OK	DWH
8/20/2011	15:00	W-32	DS	F	1-024-027-165-0	165	DWH	0-165	30-30	DS	P	AT OK	DWH
8/20/2011	15:20	W-20	TS	F	1-018-024-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:22	W-20	TS	F	1-017-023-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH

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Production Seam Log

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ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
8/20/2011	15:24	W-20	TS	F	1-016-022-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:25	W-39	VS	F	1-025-026-517-0	517	DWH	0-517	30-30	DS	P	AT OK	DWH
8/20/2011	15:27	W-32	DS	F	1-027-028-172-0	172	DWH	0-172	30-30	DS	P	AT OK	DWH
8/20/2011	15:28	W-20	TS	F	1-015-021-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:31	W-20	TS	F	1-014-020-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:34	W-20	TS	F	1-013-019-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:43	W-20	TS	F	1-026-028-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	15:51	W-20	TS	F	1-025-027-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
8/20/2011	16:00	W-32	DS	F	1-024-030-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
8/20/2011	16:04	W-32	DS	F	1-027-030-14-0	14	DWH	0-14	30-30	DS	P	AT OK	DWH
8/20/2011	16:06	W-32	DS	F	1-023-030-15-0	15	DWH	0-15	30-30	DS	P	AT OK	DWH
8/20/2011	16:10	W-32	DS	F	1-021-029-22-0	22	DWH	0-22	30-28	DS	P	AT OK	DWH
8/20/2011	16:13	W-32	DS	F	1-020-029-12-0	12	DWH	0-12	30-30	DS	P	AT OK	DWH
8/20/2011	16:15	W-32	DS	F	1-022-029-14-0	14	DWH	0-14	30-30	DS	P	AT OK	DWH
9/2/2011	8:26	W-39	VS	F	1-031-032-226-0	226	DWH	0-226	30-30	DS	P	AT OK	DWH
9/2/2011	8:40	W-8	TS	F	1-032-033-226-0	226	DWH	0-226	31-31	DS	P	AT OK	DWH

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ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/2/2011	8:45	W-2	DS	F	1-033-034-215-0	215	DWH	0-215	30-30	DS	P	AT OK	DWH
9/2/2011	9:00	W-39	VS	F	1-034-035-213-0	213	DWH	0-213	32-32	MAB	P	AT OK	DWH
9/2/2011	9:20	W-8	TS	F	1-036-037-217-0	217	DWH	0-217	33-33	MAB	P	AT OK	DWH
9/2/2011	9:26	W-39	VS	F	1-035-036-217-0	217	DWH	0-217	30-29	MAB	P	AT OK	DWH
9/2/2011	9:27	W-2	DS	F	1-037-038-216-0	216	DWH	0-216	30-30	DS	P	AT OK	DWH
9/2/2011	9:55	W-8	TS	F	1-039-040-0-215	215	DWH	0-215	34-34	MAB	P	AT OK	DWH
9/2/2011	9:56	W-39	VS	F	1-038-039-0-218	218	DWH	0-218	33-33	MAB	P	AT OK	DWH
9/2/2011	10:18	W-2	DS	F	1-031-041-72-0	72	DWH	0-72	32-32	MAB	P	AT OK	DWH
9/2/2011	10:25	W-39	VS	F	1-034-042-0-22	22	DWH	0-22	33-31	MAB	P	AT OK	DWH
9/2/2011	10:35	W-39	VS	F	1-032-041-0-22	22	DWH	0-22	33-33	MAB	P	AT OK	DWH
9/2/2011	10:35	W-2	DS	F	1-033-041-84-0	84	DWH	0-84	32-32	MAB	P	AT OK	DWH
9/2/2011	10:40	W-8	TS	F	1-033-042-295-216	79	DWH	216-295	32-30	MAB	P	AT OK	DWH
9/2/2011	10:54	W-2	DS	F	1-035-043-78-0	78	DWH	0-78	34-34	MAB	P	AT OK	DWH
9/2/2011	10:55	W-8	TS	F	1-035-042-80-0	80	DWH	0-80	33-32	MAB	P	AT OK	DWH
9/2/2011	10:55	W-39	VS	F	1-036-043-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
9/2/2011	11:06	W-39	VS	F	1-038-044-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH

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Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/2/2011	11:15	W-8	TS	F	1-037-043-77-0	77	DWH	77-0	30-30	DS	P	AT OK	DWH
9/2/2011	11:15	W-39	VS	F	1-040-045-0-22	22	DWH	0-22	32-32	MAB	P	AT OK	DWH
9/2/2011	11:20	W-2	DS	F	1-037-044-77-0	77	DWH	0-77	33-32	MAB	P	AT OK	DWH
9/2/2011	11:25	W-39	VS	F	1-047-048-0-22	22	DWH	0-22	32-32	MAB	P	AT OK	DWH
9/2/2011	11:30	W-39	VS	F	1-040-046-0-212	212	DWH	0-212	34-33	MAB	P	AT OK	DWH
9/2/2011	11:35	W-2	DS	F	1-039-044-77-0	77	DWH	0-77	31-29	MAB	P	AT OK	DWH
9/2/2011	11:50	W-39	VS	F	1-045-046-0-79	79	DWH	0-79	32-31	MAB	P	AT OK	DWH
9/2/2011	11:55	W-2	DS	F	1-039-045-0-83	83	DWH	0-83	33-33	MAB	P	AT OK	DWH
9/2/2011	12:10	W-39	VS	F	1-046-047-0-214	214	DWH	0-214	34-32	MAB	P	AT OK	DWH
9/2/2011	12:30	W-39	VS	F	1-046-048-0-82	82	DWH	0-83	32-32	MAB	P	AT OK	DWH
9/2/2011	12:55	W-8	TS	F	1-026-031-290-0	290	DWH	0-290	31-31	DS	P	AT OK	DWH
9/2/2011	13:25	W-39	VS	F	1-047-049-0-221	221	DWH	0-221	30-30	DS	P	AT OK	DWH
9/2/2011	13:34	W-2	DS	F	1-049-050-0-222	222	DWH	0-222	30-30	DS	P	AT OK	DWH
9/2/2011	13:50	W-39	VS	F	1-048-049-221-241	20	DWH	221-241	30-30	MAB	P	AT OK	DWH
9/2/2011	13:55	W-8	TS	F	1-050-052-0-223	223	DWH	0-223	31-31	DS	P	AT OK	DWH
9/2/2011	14:02	W-2	DS	F	1-049-051-0-68	68	DWH	0-68	31-30	MAB	P	AT OK	DWH

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Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/2/2011	14:02	W-39	VS	F	1-050-051-0-22	22	DWH	0-22	35-34	MAB	P	AT OK	DWH
9/2/2011	14:06	W-39	VS	F	1-053-054-0-22	22	DWH	0-22	35-35	MAB	P	AT OK	DWH
9/2/2011	14:13	W-39	VS	F	1-052-053-0-158	158	DWH	0-158	30-30	DS	P	AT OK	DWH
9/2/2011	14:18	W-8	TS	F	1-051-052-0-67	67	DWH	0-67	32-31	MAB	P	AT OK	DWH
9/2/2011	14:28	W-2	DS	F	1-053-055-0-158	158	DWH	0-158	35-34	MAB	P	AT OK	DWH
9/2/2011	14:30	W-39	VS	F	1-052-054-158-287	129	DWH	158-287	31-31	MAB	P	AT OK	DWH
9/2/2011	14:45	W-8	TS	F	1-055-056-0-88	88	DWH	0-88	33-33	MAB	P	AT OK	DWH
9/2/2011	14:48	W-2	DS	F	1-054-055-158-287	129	DWH	158-287	30-30	MAB	P	AT OK	DWH
9/2/2011	14:50	W-39	VS	F	1-056-057-0-22	22	DWH	0-22	34-32	MAB	P	AT OK	DWH
9/2/2011	15:00	W-8	TS	F	1-055-057-88-287	199	DWH	88-287	33-33	MAB	P	AT OK	DWH
9/2/2011	15:00	W-39	VS	F	1-056-058-0-88	88	DWH	0-88	32-32	MAB	P	AT OK	DWH
9/2/2011	15:10	W-39	VS	F	1-057-058-88-287	199	DWH	88-287	34-33	MAB	P	AT OK	DWH
9/2/2011	15:22	W-2	DS	F	1-058-059-0-287	287	DWH	0-287	31-31	DS	P	AT OK	DWH
9/2/2011	15:35	W-8	TS	F	1-059-060-0-221	221	DWH	0-221	30-30	DS	P	AT OK	DWH
9/2/2011	15:37	W-39	VS	F	1-060-061-0-22	22	DWH	0-22	34-33	MAB	P	AT OK	DWH
9/2/2011	16:10	W-8	TS	F	1-059-061-0-69	69	DWH	0-69	34-32	MAB	P	AT OK	DWH

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Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/2/2011	16:10	W-39	VS	F	1-063-064-50-0	50	DWH	0-50	33-33	MAB	P	AT OK	DWH
9/2/2011	16:11	W-2	DS	F	1-062-063-50-0	50	DWH	0-50	33-33	MAB	P	AT OK	DWH
9/2/2011	16:25	W-8	TS	F	1-064-065-50-0	50	DWH	0-50	34-33	MAB	P	AT OK	DWH
9/2/2011	16:30	W-2	DS	F	1-065-066-50-0	50	DWH	0-50	34-32	MAB	P	AT OK	DWH
9/2/2011	16:36	W-39	VS	F	1-060-062-0-22	22	DWH	0-22	31-30	MAB	P	AT OK	DWH
9/2/2011	16:40	W-39	VS	F	1-060-063-0-22	22	DWH	0-22	33-33	MAB	P	AT OK	DWH
9/2/2011	16:40	W-8	TS	F	1-066-067-50-0	50	DWH	0-50	33-30	MAB	P	AT OK	DWH
9/2/2011	16:43	W-2	DS	F	1-067-068-50-0	50	DWH	0-50	30-30	DS	P	AT OK	DWH
9/2/2011	16:44	W-39	VS	F	1-060-064-0-22	22	DWH	0-22	34-34	MAB	P	AT OK	DWH
9/2/2011	16:46	W-39	VS	F	1-060-065-0-22	22	DWH	0-22	33-33	MAB	P	AT OK	DWH
9/2/2011	16:51	W-39	VS	F	1-060-066-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
9/2/2011	16:55	W-39	VS	F	1-060-067-0-22	22	DWH	0-22	34-33	MAB	P	AT OK	DWH
9/2/2011	17:00	W-39	VS	F	1-060-068-0-22	22	DWH	0-22	32-32	MAB	P	AT OK	DWH
9/2/2011	17:05	W-8	TS	F	1-068-069-50-0	50	DWH	0-50	32-31	MAB	P	AT OK	DWH
9/2/2011	17:15	W-8	TS	F	1-069-070-49-0	49	DWH	0-49	31-28	MAB	P	AT OK	DWH
9/2/2011	17:20	W-39	VS	F	1-070-071-49-0	49	DWH	0-49	34-34	MAB	P	AT OK	DWH

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Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/2/2011	17:30	W-8	TS	F	1-071-072-49-0	49	DWH	0-49	30-30	DS	P	AT OK	DWH
9/2/2011	17:32	W-8	TS	F	1-072-073-49-0	49	DWH	0-49	32-29	MAB	P	AT OK	DWH
9/2/2011	17:40	W-8	TS	F	1-073-074-49-0	49	DWH	0-49	33-33	MAB	P	AT OK	DWH
9/2/2011	17:45	W-39	VS	F	1-074-075-49-0	49	DWH	0-49	32-31	MAB	P	AT OK	DWH
9/2/2011	17:55	W-39	VS	F	1-060-069-0-20	20	DWH	0-20	32-31	MAB	P	AT OK	DWH
9/2/2011	18:00	W-39	VS	F	1-060-070-0-22	22	DWH	0-22	33-33	MAB	P	AT OK	DWH
9/2/2011	18:04	W-39	VS	F	1-060-071-0-22	22	DWH	0-22	34-34	MAB	P	AT OK	DWH
9/2/2011	18:06	W-39	VS	F	1-060-072-0-7	7	DWH	0-7	CAPPED	JG	P	VT OK	DWH
9/2/2011	18:08	W-39	VS	F	1-061-072-0-15	15	DWH	0-15	35-34	MAB	P	AT OK	DWH
9/2/2011	18:10	W-39	VS	F	1-061-073-0-22	22	DWH	0-22	32-31	MAB	P	AT OK	DWH
9/2/2011	18:14	W-39	VS	F	1-061-074-0-22	22	DWH	0-22	35-33	MAB	P	AT OK	DWH
9/2/2011	18:16	W-39	VS	F	1-061-075-0-12	12	DWH	0-12	32-29	MAB	P	AT OK	DWH
9/13/2011	13:41	W-8	TS	F	1-076-077-0-109	109	DWH	0-109	30-30	MAB	P	AT OK	DWH
9/13/2011	13:50	W-39	VS	F	1-077-078-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	13:57	W-8	TS	F	1-076-078-0-291	291	DWH	291	30-29	MAB	P	AT OK	DWH
9/13/2011	14:19	W-39	VS	F	1-077-079-0-108	108	DWH	0-108	30-29	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/13/2011	14:27	W-39	VS	F	1-078-079-0-112	112	DWH	0-112	30-29	MAB	P	AT OK	DWH
9/13/2011	14:39	W-39	VS	F	1-079-080-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	14:45	W-39	VS	F	1-078-080-0-181	181	DWH	0-181	30-30	MAB	P	AT OK	DWH
9/13/2011	15:15	W-8	TS	F	1-075-081-49-0	49	DWH	0-49	30-27	MAB	P	AT OK	DWH
9/13/2011	15:30	W-39	VS	F	1-081-082-49-0	49	DWH	0-49	30-29	MAB	P	AT OK	DWH
9/13/2011	15:35	W-8	TS	F	1-082-083-50-0	50	DWH	0-50	30-29	MAB	P	AT OK	DWH
9/13/2011	15:40	W-39	VS	F	1-083-084-51-0	51	DWH	0-51	30-30	MAB	P	AT OK	DWH
9/13/2011	15:46	W-8	TS	F	1-084-085-51-0	51	DWH	0-51	30-28	MAB	P	AT OK	DWH
9/13/2011	15:55	W-39	VS	F	1-085-086-22-0	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	15:58	W-39	VS	F	1-075-079-0-12	12	DWH	0-12	CAPPED	KP	P	VT OK	DWH
9/13/2011	16:00	W-39	VS	F	1-079-081-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	16:05	W-39	VS	F	1-079-082-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	16:08	W-39	VS	F	1-079-083-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/13/2011	16:11	W-39	VS	F	1-079-084-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	16:15	W-39	VS	F	1-079-085-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	16:20	W-39	VS	F	1-079-086-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH

Geosyntec
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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/13/2011	16:35	W-39	VS	F	1-058-076-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	16:36	W-8	TS	F	1-085-087-22-0	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	16:38	W-39	VS	F	1-059-077-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
9/13/2011	16:41	W-39	VS	F	1-061-079-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/13/2011	16:41	W-8	TS	F	1-086-088-0-30	30	DWH	0-30	30-30	MAB	P	AT OK	DWH
9/13/2011	16:47	W-8	TS	F	1-087-088-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	16:55	W-8	TS	F	1-088-089-53-0	53	DWH	0-53	30-30	MAB	P	AT OK	DWH
9/13/2011	16:56	W-39	VS	F	1-090-091-52-0	52	DWH	0-52	30-29	MAB	P	AT OK	DWH
9/13/2011	17:02	W-39	VS	F	1-091-092-53-0	53	DWH	0-53	30-29	MAB	P	AT OK	DWH
9/13/2011	17:04	W-8	TS	F	1-089-090-52-0	52	DWH	0-52	30-30	MAB	P	AT OK	DWH
9/13/2011	17:10	W-39	VS	F	1-092-093-53-0	53	DWH	0-53	30-30	MAB	P	AT OK	DWH
9/13/2011	17:15	W-8	TS	F	1-093-094-53-0	53	DWH	0-53	30-30	MAB	P	AT OK	DWH
9/13/2011	17:21	W-39	VS	F	1-094-095-53-0	53	DWH	0-53	30-29	MAB	P	AT OK	DWH
9/13/2011	17:35	W-39	VS	F	1-079-088-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	17:39	W-39	VS	F	1-079-089-167-189	22	DWH	167-189	30-30	MAB	P	AT OK	DWH
9/13/2011	17:41	W-39	VS	F	1-079-090-189-211	22	DWH	189-211	31-31	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/13/2011	17:41	W-8	TS	F	1-095-096-53-0	53	DWH	0-53	30-29	MAB	P	AT OK	DWH
9/13/2011	17:45	W-39	VS	F	1-079-091-0-6	6	DWH	0-6	CAPPED	KP	P	VT OK	DWH
9/13/2011	17:47	W-39	VS	F	1-080-091-0-16	16	DWH	0-16	30-30	MAB	P	AT OK	DWH
9/13/2011	17:50	W-39	VS	F	1-080-092-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
9/13/2011	17:50	W-8	TS	F	1-096-097-53-0	53	DWH	0-53	30-30	MAB	P	AT OK	DWH
9/13/2011	17:53	W-39	VS	F	1-080-093-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	17:56	W-39	VS	F	1-080-094-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	18:00	W-39	VS	F	1-080-095-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/13/2011	18:02	W-8	TS	F	1-097-098-53-0	53	DWH	0-53	30-29	MAB	P	AT OK	DWH
9/13/2011	18:03	W-39	VS	F	1-080-096-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	18:06	W-39	VS	F	1-080-097-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/13/2011	18:07	W-8	TS	F	1-098-099-54-0	54	DWH	0-54	30-29	MAB	P	AT OK	DWH
9/13/2011	18:10	W-39	VS	F	1-080-098-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/13/2011	18:14	W-39	VS	F	1-080-099-0-9	9	DWH	0-9	30-30	MAB	P	AT OK	DWH
9/18/2011	10:45	W-39	VS	F	1-100-102-0-286	286	DWH	0-286	30-30	MAB	P	AT OK	DWH
9/18/2011	10:50	W-8	TS	F	1-102-103-0-395	395	DWH	0-395	30-29	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/18/2011	11:05	W-39	VS	F	1-100-101-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/18/2011	11:11	W-39	VS	F	1-101-102-0-108	108	DWH	0-108	30-30	MAB	P	AT OK	DWH
9/18/2011	11:50	W-2	CP	F	1-103-104-0-105	105	DWH	0-105	30-29	MAB	P	AT OK	DWH
9/18/2011	12:00	W-39	VS	F	1-104-105-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/18/2011	12:02	W-2	CP	F	1-103-105-0-289	289	DWH	0-289	30-30	MAB	P	AT OK	DWH
9/18/2011	13:00	W-39	VS	F	1-076-100-0-284	284	DWH	0-284	30-29	MAB	P	AT OK	DWH
9/18/2011	13:22	W-8	TS	F	1-105-107-0-57	57	DWH	0-57	30-28	MAB	P	AT OK	DWH
9/18/2011	13:24	W-39	VS	F	1-109-111-375-0	375	DWH	0-375	30-28	MAB	P	AT OK	DWH
9/18/2011	13:25	W-39	VS	F	1-076-101-0-108	108	DWH	0-108	30-30	MAB	P	AT OK	DWH
9/18/2011	13:30	W-8	TS	F	1-104-106-0-106	106	DWH	0-106	30-29	MAB	P	AT OK	DWH
9/18/2011	13:33	W-39	VS	F	1-114-115-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/18/2011	13:45	W-8	TS	F	1-105-106-0-50	50	DWH	0-50	30-30	MAB	P	AT OK	DWH
9/18/2011	13:50	W-39	VS	F	1-107-108-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/18/2011	14:02	W-8	TS	F	1-105-108-0-130	130	DWH	0-130	30-30	MAB	P	AT OK	DWH
9/18/2011	15:00	W-39	VS	F	1-109-110-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/18/2011	15:05	W-39	VS	F	1-110-111-19-0	19	DWH	375-394	31-28	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/18/2011	15:15	W-2	CP	F	1-111-113-295-0	295	DWH	0-295	30-30	MAB	P	AT OK	DWH
9/18/2011	15:19	W-8	TS	F	1-113-114-207-0	207	DWH	0-207	30-29	MAB	P	AT OK	DWH
9/18/2011	15:46	W-39	VS	F	1-112-113-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/18/2011	15:47	W-8	TS	F	1-113-115-87-0	87	DWH	0-87	30-30	MAB	P	AT OK	DWH
9/18/2011	16:00	W-2	CP	F	1-111-112-93-0	93	DWH	0-93	30-28	MAB	P	AT OK	DWH
9/18/2011	16:00	W-8	TS	F	1-112-115-94-0	94	DWH	0-94	30-28	MAB	P	AT OK	DWH
9/18/2011	16:02	W-39	VS	F	1-116-117-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/18/2011	16:10	W-39	VS	F	1-114-117-60-0	60	DWH	0-60	30-30	MAB	P	AT OK	DWH
9/18/2011	16:15	W-39	VS	F	1-114-116-147-0	147	DWH	0-147	30-30	MAB	P	AT OK	DWH
9/18/2011	16:20	W-2	CP	F	1-117-118-62-0	62	DWH	0-62	30-29	MAB	P	AT OK	DWH
9/18/2011	16:30	W-39	VS	F	1-115-116-184-0	184	DWH	0-184	30-30	MAB	P	AT OK	DWH
9/18/2011	16:30	W-2	CP	F	1-116-118-332-0	332	DWH	0-332	30-30	MAB	P	AT OK	DWH
9/18/2011	17:24	W-39	VS	F	1-119-120-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/18/2011	17:30	W-8	TS	F	1-118-119-43-0	43	DWH	0-43	30-30	MAB	P	AT OK	DWH
9/18/2011	17:30	W-2	CP	F	1-119-121-0-43-0	43	DWH	0-43	30-30	MAB	P	AT OK	DWH
9/18/2011	17:37	W-2	CP	F	1-120-121-110-0	110	DWH	0-110	30-30	MAB	P	AT OK	DWH

Geosyntec
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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/18/2011	17:45	W-39	VS	F	1-121-122-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/18/2011	18:12	W-39	VS	F	1-123-124-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/18/2011	18:32	W-8	TS	F	1-121-124-134-0	134	DWH	0-134	30-30	MAB	P	AT OK	DWH
9/18/2011	18:35	W-39	VS	F	1-028-110-22-0	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/18/2011	18:37	W-39	VS	F	1-028-109-149-0	149	DWH	0-149	30-29	MAB	P	AT OK	DWH
9/18/2011	18:52	W-8	TS	F	1-121-123-19-0	19	DWH	0-19	30-28	MAB	P	AT OK	DWH
9/18/2011	18:55	W-8	TS	F	1-122-123-236-0	236	DWH	0-236	30-28	MAB	P	AT OK	DWH
9/18/2011	18:57	W-39	VS	F	1-026-109-237-0	237	DWH	0-237	30-30	MAB	P	AT OK	DWH
9/19/2011	13:15	W-39	VS	F	1-041-111-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	13:19	W-39	VS	F	1-033-112-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	13:20	W-2	CP	F	1-123-125-168-0	168	DWH	0-168	30-30	MAB	P	AT OK	DWH
9/19/2011	13:22	W-39	VS	F	1-042-115-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	13:23	W-39	VS	F	1-035-116-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	13:24	W-8	TS	F	1-125-126-0-168	168	DWH	0-168	30-28	MAB	P	AT OK	DWH
9/19/2011	13:29	W-39	VS	F	1-043-118-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
9/19/2011	13:33	W-39	VS	F	1-037-120-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/19/2011	13:36	W-39	VS	F	1-044-122-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	13:40	W-39	VS	F	1-039-123-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/19/2011	13:45	W-2	CP	F	1-126-127-0-185	185	DWH	0-185	30-30	MAB	P	AT OK	DWH
9/19/2011	14:05	W-39	VS	F	1-045-125-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	14:07	W-8	TS	F	1-127-128-0-171	171	DWH	0-171	30-30	MAB	P	AT OK	DWH
9/19/2011	14:12	W-39	VS	F	1-046-126-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	14:16	W-39	VS	F	1-048-127-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/19/2011	14:21	W-39	VS	F	1-049-128-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	14:21	W-2	CP	F	1-106-128-0-82	82	DWH	0-82	30-30	MAB	P	AT OK	DWH
9/19/2011	14:28	W-8	TS	F	1-129-130-48-0	48	DWH	0-48	30-28	MAB	P	AT OK	DWH
9/19/2011	14:36	W-39	VS	F	1-051-106-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	14:37	W-8	TS	F	1-130-131-37-0	37	DWH	0-37	30-28	MAB	P	AT OK	DWH
9/19/2011	14:40	W-39	VS	F	1-052-104-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	14:44	W-39	VS	F	1-054-103-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	14:50	W-2	CP	F	1-107-133-51-0	51	DWH	0-51	30-30	MAB	P	AT OK	DWH
9/19/2011	14:52	W-39	VS	F	1-055-102-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/19/2011	14:55	W-39	VS	F	1-057-100-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	14:58	W-8	TS	F	1-133-134-205-0	205	DWH	0-205	30-28	MAB	P	AT OK	DWH
9/19/2011	15:00	W-39	VS	F	1-127-134-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	15:01	W-2	CP	F	1-108-133-131-0	131	DWH	0-131	30-29	MAB	P	AT OK	DWH
9/19/2011	15:18	W-39	VS	F	1-128-129-0-27	27	DWH	0-27	30-30	MAB	P	AT OK	DWH
9/19/2011	15:22	W-39	VS	F	1-106-129-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	15:30	W-39	VS	F	1-105-129-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	15:40	W-39	VS	F	1-105-130-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/19/2011	15:43	W-39	VS	F	1-105-131-0-9	9	DWH	0-9	30-30	MAB	P	AT OK	DWH
9/19/2011	15:45	W-39	VS	F	1-107-131-0-23	23	DWH	0-23	30-27	MAB	P	AT OK	DWH
9/19/2011	15:46	W-39	VS	F	1-131-133-0-19	19	DWH	0-19	30-28	MAB	P	AT OK	DWH
9/19/2011	15:49	W-39	VS	F	1-130-133-0-11	11	DWH	0-11	30-27	MAB	P	AT OK	DWH
9/19/2011	15:50	W-39	VS	F	1-130-134-0-7	7	DWH	0-7	30-29	MAB	P	AT OK	DWH
9/19/2011	15:54	W-39	VS	F	1-127-130-9-0	9	DWH	0-9	30-29	MAB	P	AT OK	DWH
9/19/2011	15:58	W-39	VS	F	1-127-129-6-0	6	DWH	0-6	30-29	MAB	P	AT OK	DWH
9/19/2011	16:06	W-39	VS	F	1-102-136-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft,)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/19/2011	16:58	W-39	VS	F	1-135-137-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	17:07	W-8	TS	F	1-124-137-0-109	109	DWH	0-109	30-29	MAB	P	AT OK	DWH
9/19/2011	17:10	W-39	VS	F	1-135-138-75-0	75	DWH	0-75	30-30	MAB	P	AT OK	DWH
9/19/2011	17:20	W-39	VS	F	1-137-138-110-0	110	DWH	0-110	30-30	MAB	P	AT OK	DWH
9/19/2011	17:21	W-8	TS	F	1-124-135-0-54	54	DWH	0-54	30-29	MAB	P	AT OK	DWH
9/19/2011	17:25	W-8	TS	F	1-123-135-0-54	54	DWH	0-54	30-30	MAB	P	AT OK	DWH
9/19/2011	17:32	W-8	TS	F	1-139-140-38-0	38	DWH	0-38	30-28	MAB	P	AT OK	DWH
9/19/2011	17:35	W-8	TS	F	1-118-120-351-0	351	DWH	0-351	30-28	MAB	P	AT OK	DWH
9/19/2011	17:38	W-2	CP	F	1-128-132-0-75	75	DWH	0-75	30-30	MAB	P	AT OK	DWH
9/19/2011	17:40	W-39	VS	F	1-135-140-0-24	24	DWH	0-24	30-30	MAB	P	AT OK	DWH
9/19/2011	17:45	W-39	VS	F	1-138-140-0-14	14	DWH	0-14	30-29	MAB	P	AT OK	DWH
9/19/2011	17:48	W-39	VS	F	1-138-139-0-9	9	DWH	0-9	30-29	MAB	P	AT OK	DWH
9/19/2011	17:51	W-39	VS	F	1-126-139-25-0	25	DWH	0-25	30-30	MAB	P	AT OK	DWH
9/19/2011	17:52	W-2	CP	F	1-120-122-246-0	246	DWH	0-246	30-29	MAB	P	AT OK	DWH
9/19/2011	17:54	W-39	VS	F	1-125-139-22-0	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/19/2011	18:10	W-8	TS	F	1-123-139-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/19/2011	18:17	W-39	VS	F	1-134-138-0-209	209	DWH	0-209	30-28	MAB	P	AT OK	DWH
9/19/2011	18:27	W-8	TS	F	1-123-140-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/19/2011	18:30	W-8	TS	F	1-106-132-0-75	75	DWH	0-75	30-29	MAB	P	AT OK	DWH
9/19/2011	18:35	W-39	VS	f	1-101-136-0-6	6	DWH	0-6	30-30	DS	p	AT OK	DWH
9/19/2011	18:43	W-39	VS	f	1-103-136-0-6	6	DWH	0-6	30-30	DS	p	AT OK	DWH
9/26/2011	19:05	W-8	TS	F	1-141-142-0-508	508	DWH	0-508	30-30	MAB	P	AT OK	DWH
9/26/2011	19:06	W-39	VS	F	1-001-141-74-0	74	DWH	0-74	30-30	MAB	P	AT OK	DWH
9/26/2011	19:22	W-39	VS	F	1-001-141-270-355	85	DWH	270-355	30-30	MAB	P	AT OK	DWH
9/26/2011	19:45	W-39	VS	F	1-001-141-385-513	128	DWH	385-513	30-30	MAB	P	AT OK	DWH
9/26/2011	20:06	W-39	VS	F	1-003-141-0-162	162	DWH	0-162	30-30	MAB	P	AT OK	DWH
9/26/2011	20:20	W-8	TS	F	1-142-143-0-516	516	DWH	0-516	30-30	MAB	P	AT OK	DWH
9/26/2011	20:45	W-39	VS	F	1-019-144-0-22	22	DWH	0-22	30-30	LV	P	AT OK	DWH
9/26/2011	20:50	W-39	VS	F	1-012-144-0-22	22	DWH	0-22	30-30	LV	P	AT OK	DWH
9/26/2011	20:55	W-39	VS	F	1-010-144-0-22	22	DWH	0-22	30-30	LV	P	AT OK	DWH
9/26/2011	21:00	W-39	VS	F	1-009-144-0-16	16	DWH	0-16	30-30	LV	P	AT OK	DWH
9/26/2011	21:06	W-39	VS	F	1-144-145-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/26/2011	21:14	W-39	VS	f	1-020-144-0-20	20	DWH	0-20	30-30	DS	p	AT OK	DWH
9/26/2011	21:42	W-39	VS	F	1-008-145-0-22	22	DWH	0-22	30-30	LV	P	AT OK	DWH
9/26/2011	21:50	W-39	VS	F	1-009-145-0-6	6	DWH	0-6	30-30	LV	P	AT OK	DWH
9/26/2011	21:55	W-39	VS	F	1-004-145-0-22	22	DWH	0-22	30-30	LV	P	AT OK	DWH
9/26/2011	22:00	W-39	VS	F	1-003-145-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/26/2011	22:04	W-39	VS	F	1-141-145-0-20	20	DWH	0-20	30-30	LV	P	AT OK	DWH
9/27/2011	9:27	W-2	CP	F	1-146-147-0-272	272	DWH	260-532	30-30	MAB	P	AT OK	DWH
9/27/2011	9:30	W-8	TS	F	1-147-148-0-108	108	DWH	0-108	30-30	MAB	P	AT OK	DWH
9/27/2011	9:40	W-39	VS	F	1-148-149-174-688	514	DWH	174-688	30-29	MAB	P	AT OK	DWH
9/27/2011	9:54	W-8	TS	F	1-157-163-0-234	234	DWH	0-234	30-30	MAB	P	AT OK	DWH
9/27/2011	10:37	W-2	CP	F	1-146-147-0-156	156	DWH	0-156	30-30	MAB	P	AT OK	DWH
9/27/2011	10:40	W-39	VS	F	1-143-146-0-428	428	DWH	0-428	30-30	MAB	P	AT OK	DWH
9/27/2011	10:40	W-8	TS	F	1-147-148-108-502	394	DWH	108-502	30-30	MAB	P	AT OK	DWH
9/27/2011	11:20	W-2	CP	F	1-150-151-0-180	180	DWH	0-180	30-30	MAB	P	AT OK	DWH
9/27/2011	11:30	W-8	TS	F	1-147-153-0-83	83	DWH	0-83	30-28	MAB	P	AT OK	DWH
9/27/2011	11:43	W-2	CP	F	1-151-155-0-35	35	DWH	0-35	30-30	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/27/2011	11:45	W-39	VS	F	1-146-153-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/27/2011	11:45	W-8	TS	F	1-153-155-0-35	35	DWH	0-35	30-30	MAB	P	AT OK	DWH
9/27/2011	11:48	W-2	CP	F	1-151-152-0-145	145	DWH	0-145	30-30	MAB	P	AT OK	DWH
9/27/2011	11:50	W-8	TS	F	1-152-153-0-145	145	DWH	0-145	30-30	MAB	P	AT OK	DWH
9/27/2011	12:00	W-39	VS	F	1-143-152-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/27/2011	12:03	W-39	VS	F	1-142-151-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/27/2011	12:09	W-39	VS	F	1-141-150-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/27/2011	12:12	W-8	TS	F	1-143-153-0-80	80	DWH	0-80	30-30	MAB	P	AT OK	DWH
9/27/2011	12:14	W-2	CP	F	1-153-154-0-180	180	DWH	0-180	30-30	MAB	P	AT OK	DWH
9/27/2011	12:16	W-39	VS	F	1-147-154-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/27/2011	12:25	W-39	VS	F	1-152-155-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/27/2011	12:26	W-8	TS	F	1-001-150-184-0	184	DWH	0-184	30-30	MAB	P	AT OK	DWH
9/27/2011	14:45	W-8	TS	F	1-149-156-0-510	510	DWH	0-510	30-30	MAB	P	AT OK	DWH
9/27/2011	14:45	W-2	CP	F	1-156-157-0-510	510	DWH	0-510	30-30	MAB	P	AT OK	DWH
9/27/2011	15:00	W-39	VS	F	1-154-158-0-180	180	DWH	0-180	30-30	MAB	P	AT OK	DWH
9/27/2011	15:20	W-39	VS	F	1-158-159-0-180	180	DWH	0-180	30-29	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/27/2011	15:45	W-39	VS	F	1-160-162-0-22	22	DWH	0-22	30-27	MAB	P	AT OK	DWH
9/27/2011	15:48	W-39	VS	F	1-159-162-0-25	25	DWH	0-25	30-30	MAB	P	AT OK	DWH
9/27/2011	15:50	W-39	VS	F	1-159-160-0-155	155	DWH	0-155	30-30	MAB	P	AT OK	DWH
9/27/2011	16:06	W-2	CP	F	1-157-163-0-283	283	DWH	0-283	30-30	MAB	P	AT OK	DWH
9/27/2011	16:07	W-39	VS	F	1-161-162-0-27	27	DWH	0-27	30-29	MAB	P	AT OK	DWH
9/27/2011	16:10	W-39	VS	F	1-160-161-0-153	153	DWH	0-153	30-30	MAB	P	AT OK	DWH
9/27/2011	16:31	W-39	VS	F	1-157-161-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
9/27/2011	16:35	W-39	VS	F	1-156-160-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/27/2011	16:40	W-39	VS	F	1-149-159-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/27/2011	16:45	W-39	VS	F	1-148-158-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/28/2011	11:15	W-39	VS	F	1-161-164-0-180	180	DWH	0-180	30-29	MAB	P	AT OK	DWH
9/28/2011	11:25	W-8	TS	F	1-164-165-0-320	320	DWH	0-320	30-30	MAB	P	AT OK	DWH
9/28/2011	11:45	W-39	VS	F	1-163-164-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/28/2011	11:51	W-8	TS	F	1-163-165-0-143	143	DWH	0-143	30-29	MAB	P	AT OK	DWH
9/28/2011	13:31	W-39	VS	F	1-165-168-0-323	323	DWH	0-323	30-30	MAB	P	AT OK	DWH
9/28/2011	13:50	W-8	TS	F	1-163-166-0-302	302	DWH	0-302	30-30	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
9/28/2011	14:09	W-39	VS	F	1-165-166-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/28/2011	14:15	W-39	VS	F	1-168-169-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
9/28/2011	14:23	W-39	VS	F	1-166-168-0-111	111	DWH	0-111	30-29	MAB	P	AT OK	DWH
9/28/2011	14:31	W-39	VS	F	1-166-169-0-252	252	DWH	0-252	30-30	MAB	P	AT OK	DWH
9/28/2011	14:33	W-8	TS	F	1-163-167-0-74	74	DWH	0-74	30-30	MAB	P	AT OK	DWH
9/28/2011	14:52	W-39	VS	F	1-166-167-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
9/28/2011	14:56	W-39	VS	F	1-167-169-0-74	74	DWH	0-74	30-29	MAB	P	AT OK	DWH
9/28/2011	15:10	W-8	TS	F	1-168-170-0-251	251	DWH	0-251	30-30	MAB	P	AT OK	DWH
9/28/2011	15:14	W-39	VS	F	1-170-171-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
9/28/2011	15:27	W-39	VS	F	1-168-171-0-185	185	DWH	0-185	30-30	MAB	P	AT OK	DWH
9/28/2011	15:40	W-39	VS	F	1-169-171-0-260	260	DWH	0-260	30-30	MAB	P	AT OK	DWH
10/8/2011	9:20	W-39	VS	F	1-172-173-0-518	518	DWH	0-518	30-29	MAB	P	AT OK	DWH
10/8/2011	9:35	W-8	TS	F	1-173-174-0-520	520	DWH	0-520	30-29	MAB	P	AT OK	DWH
10/8/2011	10:23	W-39	VS	F	1-174-175-0-521	521	DWH	0-521	30-30	MAB	P	AT OK	DWH
10/8/2011	11:00	W-8	TS	F	1-175-176-0-524	524	DWH	0-524	30-30	MAB	P	AT OK	DWH
10/8/2011	11:21	W-39	VS	F	1-176-177-0-520	520	DWH	0-520	30-29	DS	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/8/2011	13:50	W-39	VS	F	1-177-178-0-507	507	DWH	0-507	30-30	DS	P	AT OK	DWH
10/8/2011	13:50	W-8	TS	F	1-179-180-0-180	180	DWH	0-180	30-30	MAB	P	AT OK	DWH
10/8/2011	14:20	W-8	TS	F	1-180-181-0-149	149	DWH	0-149	30-30	MAB	P	AT OK	DWH
10/8/2011	14:40	W-8	TS	F	1-180-186-0-32	32	DWH	0-32	30-30	DS	P	AT OK	DWH
10/8/2011	14:45	W-39	VS	F	1-181-186-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/8/2011	14:52	W-8	TS	F	1-181-182-0-151	151	DWH	0-151	30-30	MAB	P	AT OK	DWH
10/8/2011	14:55	W-39	VS	F	1-184-185-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH
10/8/2011	15:05	W-39	VS	F	1-172-179-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
10/8/2011	15:10	W-39	VS	F	1-173-180-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
10/8/2011	15:14	W-39	VS	F	1-174-181-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
10/8/2011	15:15	W-39	VS	F	1-182-186-0-32	32	DWH	0-32	30-30	DS	P	AT OK	DWH
10/8/2011	15:17	W-39	VS	F	1-175-182-0-22	22	DWH	0-22	30-29	MAB	P	AT OK	DWH
10/8/2011	15:20	W-39	VS	F	1-176-183-0-22	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
10/8/2011	15:20	W-8	TS	F	1-182-183-0-178	178	DWH	0-178	30-30	MAB	P	AT OK	DWH
10/8/2011	15:25	W-39	VS	F	1-177-184-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/8/2011	15:50	W-8	TS	F	1-183-184-0-145	145	DWH	0-145	30-30	MAB	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/8/2011	16:05	W-8	TS	F	1-183-185-0-33	33	DWH	0-33	30-29	MAB	P	AT OK	DWH
10/9/2011	8:20	W-39	VS	F	1-187-188-0-362	362	DWH	0-362	30-30	DS	P	AT OK	DWH
10/9/2011	8:57	W-8	TS	F	1-188-189-0-364	364	DWH	0-364	30-30	DS	P	AT OK	DWH
10/9/2011	9:15	W-39	VS	F	1-189-190-0-365	365	DWH	0-365	30-30	DS	P	AT OK	DWH
10/9/2011	10:00	W-8	TS	F	1-190-191-0-368	368	DWH	0-368	30-30	DS	P	AT OK	DWH
10/9/2011	10:04	W-39	VS	F	1-191-192-0-373	373	DWH	0-373	30-30	DS	P	AT OK	DWH
10/9/2011	10:45	W-39	VS	F	1-192-193-373-0	373	DWH	0-373	30-30	DS	P	AT OK	DWH
10/9/2011	10:53	W-8	TS	F	1-193-194-376-0	376	DWH	0-376	30-30	DS	P	AT OK	DWH
10/9/2011	11:25	W-39	VS	F	1-194-195-377-0	377	DWH	0-377	30-30	DS	P	AT OK	DWH
10/9/2011	12:15	W-39	VS	F	1-176-184-0-9	9	DWH	0-9	30-30	DS	P	AT OK	DWH
10/9/2011	13:36	W-8	TS	F	1-195-196-378-0	378	DWH	0-378	30-30	DS	P	AT OK	DWH
10/9/2011	13:50	W-39	VS	F	1-196-197-380-0	380	DWH	0-380	30-30	DS	P	AT OK	DWH
10/9/2011	14:37	W-39	VS	F	1-198-199-380-0	380	DWH	0-380	30-30	DS	P	AT OK	DWH
10/9/2011	14:40	W-8	TS	F	1-197-198-380-0	380	DWH	0-380	30-30	DS	P	AT OK	DWH
10/9/2011	15:31	W-39	VS	F	1-178-187-0-200	200	DWH	0-200	30-30	DS	P	AT OK	DWH
10/9/2011	15:35	W-8	TS	F	1-178-187-200-364	164	DWH	200-364	30-29	DS	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/9/2011	15:48	W-39	VS	F	1-170-172-0-254	254	DWH	0-254	30-30	MAB	P	AT OK	DWH
10/9/2011	16:12	W-39	VS	F	1-171-172-0-256	256	DWH	0-256	30-30	MAB	P	AT OK	DWH
10/9/2011	16:30	W-8	TS	F	1-171-179-0-183	183	DWH	0-183	30-30	MAB	P	AT OK	DWH
10/10/2011	8:46	W-39	VS	F	1-189-203-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/10/2011	12:50	W-39	VS	F	1-178-200-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/10/2011	12:59	W-2	KP	F	1-184-200-0-155	155	DWH	0-155	30-30	DS	P	AT OK	DWH
10/10/2011	13:05	W-39	VS	F	1-178-201-0-148	148	DWH	0-148	30-28	DS	P	AT OK	DWH
10/10/2011	13:16	W-8	TS	F	1-201-202-0-323	323	DWH	0-323	30-30	DS	P	AT OK	DWH
10/10/2011	13:20	W-39	VS	F	1-200-201-0-177	177	DWH	0-177	30-30	DS	P	AT OK	DWH
10/10/2011	13:30	W-2	KP	F	1-185-200-0-34	34	DWH	0-34	30-30	DS	P	AT OK	DWH
10/10/2011	14:00	W-2	KP	F	1-202-203-0-176	176	DWH	0-176	30-30	DS	P	AT OK	DWH
10/10/2011	14:06	W-39	VS	F	1-203-204-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/10/2011	14:20	W-2	KP	F	1-202-204-0-154	154	DWH	0-154	30-30	DS	P	AT OK	DWH
10/10/2011	14:26	W-39	VS	F	1-203-205-0-175	175	DWH	0-175	30-30	DS	P	AT OK	DWH
10/10/2011	15:00	W-39	VS	F	1-204-205-0-151	151	DWH	0-151	30-30	DS	P	AT OK	DWH
10/10/2011	15:43	W-8	TS	F	1-205-206-0-325	325	DWH	0-325	30-30	DS	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/10/2011	16:05	W-2	KP	F	1-206-207-178-0	178	DWH	0-178	30-28	MAB	P	AT OK	DWH
10/10/2011	16:21	W-39	VS	F	1-192-208-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/10/2011	16:25	W-39	VS	F	1-191-206-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/10/2011	16:30	W-39	VS	F	1-190-205-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/10/2011	16:32	W-8	TS	F	1-206-208-92-0	92	DWH	0-92	30-29	MAB	P	AT OK	DWH
10/10/2011	16:36	W-39	VS	F	1-188-202-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/10/2011	16:40	W-39	VS	F	1-187-201-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/10/2011	16:55	W-8	TS	F	1-208-209-117-0	117	DWH	0-117	30-29	MAB	P	AT OK	DWH
10/10/2011	17:00	W-2	KP	F	1-207-209-188-0	188	DWH	0-188	30-29	MAB	P	AT OK	DWH
10/10/2011	17:10	W-39	VS	F	1-207-211-0-33	33	DWH	0-33	30-28	MAB	P	AT OK	DWH
10/10/2011	17:10	W-39	VS	F	1-210-211-0-32	32	DWH	0-32	30-29	MAB	P	AT OK	DWH
10/10/2011	17:15	W-39	VS	F	1-210-212-31-0	31	DWH	0-31	30-28	MAB	P	AT OK	DWH
10/10/2011	17:30	W-39	VS	F	1-208-212-27-0	27	DWH	0-27	30-28	MAB	P	AT OK	DWH
10/10/2011	17:30	W-2	KP	F	1-209-210-0-22	22	DWH	486-507	30-29	MAB	P	AT OK	DWH
10/10/2011	17:53	W-2	KP	F	1-209-213-191-0	191	DWH	0-191	30-30	MAB	P	AT OK	DWH
10/10/2011	17:55	W-39	VS	F	1-206-210-0-22	22	DWH	0-22	30-28	MAB	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	9:16	W-2	DS	F	1-200-221-8-0	8	DWH	8-0	30-29	DS	P	AT OK	DWH
10/11/2011	9:17	W-39	VS	F	1-209-218-0-17	17	DWH	0-17	30-28	MAB	P	AT OK	DWH
10/11/2011	9:20	W-39	VS	F	1-213-220-23-0	23	DWH	0-23	30-30	MAB	P	AT OK	DWH
10/11/2011	9:25	W-39	VS	F	1-214-220-22-0	22	DWH	0-22	30-30	MAB	P	AT OK	DWH
10/11/2011	9:37	W-8	TS	F	1-217-222-315-0	315	DWH	315-0	30-30	DS	P	AT OK	DWH
10/11/2011	9:40	W-39	VS	F	1-201-221-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	9:54	W-2	DS	F	1-222-224-120-0	120	DWH	120-0	30-30	DS	P	AT OK	DWH
10/11/2011	9:54	W-39	VS	F	1-223-224-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	10:04	W-2	DS	F	1-222-223-195-0	195	DWH	0-195	30-30	DS	P	AT OK	DWH
10/11/2011	10:17	W-39	VS	F	1-224-225-120-0	120	DWH	0-120	30-30	DS	P	AT OK	DWH
10/11/2011	10:30	W-39	VS	F	1-223-225-190-0	190	DWH	190-0	30-30	DS	P	AT OK	DWH
10/11/2011	11:23	W-2	DS	F	1-227-228-0-67	67	DWH	0-67	31-30	DS	P	AT OK	DWH
10/11/2011	11:30	W-8	TS	F	1-228-229-0-131	131	DWH	0-131	30-30	DS	P	AT OK	DWH
10/11/2011	11:34	W-2	DS	F	1-226-228-0-63	63	DWH	0-63	30-30	DS	P	AT OK	DWH
10/11/2011	11:47	W-39	VS	F	1-199-225-0-22	22	DWH	0-22	31-31	DS	P	AT OK	DWH
10/11/2011	11:50	W-39	VS	F	1-198-223-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	11:50	W-2	DS	F	1-229-230-0-131	131	DWH	0-131	31-30	BH	P	AT OK	DWH
10/11/2011	11:55	W-39	VS	F	1-197-222-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	11:55	W-8	TS	F	1-230-232-0-102	102	DWH	0-102	30-30	BH	P	AT OK	DWH
10/11/2011	11:58	W-39	VS	F	1-196-217-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	12:03	W-39	VS	F	1-195-216-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	12:06	W-39	VS	F	1-194-215-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	12:09	W-39	VS	F	1-193-209-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	12:10	W-8	TS	F	1-230-231-0-30	30	DWH	0-30	30-30	BH	P	AT OK	DWH
10/11/2011	13:30	W-2	DS	F	1-233-234-0-133	133	DWH	0-133	31-30	DS	P	AT OK	DWH
10/11/2011	13:55	W-8	TS	F	1-232-233-0-102	102	DWH	0-102	30-30	DS	P	AT OK	DWH
10/11/2011	13:55	W-39	VS	F	1-239-240-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	13:57	W-2	DS	F	1-235-236-0-134	134	DWH	0-134	31-30	DS	P	AT OK	DWH
10/11/2011	14:00	W-39	VS	F	1-231-232-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	14:10	W-39	VS	F	1-226-227-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	14:15	W-8	TS	F	1-234-235-0-134	134	DWH	0-134	30-30	DS	P	AT OK	DWH
10/11/2011	14:16	W-39	VS	F	1-238-239-0-98	98	DWH	0-98	30-30	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	14:17	W-8	TS	F	1-231-233-0-31	31	DWH	0-31	30-30	DS	P	AT OK	DWH
10/11/2011	14:25	W-2	DS	F	1-237-238-0-135	135	DWH	0-135	30-30	DS	P	AT OK	DWH
10/11/2011	14:26	W-39	VS	F	1-238-240-0-37	37	DWH	0-37	30-30	DS	P	AT OK	DWH
10/11/2011	14:35	W-39	VS	F	1-239-241-0-97	97	DWH	0-97	30-29	DS	P	AT OK	DWH
10/11/2011	14:44	W-39	VS	F	1-240-241-0-40	40	DWH	0-40	30-29	DS	P	AT OK	DWH
10/11/2011	14:46	W-8	TS	F	1-236-237-0-134	134	DWH	0-134	30-30	DS	P	AT OK	DWH
10/11/2011	14:52	W-2	VS	F	1-244-245-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	15:00	W-2	DS	F	1-242-243-0-138	138	DWH	0-138	30-30	DS	P	AT OK	DWH
10/11/2011	15:01	W-39	VS	F	1-246-247-0-140	140	DWH	0-140	30-30	DS	P	AT OK	DWH
10/11/2011	15:17	W-39	VS	F	1-248-249-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	15:21	W-8	TS	F	1-241-242-0-137	137	DWH	0-137	30-30	BH	P	AT OK	DWH
10/11/2011	15:25	W-39	VS	F	1-247-248-0-136	136	DWH	0-136	30-30	DS	P	AT OK	DWH
10/11/2011	15:26	W-2	DS	F	1-245-246-0-86	86	DWH	0-86	30-30	BH	P	AT OK	DWH
10/11/2011	15:37	W-2	DS	F	1-244-246-0-52	52	DWH	0-52	30-30	DS	P	AT OK	DWH
10/11/2011	15:40	W-39	VS	F	1-247-249-0-5	5	DWH	0-5	31-31	DS	P	AT OK	DWH
10/11/2011	15:44	W-39	VS	F	1-251-252-141-0	141	DWH	0-141	30-29	DS	P	AT OK	DWH

Geosyntec consultants

Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	15:45	W-8	TS	F	1-243-245-0-86	86	DWH	0-86	30-30	BH	P	AT OK	DWH
10/11/2011	16:00	W-8	TS	F	1-243-244-0-52	52	DWH	0-52	30-28	BH	P	AT OK	DWH
10/11/2011	16:00	W-2	DS	F	1-250-251-140-0	140	DWH	0-140	32-32	DS	P	AT OK	DWH
10/11/2011	16:05	W-39	VS	F	1-253-254-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	16:10	W-8	TS	F	1-249-250-6-0	6	DWH	6-0	30-30	DS	P	AT OK	DWH
10/11/2011	16:10	W-39	VS	F	1-254-255-61-0	61	DWH	0-61	30-30	DS	P	AT OK	DWH
10/11/2011	16:11	W-8	TS	F	1-248-250-134-0	134	DWH	0-134	33-32	DS	P	AT OK	DWH
10/11/2011	16:20	W-39	VS	F	1-253-255-80-0	80	DWH	0-80	30-30	DS	P	AT OK	DWH
10/11/2011	16:30	W-2	DS	F	1-255-256-142-0	142	DWH	0-142	30-30	DS	P	AT OK	DWH
10/11/2011	16:35	W-39	VS	F	1-258-259-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	16:37	W-8	TS	F	1-252-254-59-0	59	DWH	0-59	30-30	DS	P	AT OK	DWH
10/11/2011	16:45	W-8	TS	F	1-252-253-80-0	80	DWH	0-80	30-30	DS	P	AT OK	DWH
10/11/2011	16:45	W-39	VS	F	1-260-261-139-0	139	DWH	0-139	30-30	DS	P	AT OK	DWH
10/11/2011	16:54	W-2	DS	F	1-257-258-20-0	20	DWH	0-20	30-30	DS	P	AT OK	DWH
10/11/2011	16:56	W-2	DS	F	1-257-259-122-0	122	DWH	0-122	30-29	DS	P	AT OK	DWH
10/11/2011	17:07	W-8	TS	F	1-256-257-142-0	142	DWH	0-142	30-30	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	17:10	W-39	VS	F	1-264-265-135-0	135	DWH	0-135	30-29	DS	P	AT OK	DWH
10/11/2011	17:25	W-2	TS	F	1-261-263-37-0	37	DWH	37-0	30-30	DS	P	AT OK	DWH
10/11/2011	17:30	W-2	DS	F	1-261-262-101-0	101	DWH	0-101	30-30	DS	P	AT OK	DWH
10/11/2011	17:32	W-39	VS	F	1-263-264-34-0	34	DWH	34-0	30-29	DS	P	AT OK	DWH
10/11/2011	17:35	W-8	TS	F	1-258-260-17-0	17	DWH	17-0	30-29	DS	P	AT OK	DWH
10/11/2011	17:35	W-39	VS	F	1-262-264-101-0	101	DWH	0-101	30-30	DS	P	AT OK	DWH
10/11/2011	17:37	W-8	TS	F	1-259-260-122-0	122	DWH	0-122	30-30	DS	P	AT OK	DWH
10/11/2011	17:49	W-8	TS	f	1-262-263-0-22	22	DWH	0-22	30-30	DS	p	AT OK	DWH
10/11/2011	17:50	W-39	VS	F	1-225-265-0-15	15	DWH	0-15	30-29	DS	P	AT OK	DWH
10/11/2011	18:04	W-39	VS	F	1-225-264-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	18:08	W-39	VS	F	1-225-263-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	18:11	W-39	VS	F	1-225-261-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	18:15	W-39	VS	F	1-225-260-0-22	22	DWH	0-22	30-27	DS	P	AT OK	DWH
10/11/2011	18:19	W-39	VS	F	1-225-258-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	18:21	W-39	VS	F	1-225-257-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	18:25	W-39	VS	F	1-225-256-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	18:27	W-39	VS	F	1-225-255-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	18:30	W-39	VS	F	1-225-254-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	18:35	W-39	VS	F	1-225-252-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	18:37	W-39	VS	F	1-225-251-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	18:42	W-39	VS	F	1-225-250-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	18:45	W-39	VS	F	1-225-249-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	18:47	W-39	VS	F	1-225-247-0-16	16	DWH	0-16	30-29	DS	P	AT OK	DWH
10/11/2011	18:50	W-39	VS	F	1-199-247-0-6	6	DWH	0-6	32-30	DS	P	AT OK	DWH
10/11/2011	18:52	W-39	VS	F	1-199-246-0-19	19	DWH	0-19	31-31	DS	P	AT OK	DWH
10/11/2011	18:55	W-39	VS	F	1-199-244-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	19:00	W-39	VS	F	1-199-243-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	19:03	W-39	VS	F	1-199-242-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	19:06	W-39	VS	F	1-199-241-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	19:08	W-39	VS	F	1-199-240-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	19:12	W-39	VS	F	1-199-238-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	19:15	W-39	VS	F	1-199-237-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH

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Production Seam Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Material Type gml : 2 Specifications: Seam Pressure: 25-30 PSI 3 lb loss Vacuum Box: 5 PSI 20 Sec

Primary / Secondary: Primary Series: 1

Production Seam					Location			Nondestructive Test					
Date	*Time*	*Mach. ID*	*Oper. ID*	*Ext/ Fus:*	*SeamNo* Series-Seam1-Seam2-Begin-End	*Length* (ft.)	*QA ID*	*Location*	*Detail*	*Oper.*	*Result*	*Action*	*QA ID*
10/11/2011	19:18	W-39	VS	F	1-199-236-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	19:21	W-39	VS	F	1-199-235-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	19:25	W-39	VS	F	1-199-234-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	19:27	W-39	VS	F	1-199-233-0-22	22	DWH	0-22	30-28	DS	P	AT OK	DWH
10/11/2011	19:33	W-39	VS	F	1-199-231-0-22	22	DWH	0-22	30-30	BH	P	AT OK	DWH
10/11/2011	19:36	W-39	VS	F	1-199-230-0-22	22	DWH	0-22	30-29	DS	P	AT OK	DWH
10/11/2011	19:39	W-39	VS	F	1-199-229-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	19:41	W-39	VS	F	1-199-228-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH
10/11/2011	19:45	W-39	VS	F	1-199-226-0-22	22	DWH	0-22	30-30	DS	P	AT OK	DWH

Total Length Fusion: 56816 Total Length Extrusion: 0

Comments:

APPENDIX L

Geomembrane Destructive Seam Test Logs and Laboratory Test Results

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							Re test 1	Re test 2
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID		
1-001	F	D	1-2	200 N	W-39	VS	8/19/2011	Lab	128	127	189	PPI	P	DWH	-	-
								Field	136	120	207	PPI	P	DWH		
1-002	F	D	2-4	11 W	W-32	TS	8/19/2011	Lab	141	164	185	PPI	F	DWH	1-002 A	1-002 B
								Field	147	147	195	PPI	P	DWH		
1-002 A	F	D	5-6	508 N	W-32	TS	8/24/2011	Lab	128	133	192	PPI	P	DWH	-	-
								Field	124	130	180	PPI	P	DWH		
1-002 B	F	D	3-4	8 N	W-32	TS	8/24/2011	Lab	129	124	193	PPI	F	DWH	1-002 B1	-
								Field	116	122	186	PPI	P	DWH		
1-002 B1	F	D	3-4	35 N	W-32	TS	8/26/2011	Lab	132	122	208	PPI	P	DWH	-	-
								Field	128	126	173	PPI	P	DWH		
1-002 C	E	S	4-Cap	96 N	MX-8	VS	9/18/2011	Lab	113	-	181	PPI	P	DWH	-	-
								Field	105	-	174	PPI	P	DWH		
1-003	F	D	2-5	300 N	W-39	VS	8/19/2011	Lab	139	121	199	PPI	P	DWH	-	-
								Field	164	122	204	PPI	P	DWH		
1-004	F	D	5-6	400 N	W-32	TS	8/19/2011	Lab	129	131	194	PPI	F	DWH	1-004 A	1-004 B
								Field	134	132	204	PPI	P	DWH		
1-004 A	F	D	5-6	385 N	W-32	TS	8/24/2011	Lab	127	146	192	PPI	F	DWH	1-004 A1	-
								Field	124	125	198	PPI	P	DWH		
1-004 A1	F	D	5-6	367 N	W-32	TS	8/26/2011	Lab	128	123	191	PPI	P	DWH	-	-
								Field	140	148	191	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-004 B	F	D	5-6	420 N	W-32	TS	8/24/2011	Lab	132	126	193	PPI	F	DWH	-	-
								Field	123	135	187	PPI	P	DWH		
1-004 C	E	S	5-Cap	433 N	MX-14	KP	8/26/2011	Lab	128	-	177	PPI	P	DWH	-	-
								Field	102	-	164	PPI	P	DWH		
1-005	F	D	6-7	375 N	W-39	VS	8/19/2011	Lab	135	119	194	PPI	P	DWH	-	-
								Field	134	143	197	PPI	P	DWH		
1-006	F	D	8-9	50 N	W-32	TS	8/19/2011	Lab	-	-	-	-	-	DWH	1-006 A	1-006 B
								Field	136	142	197	PPI	F	DWH		
1-006 A	F	D	8-9	21 N	W-32	TS	8/23/2011	Lab	133	131	197	PPI	P	DWH	-	-
								Field	135	152	199	PPI	P	DWH		
1-006 B	F	D	8-9	156 N	W-32	TS	8/23/2011	Lab	105	159	185	PPI	F	DWH	1-006 B1	-
								Field	123	113	195	PPI	P	DWH		
1-006 B1	F	D	4-8	17 N	W-32	TS	8/26/2011	Lab	123	134	187	PPI	F	DWH	-	-
								Field	113	126	179	PPI	P	DWH		
1-006 C	E	S	9-Cap	88 N	MX-8	VS	8/26/2011	Lab	141	-	179	PPI	P	DWH	-	-
								Field	122	-	163	PPI	P	DWH		
1-007	F	D	7-11	477 N	W-39	VS	8/19/2011	Lab	139	122	188	PPI	P	DWH	-	-
								Field	139	130	200	PPI	P	DWH		
1-008	F	D	11-13	54 N	W-39	VS	8/20/2011	Lab	137	120	193	PPI	P	DWH	-	-
								Field	138	109	207	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
			Location						Peel		Shear	Unit	Result	QA	Re test	Re test
Samp No	Weld Type	Track Type	Seam	Dist. (ft.)	Mach ID	Oper ID	Date Samp		Inside	Outside		ppi/psi	(P/F)	ID	1	2
1-009	F	D	13-14	150 N	W-39	VS	8/20/2011	Lab	145	123	198	PPI	P	DWH	-	-
								Field	132	148	191	PPI	P	DWH		
1-010	F	D	14-15	250 N	W-20	TS	8/20/2011	Lab	134	151	196	PPI	P	DWH	-	-
								Field	142	144	187	PPI	P	DWH		
1-011	F	D	15-16	348 N	W-39	VS	8/20/2011	Lab	138	121	197	PPI	P	DWH	-	-
								Field	136	137	193	PPI	P	DWH		
1-012	F	D	16-17	450 N	W-20	TS	8/20/2011	Lab	135	138	200	PPI	P	DWH	-	-
								Field	133	142	192	PPI	P	DWH		
1-013	F	D	17-18	400 N	W-39	VS	8/20/2011	Lab	140	133	194	PPI	P	DWH	-	-
								Field	127	131	196	PPI	P	DWH		
1-014	F	D	12-19	47 N	W-20	TS	8/20/2011	Lab	134	136	191	PPI	P	DWH	-	-
								Field	115	129	183	PPI	P	DWH		
1-015	F	D	21-22	75 N	W-20	TS	8/20/2011	Lab	-	-	-	-	-	DWH	1-015 A	1-015 B
								Field	147	141	181	PPI	F	DWH		
1-015 A	F	D	21-22	50 N	W-20	TS	8/22/2011	Lab	135	124	189	PPI	P	DWH	-	-
								Field	132	122	173	PPI	P	DWH		
1-015 B	F	D	21-22	87 N	W-20	TS	8/22/2011	Lab	134	119	188	PPI	P	DWH	-	-
								Field	140	127	190	PPI	P	DWH		
1-016	F	D	23-24	100 N	W-32	DS	8/20/2011	Lab	140	132	194	PPI	P	DWH	-	-
								Field	156	130	197	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data						Re test 1	Re test 2
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID		
1-017	F	D	18-25	300 N	W-39	VS	8/20/2011	Lab	145	129	195	PPI	P	DWH	-	-
								Field	154	135	188	PPI	P	DWH		
1-018	F	D	25-26	200 N	W-39	VS	8/20/2011	Lab	143	127	194	PPI	P	DWH	-	-
								Field	125	137	195	PPI	P	DWH		
1-019	F	D	31-32	75 N	W-39	VS	9/2/2011	Lab	131	137	184	PPI	P	DWH	-	-
								Field	118	132	206	PPI	P	DWH		
1-020	F	D	32-33	125 N	W-8	TS	9/2/2011	Lab	134	137	186	PPI	P	DWH	-	-
								Field	142	138	196	PPI	P	DWH		
1-021	F	D	33-34	175 N	W-2	DS	9/2/2011	Lab	138	135	184	PPI	P	DWH	-	-
								Field	121	139	199	PPI	P	DWH		
1-022	F	D	37-38	85 N	W-2	DS	9/2/2011	Lab	136	130	184	PPI	P	DWH	-	-
								Field	138	139	199	PPI	P	DWH		
1-023	F	D	36-43	7 E	W-39	VS	9/2/2011	Lab	154	158	186	PPI	P	DWH	-	-
								Field	124	154	203	PPI	P	DWH		
1-024	F	D	37-43	253 N	W-8	TS	9/2/2011	Lab	135	136	186	PPI	P	DWH	-	-
								Field	127	156	193	PPI	P	DWH		
1-025	F	D	26-31	194 N	W-8	TS	9/2/2011	Lab	129	137	181	PPI	P	DWH	-	-
								Field	124	126	190	PPI	P	DWH		
1-026	F	D	47-49	40 N	W-39	VS	9/2/2011	Lab	135	134	185	PPI	P	DWH	-	-
								Field	124	123	194	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-027	F	D	49-50	104 N	W-2	DS	9/2/2011	Lab	141	143	181	PPI	P	DWH	-	-
								Field	146	139	201	PPI	P	DWH		
1-028	F	D	50-52	165 N	W-8	TS	9/2/2011	Lab	134	128	185	PPI	P	DWH	-	-
								Field	111	118	199	PPI	P	DWH		
1-029	F	D	52-53	18 N	W-39	VS	9/2/2011	Lab	145	135	184	PPI	P	DWH	-	-
								Field	142	127	201	PPI	P	DWH		
1-030	F	D	58-59	97 N	W-2	DS	9/7/2011	Lab	130	142	183	PPI	P	DWH	-	-
								Field	124	101	202	PPI	P	DWH		
1-031	F	D	59-60	205 N	W-8	TS	9/2/2011	Lab	126	134	184	PPI	P	DWH	-	-
								Field	124	131	203	PPI	P	DWH		
1-032	F	D	60-66	90 N	W-39	VS	9/2/2011	Lab	147	144	177	PPI	P	DWH	-	-
								Field	138	150	180	PPI	P	DWH		
1-033	F	D	67-68	20 W	W-2	DS	9/2/2011	Lab	137	138	184	PPI	P	DWH	-	-
								Field	127	123	201	PPI	P	DWH		
1-034	F	D	71-72	16 W	W-8	TS	9/2/2011	Lab	146	127	182	PPI	P	DWH	-	-
								Field	130	131	200	PPI	P	DWH		
1-035	F	D	76-77	90 N	W-8	TS	9/13/2011	Lab	127	134	187	PPI	P	DWH	-	-
								Field	125	130	187	PPI	P	DWH		
1-036	F	D	78-79	199 N	W-39	VS	9/13/2011	Lab	144	143	184	PPI	P	DWH	-	-
								Field	127	141	190	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-037	F	D	88-89	21 W	W-8	TS	9/13/2011	Lab	134	134	185	PPI	P	DWH	-	-
								Field	133	117	183	PPI	P	DWH		
1-038	F	D	79-90	204 N	W-39	VS	9/13/2011	Lab	145	133	176	PPI	P	DWH	-	-
								Field	120	141	183	PPI	P	DWH		
1-039	F	D	76-100	60 N	W-39	VS	9/21/2011	Lab	144	150	185	PPI	F	DWH	1-039 A	1-039 B
								Field	142	110	189	PPI	P	DWH		
1-039 A	F	D	76-100	75 N	W-39	VS	10/17/2011	Lab	145	137	186	PPI	P	DWH	-	-
								Field	150	149	222	PPI	P	DWH		
1-039 B	F	D	76-100	45 N	W-39	VS	10/17/2011	Lab	136	130	187	PPI	P	DWH	-	-
								Field	161	122	216	PPI	P	DWH		
1-040	F	D	102-103	214 N	W-8	TS	9/21/2011	Lab	126	131	183	PPI	P	DWH	-	-
								Field	120	130	187	PPI	P	DWH		
1-041	F	D	103-105	293 N	W-2	CP	9/21/2011	Lab	133	136	184	PPI	P	DWH	-	-
								Field	115	128	174	PPI	P	DWH		
1-042	F	D	28-109	378 N	W-39	VS	9/21/2011	Lab	136	149	184	PPI	P	DWH	-	-
								Field	144	142	191	PPI	P	DWH		
1-043	F	D	109-111	331 N	W-39	VS	9/21/2011	Lab	138	128	184	PPI	P	DWH	-	-
								Field	137	123	187	PPI	P	DWH		
1-044	F	D	111-113	287 N	W-2	CP	9/21/2011	Lab	129	145	186	PPI	P	DWH	-	-
								Field	141	122	195	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-045	F	D	113-114	243 N	W-8	TS	9/21/2011	Lab	135	136	181	PPI	P	DWH	-	-
								Field	133	133	189	PPI	P	DWH		
1-046	F	D	114-116	206 N	W-39	VS	9/21/2011	Lab	141	136	188	PPI	P	DWH	-	-
								Field	142	126	196	PPI	P	DWH		
1-047	F	D	116-118	168 N	W-2	CP	9/21/2011	Lab	132	139	187	PPI	P	DWH	-	-
								Field	138	125	193	PPI	P	DWH		
1-048	F	D	118-120	128 N	W-8	TS	9/21/2011	Lab	135	119	187	PPI	P	DWH	-	-
								Field	126	115	182	PPI	P	DWH		
1-049	F	D	120-122	87 N	W-2	CP	9/21/2011	Lab	136	129	180	PPI	P	DWH	-	-
								Field	128	128	193	PPI	P	DWH		
1-050	F	D	122-123	121 N	W-8	TS	9/21/2011	Lab	132	132	191	PPI	P	DWH	-	-
								Field	124	152	199	PPI	P	DWH		
1-051	F	D	48-127	13 E	W-39	VS	9/21/2011	Lab	131	135	177	PPI	F	DWH	1-051 A	1-051 B
								Field	138	136	185	PPI	P	DWH		
1-051 A	F	D	49-128	10 E	W-39	VS	9/26/2011	Lab	145	157	179	PPI	P	DWH	-	-
								Field	115	132	181	PPI	P	DWH		
1-051 B	F	D	46-126	11 W	W-39	VS	9/26/2011	Lab	150	146	181	PPI	P	DWH	-	-
								Field	152	111	184	PPI	P	DWH		
1-052	F	D	126-127	73 N	W-2	CP	9/21/2011	Lab	151	138	189	PPI	P	DWH	-	-
								Field	145	125	185	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-053	F	D	106-128	101 N	W-2	CP	9/21/2011	Lab	132	133	185	PPI	P	DWH	-	-
								Field	128	119	198	PPI	P	DWH		
1-054	F	D	133-134	107 S	W-8	TS	9/21/2011	Lab	143	132	185	PPI	P	DWH	-	-
								Field	131	145	195	PPI	P	DWH		
1-055	F	D	134-138	71 S	W-39	VS	9/21/2011	Lab	148	143	187	PPI	P	DWH	-	-
								Field	136	126	190	PPI	P	DWH		
1-056	F	D	124-137	99 S	W-8	TS	9/21/2011	Lab	132	134	186	PPI	P	DWH	-	-
								Field	123	129	190	PPI	P	DWH		
1-057	F	D	152-155	12 E	W-39	VS	9/28/2011	Lab	156	165	184	PPI	P	DWH	-	-
								Field	110	154	200	PPI	P	DWH		
1-058	F	D	1-150	44 N	W-8	TS	9/28/2011	Lab	-	-	-	-	-	-	1-058 A	1-058 B
								Field	115	115	125	PPI	F	DWH		
1-058 A	F	D	149-156	181 N	W-8	TS	10/5/2011	Lab	132	158	196	PPI	P	DWH	-	-
								Field	135	137	204	PPI	P	DWH		
1-058 B	F	D	143-153	257 N	W-8	TS	10/5/2011	Lab	135	144	188	PPI	P	DWH	-	-
								Field	120	136	200	PPI	P	DWH		
1-058 C	E	S	1-Cap	68 N	MX-14	LV	10/7/2011	Lab	113	-	182	PPI	P	DWH	-	-
								Field	99	-	217	PPI	P	DWH		
1-059	F	D	150-151	86 N	W-2	CP	9/28/2011	Lab	125	134	187	PPI	P	DWH	-	-
								Field	131	111	192	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-060	F	D	151-152	125 N	W-2	CP	9/28/2011	Lab	131	134	188	PPI	P	DWH	-	-
								Field	121	134	192	PPI	P	DWH		
1-061	F	D	141-142	253 N	W-8	TS	9/28/2011	Lab	140	144	184	PPI	P	DWH	-	-
								Field	113	125	189	PPI	P	DWH		
1-062	F	D	1-141	306 N	W-39	VS	9/28/2011	Lab	145	129	173	PPI	P	DWH	-	-
								Field	115	127	181	PPI	P	DWH		
1-063	F	D	147-148	293 N	W-8	TS	9/28/2011	Lab	136	141	194	PPI	P	DWH	-	-
								Field	139	128	211	PPI	P	DWH		
1-064	F	D	148-149	332 N	W-39	VS	9/28/2011	Lab	145	152	192	PPI	P	DWH	-	-
								Field	147	139	202	PPI	P	DWH		
1-065	F	D	149-156	168 N	W-8	TS	9/28/2011	Lab	150	140	193	PPI	P	DWH	-	-
								Field	135	129	203	PPI	P	DWH		
1-066	F	D	156-157	400 N	W-2	CP	9/28/2011	Lab	134	121	189	PPI	P	DWH	-	-
								Field	125	115	198	PPI	P	DWH		
1-067	F	D	157-163	436 N	W-2	CP	9/28/2011	Lab	129	144	192	PPI	P	DWH	-	-
								Field	129	130	203	PPI	P	DWH		
1-068	F	D	161-164	45 N	W-39	VS	9/28/2011	Lab	140	131	185	PPI	P	DWH	-	-
								Field	131	140	200	PPI	P	DWH		
1-069	F	D	164-165	140 N	W-8	TS	9/28/2011	Lab	123	137	185	PPI	P	DWH	-	-
								Field	114	130	200	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase 1 Cell

ProjNo: GJ4706
TaskNo: 07

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
Samp No	Weld Type	Track Type	Location		Mach ID	Oper ID	Date Samp		Peel		Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
			Seam	Dist. (ft.)					Inside	Outside						
1-070	F	D	165-168	253 N	W-39	VS	9/28/2011	Lab	142	151	185	PPI	P	DWH	-	-
								Field	151	121	199	PPI	P	DWH		
1-071	F	D	168-170	230 N	W-8	TS	9/28/2011	Lab	131	148	190	PPI	P	DWH	-	-
								Field	120	139	203	PPI	P	DWH		
1-072	F	D	168-171	406 N	W-39	VS	9/28/2011	Lab	145	134	185	PPI	P	DWH	-	-
								Field	145	130	197	PPI	P	DWH		
1-073	F	D	172-173	56 N	W-39	VS	10/8/2011	Lab	113	143	183	PPI	F	DWH	1-073 A	1-073 B
								Field	123	144	195	PPI	P	DWH		
1-073 A	F	D	172-173	219 N	W-39	VS	10/17/2011	Lab	145	138	185	PPI	P	DWH	-	-
								Field	130	135	212	PPI	P	DWH		
1-073 B	F	D	169-171	686 N	W-39	VS	10/25/2011	Lab	144	140	185	PPI	P	DWH	-	-
								Field	148	168	212	PPI	P	DWH		
1-073 C	E	S	173-Cap	118 N	MX-5	DS	10/18/2011	Lab	127	-	172	PPI	P	DWH	-	-
								Field	127	-	204	PPI	P	DWH		
1-074	F	D	173-174	135 N	W-8	TS	10/8/2011	Lab	136	135	183	PPI	P	DWH	-	-
								Field	132	133	198	PPI	P	DWH		
1-075	F	D	174-175	200 N	W-39	VS	10/8/2011	Lab	136	131	186	PPI	P	DWH	-	-
								Field	134	123	195	PPI	P	DWH		
1-076	F	D	175-176	287 N	W-8	TS	10/8/2011	Lab	139	128	186	PPI	P	DWH	-	-
								Field	134	120	192	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase 1 Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data						Re test 1	Re test 2
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID		
1-077	F	D	176-177	347 N	W-39	VS	10/8/2011	Lab	151	131	187	PPI	P	DWH	-	-
								Field	143	126	194	PPI	P	DWH		
1-078	F	D	177-178	410 N	W-39	VS	10/8/2011	Lab	152	140	185	PPI	P	DWH	-	-
								Field	140	132	190	PPI	P	DWH		
1-079	F	D	179-180	574 N	W-8	TS	10/8/2011	Lab	134	135	191	PPI	P	DWH	-	-
								Field	130	131	199	PPI	P	DWH		
1-080	F	D	174-180	10 E	W-39	VS	10/8/2011	Lab	152	157	179	PPI	P	DWH	-	-
								Field	150	159	191	PPI	P	DWH		
1-081	F	D	182-183	587 N	W-8	TS	10/9/2011	Lab	143	144	186	PPI	P	DWH	-	-
								Field	141	132	185	PPI	P	DWH		
1-082	F	D	170-192	103 N	W-39	VS	10/9/2011	Lab	150	140	184	PPI	P	DWH	-	-
								Field	137	138	200	PPI	P	DWH		
1-083	F	D	187-188	248 N	W-39	VS	10/9/2011	Lab	147	144	180	PPI	P	DWH	-	-
								Field	100	128	209	PPI	P	DWH		
1-084	F	D	188-189	209 N	W-8	TS	10/9/2011	Lab	135	147	186	PPI	P	DWH	-	-
								Field	152	121	212	PPI	P	DWH		
1-085	F	D	189-190	173 N	W-39	VS	10/9/2011	Lab	144	139	183	PPI	P	DWH	-	-
								Field	164	147	210	PPI	P	DWH		
1-086	F	D	190-191	134 N	W-8	TS	10/9/2011	Lab	129	143	188	PPI	P	DWH	-	-
								Field	120	147	211	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
1-087	F	D	191-192	93 N	W-39	VS	10/9/2011	Lab	150	140	182	PPI	P	DWH	-	-
								Field	161	140	212	PPI	P	DWH		
1-088	F	D	193-194	59 N	W-8	TS	10/9/2011	Lab	138	160	184	PPI	P	DWH	-	-
								Field	134	147	218	PPI	P	DWH		
1-089	F	D	195-196	54 N	W-8	TS	10/9/2011	Lab	131	137	192	PPI	P	DWH	-	-
								Field	152	156	214	PPI	P	DWH		
1-090	F	D	196-197	121 N	W-39	VS	10/9/2011	Lab	146	130	182	PPI	P	DWH	-	-
								Field	155	144	208	PPI	P	DWH		
1-091	F	D	178-187	162 N	W-39	VS	10/9/2011	Lab	143	143	183	PPI	P	DWH	-	-
								Field	171	144	217	PPI	P	DWH		
1-092	F	D	197-198	93 N	W-8	TS	10/9/2011	Lab	145	129	183	PPI	P	DWH	-	-
								Field	117	130	209	PPI	P	DWH		
1-093	F	D	200-201	622 N	W-39	VS	10/11/2011	Lab	149	134	179	PPI	P	DWH	-	-
								Field	151	136	212	PPI	P	DWH		
1-094	F	D	201-202	563 N	W-8	TS	10/11/2011	Lab	130	124	186	PPI	P	DWH	-	-
								Field	133	132	210	PPI	P	DWH		
1-095	F	D	202-203	520 N	W-2	KP	10/11/2011	Lab	126	135	183	PPI	P	DWH	-	-
								Field	140	138	222	PPI	P	DWH		
1-096	F	D	203-205	465 N	W-39	VS	10/11/2011	Lab	146	134	182	PPI	P	DWH	-	-
								Field	120	135	215	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data							
Samp No	Weld Type	Track Type	Location		Mach ID	Oper ID	Date Samp		Peel		Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
			Seam	Dist. (ft.)					Inside	Outside						
1-097	F	D	205-206	414 N	W-8	TS	10/11/2011	Lab	139	133	184	PPI	P	DWH	-	-
								Field	134	128	215	PPI	P	DWH		
1-098	F	D	190-205	8 W	W-39	VS	10/11/2011	Lab	143	142	179	PPI	P	DWH	-	-
								Field	155	147	202	PPI	P	DWH		
1-099	F	D	216-217	428 N	W-8	TS	10/11/2011	Lab	136	134	192	PPI	P	DWH	-	-
								Field	132	151	218	PPI	P	DWH		
1-100	F	D	207-209	608 N	W-2	KP	10/11/2011	Lab	136	134	189	PPI	P	DWH	-	-
								Field	133	157	224	PPI	P	DWH		
1-101	F	D	217-222	613 N	W-8	TS	10/12/2011	Lab	143	160	189	PPI	P	DWH	-	-
								Field	140	171	206	PPI	P	DWH		
1-102	F	D	222-223	544 N	W-2	DS	10/12/2011	Lab	135	140	182	PPI	P	DWH	-	-
								Field	160	147	210	PPI	P	DWH		
1-103	F	D	223-225	471 N	W-39	VS	10/12/2011	Lab	139	131	185	PPI	P	DWH	-	-
								Field	142	155	210	PPI	P	DWH		
1-104	F	D	199-244	338 N	W-39	VS	10/12/2011	Lab	137	136	179	PPI	P	DWH	-	-
								Field	161	135	205	PPI	P	DWH		
1-105	F	D	229-230	61 E	W-2	DS	10/12/2011	Lab	158	142	182	PPI	P	DWH	-	-
								Field	159	132	223	PPI	P	DWH		
1-106	F	D	232-233	50 E	W-8	TS	10/12/2011	Lab	145	140	186	PPI	P	DWH	-	-
								Field	130	133	221	PPI	P	DWH		

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Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

ProjNo: GJ4706
TaskNo: 07

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data								
Samp No	Weld Type	Track Type	Location		Mach ID	Oper ID	Date Samp		Peel		Shear	Unit ppi/psi	Result (P/F)	QA ID	Re test 1	Re test 2
			Seam	Dist. (ft.)					Inside	Outside						
1-107	F	D	237-238	91 E	W-2	DS	10/12/2011	Lab	139	141	184	PPI	P	DWH	-	-
								Field	139	138	228	PPI	P	DWH		
1-108	F	D	239-241	69 E	W-39	VS	10/12/2011	Lab	139	130	184	PPI	P	DWH	-	-
								Field	148	120	210	PPI	P	DWH		
1-109	F	D	243-245	23 E	W-8	TS	10/12/2011	Lab	138	162	200	PPI	P	DWH	-	-
								Field	150	150	230	PPI	P	DWH		
1-110	F	D	250-251	65 E	W-2	DS	10/12/2011	Lab	132	147	187	PPI	P	DWH	-	-
								Field	164	130	218	PPI	P	DWH		
1-111	F	D	254-255	99 E	W-39	VS	10/12/2011	Lab	138	144	187	PPI	P	DWH	-	-
								Field	149	143	214	PPI	P	DWH		
1-112	F	D	256-257	118 E	W-8	TS	10/12/2011	Lab	136	144	187	PPI	P	DWH	-	-
								Field	143	130	214	PPI	P	DWH		
1-113	F	D	194-195	244 N	W-39	VS	10/17/2011	Lab	148	151	192	PPI	P	DWH	-	-
								Field	163	138	217	PPI	P	DWH		
1-114	F	D	198-199	148 N	W-39	VS	10/17/2011	Lab	143	129	183	PPI	P	DWH	-	-
								Field	153	128	205	PPI	P	DWH		
1-115	F	D	235-236	41 E	W-2	DS	10/17/2011	Lab	133	139	191	PPI	P	DWH	-	-
								Field	140	154	223	PPI	P	DWH		
1-116	F	D	236-237	81 E	W-8	TS	10/17/2011	Lab	134	125	185	PPI	P	DWH	-	-
								Field	122	133	212	PPI	P	DWH		

Geosyntec consultants

Destructive Test Log

Project: Onondaga Lake Sediment Consolidation Area (SCA) ProjNo: GJ4706
Location: Camillus, New York TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Test Reqs: Fusion: Peel Inside: 91 Peel Outside: 91 Shear: 120
Extrusion: Peel: 78 Shear: 120

Primary / Secondary: Primary Series: 1 MaterialType: 2

Sample Data									Test Data						Re test 1	Re test 2
Samp No	Weld Type	Track Type	Location Seam	Location Dist. (ft.)	Mach ID	Oper ID	Date Samp		Peel Inside	Peel Outside	Shear	Unit ppi/psi	Result (P/F)	QA ID		
1-117	F	D	247-248	89 E	W-39	VS	10/17/2011	Lab	141	130	189	PPI	P	DWH	-	-
								Field	132	127	210	PPI	P	DWH		

Comments:

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	1 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-001	Machine ID:	w-39
Seam ID:	---	Welder ID:	VS
		Date Sampled:	08/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	127	---	SE1	127	---	SE1	192	>50%	upper
2	126	---	SE1	120	---	SE1	187	>50%	upper
3	127	---	SE1	125	---	SE1	189	>50%	upper
4	131	---	SE1	117	---	SE1	188	>50%	upper
5	128	---	SE1	145	---	SE1	188	>50%	upper
Average	128	---	---	127	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	2 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-002	Machine ID:	W-32
Seam ID:	2/4	Welder ID:	TS
		Date Sampled:	08/19/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	136	40	AD-BRK	164	---	SE1	185	>50%	lower
2	142	---	SE1	161	---	SE1	182	>50%	lower
3	158	---	SE1	165	---	SE1	183	>50%	both
4	154	---	SE1	163	---	SE1	184	>50%	both
5	116	10	AD-BRK	167	---	SE1	189	>50%	lower
Average	141	---	---	164	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/25/11		
Tested By:	bfs	Report #:	3
Checked By:	jdt	Page:	1 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-002a	Machine ID:	---
Seam ID:	5/6	Welder ID:	---
		Date Sampled:	08/24/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	129	---	SE1	133	---	SE1	190	>50%	upper
2	127	---	SE1	139	---	SE1	192	>50%	upper
3	127	---	SE1	142	---	SE1	194	>50%	lower
4	124	---	SE1	127	---	SE1	188	>50%	lower
5	132	---	SE1	122	---	SE1	194	>50%	upper
Average	128	---	---	133	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/25/11		
Tested By:	bfs	Report #:	3
Checked By:	jdt	Page:	2 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-002b	Machine ID:	w-32
Seam ID:	3/4	Welder ID:	TS
		Date Sampled:	---

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	119	5%	AD-BRK	121	---	SE1	193	>50%	upper
2	129	---	SE1	119	---	SE1	189	>50%	upper
3	135	---	SE1	130	---	SE1	196	>50%	upper
4	131	---	SE1	123	---	SE1	190	>50%	upper
5	129	90%	AD-BRK	128	---	SE1	196	>50%	lower
Average	129	---	---	124	---	---	193	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/30/11		
Tested By:	ad	Report #:	4
Checked By:	bfs	Page:	1 of 5

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-002b-1	Machine ID:	---
Seam ID:	3/4	Welder ID:	---
		Date Sampled:	08/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	126	---	SE1	289	>50%	upper
2	133	---	SE1	118	---	SE1	185	>50%	upper
3	135	---	SE1	126	---	SE1	189	>50%	upper
4	140	---	SE1	120	---	SE1	186	>50%	both
5	120	---	SE1	119	---	SE1	192	>50%	both
Average	132	---	---	122	---	---	208	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/21/11		
Tested By:	ad	Report #:	6
Checked By:	bfs	Page:	1 of 1

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-002C	Machine ID:	MX-8
Seam ID:	4/CAP	Welder ID:	VS
		Date Sampled:	09/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	124	---	SE3	---	---	---	180	>50%	lower
2	108	---	SE3	---	---	---	182	>50%	upper
3	113	---	SE3	---	---	---	184	>50%	upper
4	93	---	SE3	---	---	---	180	>50%	both
5	127	---	SE3	---	---	---	179	>50%	lower
Average	113	---	---	---	---	---	181	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	3 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-003	Machine ID:	w-39
Seam ID:	2/5	Welder ID:	VS
		Date Sampled:	08/19/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	122	---	SE1	200	>50%	upper
2	135	---	SE1	120	---	SE1	198	>50%	lower
3	139	---	SE1	124	---	SE1	201	>50%	upper
4	141	---	SE1	120	---	SE1	196	>50%	upper
5	141	---	SE1	119	---	SE1	202	>50%	upper
Average	139	---	---	121	---	---	199	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	4 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-004	Machine ID:	w-32
Seam ID:	5/6	Welder ID:	VS
		Date Sampled:	08/19/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	139	---	SE1	124	---	SE1	191	>50%	upper
2	110	15	AD-BRK	130	---	SE1	197	>50%	lower
3	124	5	AD-BRK	134	---	SE1	194	>50%	lower
4	136	---	SE1	127	---	SE1	192	>50%	lower
5	136	---	SE1	141	---	SE1	195	>50%	lower
Average	129	---	---	131	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes; These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/25/11		
Tested By:	bfs	Report #:	3
Checked By:	jdt	Page:	3 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-004a	Machine ID:	w-32
Seam ID:	5/6	Welder ID:	TS
		Date Sampled:	08/24/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	103	20%	AD-BRK	146	---	SE1	192	>50%	upper
2	132	---	SE1	147	---	SE1	191	>50%	upper
3	127	10%	AD-BRK	143	---	SE1	194	>50%	upper
4	134	---	SE1	148	---	SE1	189	>50%	upper
5	139	---	SE1	148	---	SE1	193	>50%	upper
Average	127	---	---	146	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/25/11		
Tested By:	bfs	Report #:	3
Checked By:	jdt	Page:	4 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-004b	Machine ID:	w-32
Seam ID:	5/6	Welder ID:	ts
		Date Sampled:	08/24/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	113	---	SE1	196	>50%	upper
2	135	---	SE1	138	---	SE1	191	>50%	upper
3	135	---	SE1	127	---	SE1	194	>50%	upper
4	136	---	SE1	127	---	SE1	189	>50%	upper
5	118	30%	AD-BRK	126	---	SE1	193	>50%	upper
Average	132	---	---	126	---	---	193	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/30/11		
Tested By:	ad	Report #:	4
Checked By:	bfs	Page:	2 of 5

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-004a-1	Machine ID:	---
Seam ID:	5/6	Welder ID:	---
		Date Sampled:	08/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	128	---	SE1	122	---	SE1	190	>50%	upper
2	126	---	SE1	120	---	SE1	191	>50%	upper
3	127	---	SE1	122	---	SE1	192	>50%	upper
4	128	---	SE1	119	---	SE1	187	>50%	upper
5	130	---	SE1	131	---	SE1	193	>50%	upper
Average	128	---	---	123	---	---	191	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/30/11		
Tested By:	ad	Report #:	4
Checked By:	bfs	Page:	3 of 5

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-004c	Machine ID:	---
Seam ID:	5/lap	Welder ID:	---
		Date Sampled:	08/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	144	---	FTB/SE3	---	---	---	177	>50%	both
2	112	---	FTB/SE3	---	---	---	177	>50%	both
3	135	---	FTB/SE3	---	---	---	181	>50%	upper
4	136	---	FTB/SE3	---	---	---	174	>50%	upper
5	112	---	FTB/SE3	---	---	---	178	>50%	lower
Average	128	---	---	#DIV/0!	---	---	177	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	5 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-005	Machine ID:	w-39
Seam ID:	6/7	Welder ID:	VS
		Date Sampled:	08/19/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	---	SE1	119	---	SE1	195	>50%	upper
2	133	---	SE1	118	---	SE1	192	>50%	lower
3	138	---	SE1	123	---	SE1	195	>50%	lower
4	136	---	SE1	118	---	SE1	191	>50%	lower
5	135	---	SE1	117	---	SE1	195	>50%	upper
Average	135	---	---	119	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/24/11		
Tested By:	bfs	Report #:	2
Checked By:	jdt	Page:	1 of 2

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-006a	Machine ID:	---
Seam ID:	8/9	Welder ID:	---
		Date Sampled:	08/23/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	---	SE1	128	---	SE1	197	>50%	SE2
2	135	---	SE1	127	---	SE1	196	>50%	lower
3	137	---	SE1	137	---	SE1	199	>50%	SE2
4	142	---	SE1	132	---	SE1	194	>50%	SE2
5	117	10%	ADBRK	129	---	SE1	198	>50%	SE2
Average	133	---	---	131	---	---	197	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/24/11		
Tested By:	bfs	Report #:	2
Checked By:	jdt	Page:	2 of 2

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-006b	Machine ID:	---
Seam ID:	8/9	Welder ID:	---
		Date Sampled:	08/23/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	93	100%	AD	157	---	SE1	185	>50%	upper
2	102	100%	AD	149	---	SE1	184	>50%	upper
3	103	100%	AD	153	---	SE1	186	>50%	upper
4	124	---	SE1	169	---	SE1	183	>50%	upper
5	105	100%	AD	169	---	SE1	187	>50%	upper
Average	105	---	---	159	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/30/11		
Tested By:	ad	Report #:	4
Checked By:	bfs	Page:	4 of 5

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-006b-1	Machine ID:	---
Seam ID:	4/8	Welder ID:	---
		Date Sampled:	08/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	131	---	SE1	186	>50%	upper
2	127	40%	ADBRK	130	---	SE1	188	>50%	upper
3	117	---	SE1	146	---	SE1	189	>50%	upper
4	117	---	SE1	137	---	SE1	185	>50%	upper
5	121	---	SE1	126	---	SE1	188	>50%	upper
Average	123	---	---	#DIV/0!	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/30/11		
Tested By:	ad	Report #:	4
Checked By:	bfs	Page:	5 of 5

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-006c	Machine ID:	---
Seam ID:	9/cap	Welder ID:	---
		Date Sampled:	08/26/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	FTB/SE3	---	---	---	182	>50%	both
2	140	---	FTB/SE3	---	---	---	178	>50%	upper
3	139	---	FTB/SE3	---	---	---	182	>50%	upper
4	133	---	FTB/SE3	---	---	---	177	>50%	upper
5	148	---	FTB/SE3	---	---	---	178	>50%	upper
Average	141	---	---	#REF!	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	6 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-007	Machine ID:	w-39
Seam ID:	7/11	Welder ID:	VS
		Date Sampled:	08/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	143	---	SE1	121	---	SE1	189	>50%	upper
2	136	---	SE1	120	---	SE1	182	>50%	upper
3	139	---	SE1	121	---	SE1	191	>50%	upper
4	139	---	SE1	123	---	SE1	188	>50%	upper
5	138	---	SE1	124	---	SE1	190	>50%	upper
Average	139	---	---	122	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	7 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-008	Machine ID:	---
Seam ID:	11/13	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	---	SE1	120	---	SE1	194	>50%	upper
2	130	---	SE1	118	---	SE1	191	>50%	upper
3	139	---	SE1	124	---	SE1	195	>50%	upper
4	142	---	SE1	121	---	SE1	190	>50%	upper
5	139	---	SE1	118	---	SE1	196	>50%	upper
Average	137	---	---	120	---	---	193	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	8 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-009	Machine ID:	w-39
Seam ID:	13/14	Welder ID:	VS
		Date Sampled:	08/20/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	149	---	SE1	125	---	SE1	200	>50%	lower
2	144	---	SE1	119	---	SE1	196	>50%	upper
3	143	---	SE1	123	---	SE1	198	>50%	lower
4	142	---	SE1	124	---	SE1	195	>50%	lower
5	145	---	SE1	124	---	SE1	199	>50%	lower
Average	145	---	---	123	---	---	198	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	9 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-010	Machine ID:	---
Seam ID:	14/15	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	139	---	SE1	162	---	SE1	198	>50%	lower
2	144	---	SE1	149	---	SE1	193	>50%	upper
3	123	---	SE1	161	---	SE1	196	>50%	lower
4	132	---	SE1	141	---	SE1	192	>50%	lower
5	132	---	SE1	142	---	SE1	201	>50%	lower
Average	134	---	---	151	---	---	196	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	10 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-011	Machine ID:	---
Seam ID:	15/16	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	142	---	SE1	121	---	SE1	196	>50%	upper
2	134	---	SE1	121	---	SE1	197	>50%	lower
3	144	---	SE1	122	---	SE1	199	>50%	lower
4	134	---	SE1	121	---	SE1	194	>50%	lower
5	136	---	SE1	121	---	SE1	199	>50%	lower
Average	138	---	---	121	---	---	197	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	11 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-012	Machine ID:	---
Seam ID:	16/17	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	140	---	SE1	202	>50%	lower
2	132	---	SE1	129	---	SE1	195	>50%	lower
3	135	---	SE1	139	---	SE1	201	>50%	lower
4	133	---	SE1	130	---	SE1	196	>50%	lower
5	137	---	SE1	151	---	SE1	204	>50%	lower
Average	135	---	---	138	---	---	200	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	12 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-013	Machine ID:	---
Seam ID:	17/18	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	119	---	SE1	195	>50%	upper
2	130	---	SE1	133	---	SE1	195	>50%	lower
3	133	---	SE1	138	---	SE1	194	>50%	lower
4	149	---	SE1	137	---	SE1	190	>50%	lower
5	151	---	SE1	137	---	SE1	198	>50%	lower
Average	140	---	---	133	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	13 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-014	Machine ID:	---
Seam ID:	12/19	Welder ID:	---
		Date Sampled:	08/20/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	134	---	SE1	190	>50%	upper
2	127	---	SE1	136	---	SE1	190	>50%	upper
3	134	---	SE1	137	---	SE1	191	>50%	upper
4	136	---	SE1	130	---	SE1	188	>50%	upper
5	141	---	SE1	143	---	SE1	194	>50%	upper
Average	134	---	---	136	---	---	191	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	14 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-015A	Machine ID:	---
Seam ID:	21/22	Welder ID:	---
		Date Sampled:	08/22/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	146	---	SE1	122	---	SE1	190	>50%	upper
2	135	---	SE1	131	---	SE1	186	>50%	upper
3	135	---	SE1	133	---	SE1	190	>50%	upper
4	129	---	SE1	121	---	SE1	184	>50%	upper
5	129	---	SE1	115	---	SE1	193	>50%	upper
Average	135	---	---	124	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	15 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-015B	Machine ID:	---
Seam ID:	21/22	Welder ID:	---
		Date Sampled:	08/22/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	121	---	SE1	188	>50%	upper
2	142	---	SE1	116	---	SE1	188	>50%	upper
3	133	---	SE1	118	---	SE1	190	>50%	upper
4	129	---	SE1	118	---	SE1	186	>50%	upper
5	130	---	SE1	121	---	SE1	189	>50%	upper
Average	134	---	---	119	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	16 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-016	Machine ID:	---
Seam ID:	23/24	Welder ID:	---
		Date Sampled:	08/20/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./In	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	135	---	SE1	124	---	SE1	194	>50%	upper
2	145	---	SE1	120	---	SE1	190	>50%	lower
3	136	---	SE1	128	---	SE1	195	>50%	upper
4	138	---	SE1	159	---	SE1	191	>50%	lower
5	147	---	SE1	130	---	SE1	200	>50%	lower
Average	140	---	---	132	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	17 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-017	Machine ID:	---
Seam ID:	18/25	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	131	---	SE1	196	>50%	lower
2	140	---	SE1	124	---	SE1	196	>50%	lower
3	144	---	SE1	130	---	SE1	196	>50%	lower
4	145	---	SE1	133	---	SE1	191	>50%	lower
5	150	---	SE1	126	---	SE1	198	>50%	lower
Average	145	---	---	129	---	---	195	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	08/23/11		
Tested By:	bfs	Report #:	1
Checked By:	jdt	Page:	18 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-018	Machine ID:	---
Seam ID:	25/26	Welder ID:	---
		Date Sampled:	08/20/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	128	---	SE1	196	>50%	upper
2	144	---	SE1	124	---	SE1	189	>50%	lower
3	147	---	SE1	133	---	SE1	196	>50%	lower
4	141	---	SE1	126	---	SE1	192	>50%	lower
5	147	---	SE1	125	---	SE1	199	>50%	lower
Average	143	---	---	127	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	1 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-019	Machine ID:	W-39
Seam ID:	31/32	Welder ID:	VS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	136	---	SE1	128	---	SE1	182	>50%	upper
2	131	---	SE1	125	---	SE1	180	>50%	upper
3	128	---	SE1	149	---	SE1	187	>50%	upper
4	131	---	SE1	156	---	SE1	183	>50%	upper
5	130	---	SE1	125	---	SE1	188	>50%	upper
Average	131	---	---	137	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	2 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-020	Machine ID:	W-8
Seam ID:	32/33	Welder ID:	TS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	128	---	SE1	186	>50%	upper
2	132	---	SE1	132	---	SE1	183	>50%	upper
3	138	---	SE1	146	---	SE1	188	>50%	upper
4	133	---	SE1	140	---	SE1	183	>50%	upper
5	133	---	SE1	137	---	SE1	188	>50%	both
Average	134	---	---	137	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	3 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-021	Machine ID:	W-2
Seam ID:	33/34	Welder ID:	DS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	---	SE1	131	---	SE1	183	>50%	upper
2	142	---	SE1	133	---	SE1	184	>50%	upper
3	140	---	SE1	135	---	SE1	185	>50%	upper
4	138	---	SE1	135	---	SE1	180	>50%	upper
5	136	---	SE1	141	---	SE1	186	>50%	upper
Average	138	---	---	135	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	4 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-022	Machine ID:	W-2
Seam ID:	37/38	Welder ID:	DS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./In	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	128	---	SE1	134	---	SE1	183	>50%	upper
2	131	---	SE1	130	---	SE1	184	>50%	upper
3	138	---	SE1	133	---	SE1	186	>50%	upper
4	146	---	SE1	126	---	SE1	182	>50%	upper
5	135	---	SE1	128	---	SE1	187	>50%	upper
Average	136	---	---	130	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	5 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-023	Machine ID:	W-39
Seam ID:	36/43	Welder ID:	VS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	159	---	SE1	160	---	SE1	184	>50%	upper
2	155	---	SE1	155	---	SE1	180	>50%	upper
3	156	---	SE1	173	---	SE1	191	>50%	lower
4	147	---	SE1	154	---	SE1	187	>50%	upper
5	152	---	SE1	150	---	SE1	188	>50%	both
Average	154	---	---	158	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	6 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-024	Machine ID:	W-8
Seam ID:	37/43	Welder ID:	TS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	138	---	SE1	184	>50%	upper
2	133	---	SE1	137	---	SE1	186	>50%	upper
3	137	---	SE1	134	---	SE1	186	>50%	upper
4	139	---	SE1	136	---	SE1	184	>50%	upper
5	135	---	SE1	136	---	SE1	188	>50%	upper
Average	135	---	---	136	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	7 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-025	Machine ID:	W-8
Seam ID:	26/31	Welder ID:	TS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	129	---	SE1	181	>50%	upper
2	125	---	SE1	134	---	SE1	178	>50%	upper
3	133	---	SE1	135	---	SE1	181	>50%	upper
4	128	---	SE1	143	---	SE1	179	>50%	upper
5	125	---	SE1	142	---	SE1	185	>50%	upper
Average	129	---	---	137	---	---	181	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	8 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-026	Machine ID:	W-39
Seam ID:	47/49	Welder ID:	VS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	139	---	SE1	137	---	SE1	184	>50%	lower
2	134	---	SE1	129	---	SE1	186	>50%	both
3	138	---	SE1	130	---	SE1	185	>50%	upper
4	134	---	SE1	132	---	SE1	183	>50%	lower
5	129	---	SE1	140	---	SE1	186	>50%	lower
Average	135	---	---	134	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	9 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-027	Machine ID:	W-2
Seam ID:	49/50	Welder ID:	DS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	141	---	SE1	187	>50%	lower
2	129	---	SE1	141	---	SE1	186	>50%	lower
3	147	---	SE1	155	---	SE1	187	>50%	lower
4	153	---	SE1	139	---	SE1	183	>50%	lower
5	141	---	SE1	138	---	SE1	185	>50%	lower
Average	141	---	---	143	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	10 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-028	Machine ID:	W-8
Seam ID:	50/52	Welder ID:	TS
		Date Sampled:	09/02/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	114	---	SE1	129	---	SE1	187	>50%	lower
2	143	---	SE1	132	---	SE1	185	>50%	upper
3	142	---	SE1	130	---	SE1	184	>50%	lower
4	136	---	SE1	124	---	SE1	183	>50%	lower
5	135	---	SE1	125	---	SE1	185	>50%	lower
Average	134	---	---	128	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	11 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-029	Machine ID:	W-39
Seam ID:	52/53	Welder ID:	VS
		Date Sampled:	09/05/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	148	---	SE1	136	---	SE1	180	>50%	lower
2	141	---	SE1	132	---	SE1	186	>50%	lower
3	146	---	SE1	138	---	SE1	187	>50%	lower
4	140	---	SE1	133	---	SE1	181	>50%	lower
5	149	---	SE1	135	---	SE1	186	>50%	lower
Average	145	---	---	135	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	12 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-030	Machine ID:	W-2
Seam ID:	58/59	Welder ID:	DS
		Date Sampled:	09/06/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	144	---	SE1	180	>50%	lower
2	128	---	SE1	138	---	SE1	185	>50%	lower
3	133	---	SE1	144	---	SE1	186	>50%	lower
4	127	---	SE1	145	---	SE1	181	>50%	lower
5	131	---	SE1	139	---	SE1	185	>50%	lower
Average	130	---	---	142	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	13 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-031	Machine ID:	W-8
Seam ID:	59/60	Welder ID:	TS
		Date Sampled:	09/06/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	125	---	SE1	185	>50%	lower
2	131	---	SE1	131	---	SE1	183	>50%	upper
3	119	---	SE1	138	---	SE1	185	>50%	lower
4	123	---	SE1	133	---	SE1	181	>50%	lower
5	122	---	SE1	145	---	SE1	184	>50%	lower
Average	126	---	---	134	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	14 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-032	Machine ID:	W-39
Seam ID:	60/66	Welder ID:	VS
		Date Sampled:	09/06/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	153	---	SE1	140	---	SE1	178	>50%	upper
2	137	---	SE1	146	---	SE1	178	>50%	upper
3	146	---	SE1	149	---	SE1	181	>50%	upper
4	149	---	SE1	142	---	SE1	173	>50%	upper
5	151	---	SE1	143	---	SE1	177	>50%	upper
Average	147	---	---	144	---	---	177	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	15 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-033	Machine ID:	W-2
Seam ID:	67/68	Welder ID:	DS
		Date Sampled:	09/06/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	136	---	SE1	183	>50%	lower
2	127	---	SE1	139	---	SE1	185	>50%	lower
3	130	---	SE1	148	---	SE1	185	>50%	lower
4	125	---	SE1	135	---	SE1	181	>50%	lower
5	123	---	SE1	132	---	SE1	188	>50%	lower
Average	127	---	---	138	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/07/11		
Tested By:	ad	Report #:	5
Checked By:	bfs	Page:	16 of 16

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-034	Machine ID:	W-8
Seam ID:	71/72	Welder ID:	TS
		Date Sampled:	09/06/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	148	---	SE1	138	---	SE1	185	>50%	lower
2	151	---	SE1	121	---	SE1	183	>50%	lower
3	155	---	SE1	127	---	SE1	182	>50%	lower
4	138	---	SE1	126	---	SE1	180	>50%	lower
5	139	---	SE1	123	---	SE1	182	>50%	lower
Average	146	---	---	127	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/16/11		
Tested By:	ad	Report #:	6
Checked By:	bfs	Page:	1 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-035	Machine ID:	W-8
Seam ID:	76/77	Welder ID:	TS
		Date Sampled:	09/13/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	122	---	SE1	130	---	SE1	187	>50%	lower
2	124	---	SE1	124	---	SE1	188	>50%	both
3	135	---	SE1	147	---	SE1	189	>50%	lower
4	126	---	SE1	132	---	SE1	185	>50%	lower
5	127	---	SE1	136	---	SE1	187	>50%	lower
Average	127	---	---	134	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/16/11		
Tested By:	ad	Report #:	6
Checked By:	bfs	Page:	2 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-036	Machine ID:	W-39
Seam ID:	78/79	Welder ID:	VS
		Date Sampled:	09/13/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	144	---	SE1	151	---	SE1	184	>50%	lower
2	142	---	SE1	144	---	SE1	184	>50%	lower
3	145	---	SE1	143	---	SE1	186	>50%	lower
4	142	---	SE1	139	---	SE1	181	>50%	lower
5	146	---	SE1	138	---	SE1	184	>50%	lower
Average	144	---	---	143	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/16/11		
Tested By:	ad	Report #:	6
Checked By:	bfs	Page:	3 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-037	Machine ID:	W-8
Seam ID:	88/89	Welder ID:	TS
		Date Sampled:	09/13/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	136	---	SE1	119	---	SE1	187	>50%	upper
2	132	---	SE1	146	---	SE1	183	>50%	upper
3	134	---	SE1	145	---	SE1	188	>50%	upper
4	131	---	SE1	144	---	SE1	182	>50%	upper
5	137	---	SE1	115	---	SE1	187	>50%	upper
Average	134	---	---	134	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/16/11		
Tested By:	ad	Report #:	6
Checked By:	bfs	Page:	4 of 4

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-038	Machine ID:	W-39
Seam ID:	79/90	Welder ID:	VS
		Date Sampled:	09/13/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	147	---	SE1	133	---	SE1	176	>50%	both
2	143	---	SE1	127	---	SE1	177	>50%	upper
3	151	---	SE1	135	---	SE1	177	>50%	upper
4	141	---	SE1	133	---	SE1	173	>50%	upper
5	141	---	SE1	136	---	SE1	178	>50%	lower
Average	145	---	---	133	---	---	176	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	1 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-039	Machine ID:	W-39
Seam ID:	76/100	Welder ID:	VS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	15%	AD BRK	155	---	SE1	185	>50%	Lower
2	143	---	SE1	136	---	SE1	185	>50%	Lower
3	139	---	SE1	157	---	SE1	187	>50%	Lower
4	146	---	SE1	154	---	SE1	182	>50%	Lower
5	156	---	SE1	148	---	SE1	186	>50%	Lower
Average	144	---	---	150	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	18 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-039A	Machine ID:	---
Seam ID:	76/100	Welder ID:	---
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	139	---	SE1	142	---	SE1	186	>50%	lower
2	147	---	SE1	133	---	SE1	187	>50%	lower
3	146	---	SE1	140	---	SE1	189	>50%	lower
4	142	---	SE1	131	---	SE1	183	>50%	lower
5	150	---	SE1	139	---	SE1	187	>50%	lower
Average	145	---	---	137	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	19 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-039B	Machine ID:	---
Seam ID:	76/100	Welder ID:	---
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	123	---	SE1	185	>50%	lower
2	132	---	SE1	129	---	SE1	188	>50%	lower
3	137	---	SE1	133	---	SE1	191	>50%	lower
4	132	---	SE1	131	---	SE1	183	>50%	lower
5	138	---	SE1	132	---	SE1	188	>50%	lower
Average	136	---	---	130	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	2 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-040	Machine ID:	W-8
Seam ID:	102/103	Welder ID:	TS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	122	---	SE1	132	---	SE1	183	>50%	Lower
2	121	---	SE1	127	---	SE1	183	>50%	Lower
3	125	---	SE1	134	---	SE1	185	>50%	Lower
4	133	---	SE1	127	---	SE1	180	>50%	Lower
5	129	---	SE1	134	---	SE1	184	>50%	Lower
Average	126	---	---	131	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	3 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-041	Machine ID:	W-2
Seam ID:	103/105	Welder ID:	CP
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	137	---	SE1	187	>50%	Lower
2	135	---	SE1	134	---	SE1	184	>50%	Lower
3	130	---	SE1	143	---	SE1	186	>50%	Lower
4	129	---	SE1	137	---	SE1	178	>50%	Lower
5	131	---	SE1	127	---	SE1	185	>50%	Lower
Average	133	---	---	136	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	1 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-042	Machine ID:	W-39
Seam ID:	28/109	Welder ID:	VS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134		SE1	145		SE1	184	>50%	Upper
2	142		SE1	146		SE1	180	>50%	Upper
3	135		SE1	149		SE1	185	>50%	Upper
4	134		SE1	150		SE1	182	>50%	Upper
5	135		SE1	153		SE1	188	>50%	Upper
Average	136	---	---	149	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	2 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-043	Machine ID:	W-39
Seam ID:	109/111	Welder ID:	VS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138		SE1	126		SE1	185	>50%	Upper
2	140		SE1	123		SE1	184	>50%	Upper
3	143		SE1	134		SE1	187	>50%	Upper
4	139		SE1	125		SE1	181	>50%	Upper
5	131		SE1	131		SE1	185	>50%	Upper
Average	138	---	---	128	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	3 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-044	Machine ID:	W-2
Seam ID:	111/113	Welder ID:	CP
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131		SE1	140		SE1	186	>50%	Upper
2	128		SE1	145		SE1	187	>50%	Upper
3	131		SE1	147		SE1	189	>50%	Upper
4	125		SE1	142		SE1	183	>50%	Upper
5	129		SE1	150		SE1	187	>50%	Upper
Average	129	---	---	145	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	4 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-045	Machine ID:	W-8
Seam ID:	113/114	Welder ID:	TS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137		SE1	152		SE1	181	>50%	Upper
2	139		SE1	123		SE1	179	>50%	Upper
3	134		SE1	156		SE1	183	>50%	Both
4	130		SE1	124		SE1	178	>50%	Lower
5	135		SE1	124		SE1	183	>50%	Lower
Average	135	---	---	136	---	---	181	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	5 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-046	Machine ID:	W-39
Seam ID:	114/116	Welder ID:	VS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	141		SE1	135		SE1	189	>50%	Upper
2	141		SE1	136		SE1	187	>50%	Both
3	143		SE1	139		SE1	189	>50%	Both
4	141		SE1	137		SE1	185	>50%	Both
5	140		SE1	134		SE1	190	>50%	Lower
Average	141	---	---	136	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	6 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-047	Machine ID:	W-2
Seam ID:	116/118	Welder ID:	CP
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	130		SE1	142		SE1	188	>50%	Upper
2	134		SE1	140		SE1	189	>50%	Upper
3	128		SE1	134		SE1	189	>50%	Upper
4	141		SE1	138		SE1	184	>50%	Upper
5	129		SE1	137		SE1	187	>50%	Upper
Average	132	---	---	139	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	4 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-048	Machine ID:	W-8
Seam ID:	118/119	Welder ID:	TS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	121	---	SE1	189	>50%	Upper
2	132	---	SE1	118	---	SE1	185	>50%	Upper
3	138	---	SE1	121	---	SE1	189	>50%	Upper
4	133	---	SE1	119	---	SE1	184	>50%	Upper
5	131	---	SE1	116	---	SE1	191	>50%	Upper
Average	135	---	---	119	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	7 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-049	Machine ID:	W-2
Seam ID:	120/122	Welder ID:	CP
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	149		SE1	133		SE1	181	>50%	Lower
2	131		SE1	117		SE1	179	>50%	Lower
3	132		SE1	132		SE1	182	>50%	Lower
4	135		SE1	137		SE1	177	>50%	Lower
5	136		SE1	127		SE1	180	>50%	Lower
Average	136	---	---	129	---	---	180	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	8 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-050	Machine ID:	W-8
Seam ID:	122/123	Welder ID:	TS
		Date Sampled:	09/19/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	129		SE1	136		SE1	193	>50%	Upper
2	141		SE1	136		SE1	188	>50%	Upper
3	137		SE1	143		SE1	192	>50%	Upper
4	130		SE1	115		SE1	188	>50%	Upper
5	123		SE1	131		SE1	193	>50%	Upper
Average	132	---	---	132	---	---	191	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	9 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-051	Machine ID:	W-39
Seam ID:	48/127	Welder ID:	VS
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	141		SE1	135		SE1	174	>50%	Upper
2	132		SE1	149		SE1	174	>50%	Upper
3	121	20%	AD BRK	128	10%	AD BRK	181	>50%	Upper
4	117	40%	AD BRK	131		SE1	175	>50%	Both
5	141		SE1	131		SE1	178	>50%	Both
Average	131	---	---	135	---	---	177	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	5 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-051A	Machine ID:	W-39
Seam ID:	49/128	Welder ID:	VS
		Date Sampled:	09/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	158	---	SE1	159	---	SE1	177	>50%	Upper
2	143	---	SE1	139	---	SE1	177	>50%	Lower
3	145	---	SE1	162	---	SE1	184	>50%	Upper
4	143	---	SE1	161	---	SE1	175	>50%	Upper
5	135	---	SE1	164	---	SE1	182	>50%	Lower
Average	145	---	---	157	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/27/11		
Tested By:	ad	Report #:	9
Checked By:	bfs	Page:	6 of 6

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-051B	Machine ID:	W-39
Seam ID:	46/126	Welder ID:	VS
		Date Sampled:	09/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	155	---	SE1	152	---	SE1	182	>50%	Lower
2	145	---	SE1	150	---	SE1	185	>50%	Both
3	144	---	SE1	158	---	SE1	183	>50%	Both
4	145	---	SE1	142	---	SE1	178	>50%	Lower
5	163	---	SE1	127	---	SE1	178	>50%	Lower
Average	150	---	---	146	---	---	181	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	10 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-052	Machine ID:	W-2
Seam ID:	126/127	Welder ID:	CP
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	150		SE1	141		SE1	189	>50%	Upper
2	151		SE1	129		SE1	188	>50%	Upper
3	157		SE1	146		SE1	191	>50%	Upper
4	147		SE1	138		SE1	187	>50%	Upper
5	150		SE1	136		SE1	191	>50%	Lower
Average	151	---	---	138	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	11 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-053	Machine ID:	W-2
Seam ID:	106/128	Welder ID:	CP
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	130		SE1	132		SE1	184	>50%	Lower
2	149		SE1	121		SE1	185	>50%	Lower
3	128		SE1	136		SE1	187	>50%	Lower
4	124		SE1	140		SE1	184	>50%	Lower
5	127		SE1	136		SE1	187	>50%	Lower
Average	132	---	---	133	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	12 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-054	Machine ID:	W-8
Seam ID:	133/134	Welder ID:	TS
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	123		SE1	144		SE1	185	>50%	Lower
2	148		SE1	123		SE1	184	>50%	Lower
3	151		SE1	129		SE1	186	>50%	Lower
4	149		SE1	139		SE1	182	>50%	Lower
5	146		SE1	126		SE1	186	>50%	Lower
Average	143	---	---	132	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	13 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-055	Machine ID:	W-39
Seam ID:	134/138	Welder ID:	VS
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	161		SE1	140		SE1	187	>50%	Both
2	151		SE1	140		SE1	189	>50%	Upper
3	139		SE1	146		SE1	188	>50%	Upper
4	127		SE1	143		SE1	183	>50%	Upper
5	163		SE1	145		SE1	188	>50%	Upper
Average	148	---	---	---	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/23/11		
Tested By:	ad	Report #:	8
Checked By:	bfs	Page:	14 of 14

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-056	Machine ID:	W-8
Seam ID:	124/137	Welder ID:	TS
		Date Sampled:	09/21/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	135		SE1	135		SE1	188	>50%	Upper
2	128		SE1	131		SE1	185	>50%	Upper
3	134		SE1	135		SE1	189	>50%	Both
4	131		SE1	138		SE1	183	>50%	Lower
5	133		SE1	128		SE1	187	>50%	Lower
Average	132	---	---	134	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	1 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-057	Machine ID:	W39
Seam ID:	152/155	Welder ID:	VS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	157	---	SE1	168	---	SE1	184	>50%	both
2	151	---	SE1	170	---	SE1	185	>50%	upper
3	165	---	SE1	168	---	SE1	188	>50%	upper
4	156	---	SE1	153	---	SE1	178	>50%	upper
5	152	---	SE1	166	---	SE1	187	>50%	both
Average	156	---	---	165	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	2 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-058A	Machine ID:	W-8
Seam ID:	149/156	Welder ID:	TS
		Date Sampled:	10/05/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	154	---	SE1	196	>50%	upper
2	128	---	SE1	156	---	SE1	195	>50%	upper
3	133	---	SE1	164	---	SE1	199	>50%	upper
4	133	---	SE1	159	---	SE1	193	>50%	upper
5	135	---	SE1	158	---	SE1	197	>50%	lower
Average	132	---	---	158	---	---	196	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	3 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-058B	Machine ID:	W-8
Seam ID:	143/153	Welder ID:	TS
		Date Sampled:	10/05/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	126	---	SE1	143	---	SE1	186	>50%	upper
2	146	---	SE1	140	---	SE1	185	>50%	upper
3	136	---	SE1	144	---	SE1	189	>50%	upper
4	132	---	SE1	147	---	SE1	187	>50%	upper
5	131	---	SE1	145	---	SE1	191	>50%	upper
Average	135	---	---	144	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/10/11		
Tested By:	ad	Report #:	12
Checked By:	bfs	Page:	1 of 1

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-058C	Machine ID:	MX-14
Seam ID:	1/CAP	Welder ID:	LV
		Date Sampled:	10/07/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	---	---	---	183	>50%	upper
2	146	---	SE1	---	---	---	181	>50%	upper
3	101	---	SE1	---	---	---	184	>50%	both
4	93	---	SE1	---	---	---	179	>50%	lower
5	91	---	SE1	---	---	---	184	>50%	lower
Average	113	---	---	---	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	4 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-059	Machine ID:	W-2
Seam ID:	150/151	Welder ID:	CP
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	127	---	SE1	129	---	SE1	188	>50%	upper
2	121	---	SE1	129	---	SE1	188	>50%	upper
3	127	---	SE1	135	---	SE1	189	>50%	upper
4	125	---	SE1	140	---	SE1	184	>50%	upper
5	125	---	SE1	139	---	SE1	188	>50%	upper
Average	125	---	---	134	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	5 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-060	Machine ID:	W-2
Seam ID:	151/152	Welder ID:	CP
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	135	---	SE1	188	>50%	upper
2	131	---	SE1	128	---	SE1	189	>50%	upper
3	130	---	SE1	134	---	SE1	190	>50%	upper
4	134	---	SE1	134	---	SE1	185	>50%	upper
5	127	---	SE1	136	---	SE1	189	>50%	upper
Average	131	---	---	134	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/30/11		
Tested By:	bfs	Report #:	10
Checked By:	mpd	Page:	1 of 2

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-061	Machine ID:	W-8
Seam ID:	141/142	Welder ID:	TS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	151	---	SE1	140	---	SE1	182	>50%	upper
2	134	---	SE1	144	---	SE1	181	>50%	upper
3	134	---	SE1	151	---	SE1	184	>50%	upper
4	127	---	SE1	143	---	SE1	184	>50%	upper
5	154	---	SE1	142	---	SE1	189	>50%	upper
Average	140	---	---	144	---	---	**184**	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	09/30/11		
Tested By:	bfs	Report #:	10
Checked By:	mpd	Page:	2 of 2

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-062	Machine ID:	W-39
Seam ID:	001/141	Welder ID:	VS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	148	---	SE1	121	---	SE1	172	>50%	lower
2	144	---	SE1	123	---	SE1	174	>50%	lower
3	146	---	SE1	122	---	SE1	172	>50%	lower
4	145	---	SE1	141	---	SE1	170	>50%	lower
5	145	---	SE1	137	---	SE1	175	>50%	lower
Average	145	---	---	129	---	---	173	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	6 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-063	Machine ID:	W-8
Seam ID:	147/148	Welder ID:	TS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	134	---	SE1	142	---	SE1	196	>50%	upper
2	131	---	SE1	137	---	SE1	192	>50%	upper
3	135	---	SE1	143	---	SE1	196	>50%	upper
4	138	---	SE1	142	---	SE1	191	>50%	upper
5	141	---	SE1	143	---	SE1	196	>50%	upper
Average	136	---	---	141	---	---	194	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	7 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-064	Machine ID:	W39
Seam ID:	148/149	Welder ID:	VS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	149	---	SE1	189	>50%	upper
2	147	---	SE1	159	---	SE1	188	>50%	upper
3	146	---	SE1	154	---	SE1	194	>50%	upper
4	150	---	SE1	129	---	SE1	190	>50%	upper
5	142	---	SE1	168	---	SE1	198	>50%	upper
Average	145	---	---	152	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	8 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-065	Machine ID:	W-8
Seam ID:	149/156	Welder ID:	TS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	147	---	SE1	134	---	SE1	188	>50%	upper
2	147	---	SE1	138	---	SE1	194	>50%	upper
3	153	---	SE1	147	---	SE1	192	>50%	upper
4	146	---	SE1	137	---	SE1	193	>50%	upper
5	158	---	SE1	145	---	SE1	196	>50%	upper
Average	150	---	---	140	---	---	193	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	9 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-066	Machine ID:	W-2
Seam ID:	156/157	Welder ID:	CP
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	121	---	SE1	188	>50%	upper
2	134	---	SE1	116	---	SE1	190	>50%	upper
3	134	---	SE1	120	---	SE1	191	>50%	upper
4	129	---	SE1	123	---	SE1	186	>50%	upper
5	129	---	SE1	123	---	SE1	191	>50%	upper
Average	134	---	---	121	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	10 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-067	Machine ID:	W-2
Seam ID:	157/163	Welder ID:	CP
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	143	---	SE1	193	>50%	upper
2	130	---	SE1	143	---	SE1	192	>50%	upper
3	133	---	SE1	146	---	SE1	193	>50%	upper
4	128	---	SE1	146	---	SE1	190	>50%	upper
5	122	---	SE1	141	---	SE1	195	>50%	upper
Average	129	---	---	144	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	11 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-068	Machine ID:	W39
Seam ID:	161/164	Welder ID:	VS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	142	---	SE1	132	---	SE1	184	>50%	upper
2	137	---	SE1	128	---	SE1	184	>50%	upper
3	141	---	SE1	132	---	SE1	187	>50%	upper
4	137	---	SE1	133	---	SE1	183	>50%	upper
5	142	---	SE1	129	---	SE1	188	>50%	upper
Average	140	---	---	131	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	12 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-069	Machine ID:	W-8
Seam ID:	164/165	Welder ID:	TS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	121	---	SE1	146	---	SE1	183	>50%	lower
2	124	---	SE1	126	---	SE1	187	>50%	lower
3	129	---	SE1	135	---	SE1	188	>50%	lower
4	121	---	SE1	137	---	SE1	183	>50%	lower
5	121	---	SE1	140	---	SE1	185	>50%	lower
Average	123	---	---	137	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	13 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-070	Machine ID:	W39
Seam ID:	165/168	Welder ID:	VS
		Date Sampled:	09/26/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	149	---	SE1	157	---	SE1	183	>50%	lower
2	126	---	SE1	150	---	SE1	187	>50%	lower
3	148	---	SE1	159	---	SE1	187	>50%	lower
4	143	---	SE1	146	---	SE1	183	>50%	lower
5	146	---	SE1	140	---	SE1	188	>50%	lower
Average	142	---	---	151	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	14 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-071	Machine ID:	W-8
Seam ID:	168/170	Welder ID:	TS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	141	---	SE1	187	>50%	lower
2	122	---	SE1	135	---	SE1	191	>50%	lower
3	138	---	SE1	150	---	SE1	193	>50%	lower
4	134	---	SE1	156	---	SE1	187	>50%	lower
5	133	---	SE1	159	---	SE1	191	>50%	lower
Average	131	---	---	148	---	---	190	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/06/11		
Tested By:	ad	Report #:	11
Checked By:	bfs	Page:	15 of 15

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-072	Machine ID:	W-39
Seam ID:	168/171	Welder ID:	VS
		Date Sampled:	09/28/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	146	---	SE1	133	---	SE1	185	>50%	lower
2	144	---	SE1	136	---	SE1	184	>50%	lower
3	144	---	SE1	140	---	SE1	187	>50%	lower
4	143	---	SE1	133	---	SE1	183	>50%	lower
5	147	---	SE1	130	---	SE1	186	>50%	lower
Average	145	---	---	134	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	1 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-73	Machine ID:	W39
Seam ID:	172/173	Welder ID:	VS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	115	90%	AD BRK	143	---	SE1	184	>50%	Lower
2	106	80%	AD BRK	140	---	SE1	184	>50%	Lower
3	125	---	SE1	148	---	SE1	185	>50%	Lower
4	105	50%	AD BRK	148	---	SE1	180	>50%	Lower
5	115	90%	AD BRK	136	---	SE1	185	>50%	Lower
Average	113	---	---	143	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	20 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-073A	Machine ID:	---
Seam ID:	172/173	Welder ID:	---
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	143	---	SE1	182	>50%	lower
2	154	---	SE1	136	---	SE1	186	>50%	lower
3	145	---	SE1	139	---	SE1	188	>50%	lower
4	152	---	SE1	136	---	SE1	184	>50%	lower
5	145	---	SE1	136	---	SE1	187	>50%	lower
Average	145	---	---	138	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/26/11		
Tested By:	ad	Report #:	16
Checked By:	bfs	Page:	1 of 1

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-073B	Machine ID:	W39
Seam ID:	169/171	Welder ID:	VS
		Date Sampled:	10/25/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	159	---	SE1	142	---	SE1	186	>50%	lower
2	141	---	SE1	138	---	SE1	185	>50%	lower
3	144	---	SE1	145	---	SE1	187	>50%	lower
4	138	10%	AD-BRK	140	---	SE1	182	>50%	lower
5	138	---	SE1	138	---	SE1	187	>50%	lower
Average	144	---	---	140	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	1 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-073C	Machine ID:	---
Seam ID:	173/CAP	Welder ID:	---
		Date Sampled:	10/18/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	124	---	SE3	---	---	---	171	>50%	upper
2	118	---	SE3	---	---	---	169	>50%	upper
3	129	---	SE3	---	---	---	173	>50%	upper
4	139	---	SE3	---	---	---	174	>50%	upper
5	127	---	SE3	---	---	---	171	>50%	upper
Average	127	---	---	---	---	---	172	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	2 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-74	Machine ID:	W-8
Seam ID:	173/174	Welder ID:	TS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	138	---	SE1	183	>50%	Lower
2	129	---	SE1	128	---	SE1	185	>50%	Lower
3	137	---	SE1	137	---	SE1	186	>50%	Lower
4	141	---	SE1	139	---	SE1	178	>50%	Lower
5	144	---	SE1	133	---	SE1	183	>50%	Lower
Average	136	---	---	135	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	3 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-75	Machine ID:	W39
Seam ID:	174/175	Welder ID:	VS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	116	---	SE1	132	---	SE1	184	>50%	Lower
2	117	---	SE1	132	---	SE1	189	>50%	Lower
3	152	---	SE1	129	---	SE1	191	>50%	Lower
4	145	---	SE1	132	---	SE1	184	>50%	Lower
5	149	---	SE1	132	---	SE1	184	>50%	Lower
Average	136	---	---	131	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	4 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-76	Machine ID:	W-8
Seam ID:	175/176	Welder ID:	TS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	131	---	SE1	185	>50%	Lower
2	153	---	SE1	122	---	SE1	185	>50%	Lower
3	133	---	SE1	126	---	SE1	188	>50%	Lower
4	136	---	SE1	131	---	SE1	182	>50%	Lower
5	134	---	SE1	130	---	SE1	188	>50%	Lower
Average	139	---	---	128	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	5 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-77	Machine ID:	W39
Seam ID:	176/177	Welder ID:	VS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	129	---	SE1	185	>50%	Lower
2	144	---	SE1	131	---	SE1	188	>50%	Lower
3	155	---	SE1	131	---	SE1	189	>50%	Lower
4	153	---	SE1	132	---	SE1	185	>50%	Lower
5	157	---	SE1	129	---	SE1	189	>50%	Lower
Average	151	---	---	131	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	6 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-78	Machine ID:	W39
Seam ID:	177/178	Welder ID:	VS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	155	---	SE1	145	---	SE1	183	>50%	Lower
2	150	---	SE1	129	---	SE1	187	>50%	Lower
3	153	---	SE1	140	---	SE1	188	>50%	Lower
4	151	---	SE1	135	---	SE1	182	>50%	Lower
5	152	---	SE1	154	---	SE1	187	>50%	Lower
Average	152	---	---	140	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	7 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-79	Machine ID:	W-8
Seam ID:	179/180	Welder ID:	TS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	135	---	SE1	188	>50%	Lower
2	135	---	SE1	130	---	SE1	192	>50%	Lower
3	138	---	SE1	129	---	SE1	194	>50%	Lower
4	132	---	SE1	142	---	SE1	187	>50%	Lower
5	130	---	SE1	139	---	SE1	191	>50%	Lower
Average	134	---	---	135	---	---	191	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	8 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-80	Machine ID:	W39
Seam ID:	174/181	Welder ID:	VS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	157	---	SE1	153	---	SE1	179	>50%	Lower
2	153	---	SE1	162	---	SE1	183	>50%	Lower
3	150	---	SE1	157	---	SE1	181	>50%	Upper
4	157	---	SE1	162	---	SE1	175	>50%	Lower
5	143	---	SE1	151	---	SE1	179	>50%	Upper
Average	152	---	---	157	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	9 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-81	Machine ID:	W-8
Seam ID:	182/183	Welder ID:	TS
		Date Sampled:	10/08/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	144	---	SE1	157	---	SE1	184	>50%	Lower
2	140	---	SE1	141	---	SE1	188	>50%	Lower
3	143	---	SE1	135	---	SE1	188	>50%	Lower
4	146	---	SE1	135	---	SE1	182	>50%	Lower
5	144	---	SE1	152	---	SE1	187	>50%	Lower
Average	143	---	---	144	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/13/11		
Tested By:	ad	Report #:	13
Checked By:	bfs	Page:	10 of 10

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-82	Machine ID:	W39
Seam ID:	170/172	Welder ID:	VS
		Date Sampled:	10/09/11

Specimen Number	Peel Strength						Shear Strength		
	Weld A			Weld B					
	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	156	---	SE1	133	---	SE1	182	>50%	Lower
2	144	---	SE1	138	---	SE1	183	>50%	Lower
3	150	---	SE1	150	---	SE1	187	>50%	Lower
4	151	---	SE1	126	---	SE1	182	>50%	Lower
5	150	---	SE1	154	---	SE1	187	>50%	Lower
Average	150	---	---	140	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	1 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-083	Machine ID:	W39
Seam ID:	187/188	Welder ID:	VS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	147	---	SE1	131	---	SE1	177	>50%	lower
2	143	---	SE1	149	---	SE1	180	>50%	upper
3	153	---	SE1	149	---	SE1	182	>50%	upper
4	150	---	SE1	141	---	SE1	178	>50%	lower
5	144	---	SE1	151	---	SE1	182	>50%	lower
Average	147	---	---	144	---	---	180	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	2 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-084	Machine ID:	W8
Seam ID:	188/189	Welder ID:	TS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	129	---	SE1	147	---	SE1	183	>50%	lower
2	130	---	SE1	141	---	SE1	185	>50%	lower
3	137	---	SE1	138	---	SE1	189	>50%	lower
4	135	---	SE1	160	---	SE1	185	>50%	lower
5	146	---	SE1	148	---	SE1	188	>50%	lower
Average	135	---	---	147	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	3 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-085	Machine ID:	W39
Seam ID:	189/190	Welder ID:	VS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	144	---	SE1	137	---	SE1	181	>50%	lower
2	146	---	SE1	134	---	SE1	184	>50%	lower
3	149	---	SE1	145	---	SE1	186	>50%	lower
4	144	---	SE1	141	---	SE1	181	>50%	lower
5	139	---	SE1	139	---	SE1	184	>50%	lower
Average	144	---	---	139	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	4 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-086	Machine ID:	W8
Seam ID:	190/191	Welder ID:	TS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	150	---	SE1	186	>50%	lower
2	138	---	SE1	142	---	SE1	189	>50%	lower
3	121	---	SE1	137	---	SE1	190	>50%	lower
4	124	---	SE1	143	---	SE1	185	>50%	lower
5	119	---	SE1	146	---	SE1	189	>50%	lower
Average	129	---	---	143	---	---	188	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	5 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-087	Machine ID:	W39
Seam ID:	191/192	Welder ID:	VS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	137	---	SE1	180	>50%	lower
2	148	---	SE1	150	---	SE1	183	>50%	lower
3	151	---	SE1	139	---	SE1	185	>50%	lower
4	154	---	SE1	136	---	SE1	180	>50%	lower
5	151	---	SE1	138	---	SE1	183	>50%	lower
Average	150	---	---	140	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	6 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-088	Machine ID:	W8
Seam ID:	193/194	Welder ID:	TS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	144	---	SE1	168	---	SE1	183	>50%	upper
2	136	---	SE1	152	---	SE1	181	>50%	upper
3	139	---	SE1	169	---	SE1	186	>50%	upper
4	131	---	SE1	158	---	SE1	182	>50%	upper
5	138	---	SE1	151	---	SE1	186	>50%	upper
Average	138	---	---	160	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	7 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-089	Machine ID:	W8
Seam ID:	195/196	Welder ID:	TS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	137	---	SE1	119	---	SE1	193	>50%	upper
2	135	---	SE1	135	---	SE1	192	>50%	upper
3	128	---	SE1	143	---	SE1	194	>50%	upper
4	129	---	SE1	150	---	SE1	189	>50%	upper
5	128	---	SE1	138	---	SE1	193	>50%	upper
Average	131	---	---	137	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	8 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-090	Machine ID:	W39
Seam ID:	196/197	Welder ID:	VS
		Date Sampled:	10/09/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	150	---	SE1	134	---	SE1	180	>50%	lower
2	145	---	SE1	131	---	SE1	183	>50%	lower
3	143	---	SE1	131	---	SE1	185	>50%	lower
4	141	---	SE1	128	---	SE1	179	>50%	lower
5	150	---	SE1	128	---	SE1	184	>50%	lower
Average	146	---	---	130	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	9 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-091	Machine ID:	W39
Seam ID:	178/187	Welder ID:	VS
		Date Sampled:	10/10/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	149	---	SE1	131	---	SE1	182	>50%	upper
2	140	---	SE1	144	---	SE1	182	>50%	upper
3	145	---	SE1	138	---	SE1	185	>50%	upper
4	135	---	SE1	154	---	SE1	181	>50%	upper
5	145	---	SE1	148	---	SE1	185	>50%	upper
Average	143	---	---	143	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	10 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-092	Machine ID:	W8
Seam ID:	197/198	Welder ID:	TS
		Date Sampled:	10/10/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	149	---	SE1	126	---	SE1	180	>50%	lower
2	151	---	SE1	148	---	SE1	184	>50%	lower
3	153	---	SE1	126	---	SE1	186	>50%	lower
4	151	---	SE1	122	---	SE1	181	>50%	lower
5	124	---	SE1	123	---	SE1	185	>50%	lower
Average	145	---	---	129	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	11 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-093	Machine ID:	W39
Seam ID:	200/201	Welder ID:	VS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	152	---	SE1	131	---	SE1	176	>50%	lower
2	148	---	SE1	140	---	SE1	181	>50%	lower
3	151	---	SE1	139	---	SE1	182	>50%	lower
4	147	---	SE1	131	---	SE1	177	>50%	lower
5	145	---	SE1	132	---	SE1	181	>50%	lower
Average	149	---	---	134	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	12 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-094	Machine ID:	W8
Seam ID:	201/202	Welder ID:	TS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	135	---	SE1	126	---	SE1	184	>50%	lower
2	129	---	SE1	121	---	SE1	187	>50%	both
3	130	---	SE1	127	---	SE1	187	>50%	lower
4	129	---	SE1	123	---	SE1	183	>50%	lower
5	129	---	SE1	123	---	SE1	187	>50%	lower
Average	130	---	---	124	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	13 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-095	Machine ID:	W2
Seam ID:	202/203	Welder ID:	KP
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	127	---	SE1	138	---	SE1	180	>50%	lower
2	125	---	SE1	132	---	SE1	184	>50%	lower
3	128	---	SE1	137	---	SE1	185	>50%	lower
4	123	---	SE1	133	---	SE1	182	>50%	lower
5	125	---	SE1	135	---	SE1	185	>50%	lower
Average	126	---	---	135	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	14 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-096	Machine ID:	W39
Seam ID:	203/205	Welder ID:	VS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	152	---	SE1	134	---	SE1	181	>50%	lower
2	142	---	SE1	134	---	SE1	183	>50%	lower
3	148	---	SE1	133	---	SE1	185	>50%	lower
4	142	---	SE1	136	---	SE1	179	>50%	lower
5	149	---	SE1	136	---	SE1	182	>50%	lower
Average	146	---	---	134	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	15 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-097	Machine ID:	W8
Seam ID:	205/206	Welder ID:	TS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	130	---	SE1	182	>50%	lower
2	142	---	SE1	126	---	SE1	184	>50%	lower
3	144	---	SE1	133	---	SE1	186	>50%	lower
4	145	---	SE1	134	---	SE1	181	>50%	lower
5	133	---	SE1	144	---	SE1	185	>50%	lower
Average	139	---	---	133	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	16 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-098	Machine ID:	W39
Seam ID:	190/205	Welder ID:	VS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	143	---	SE1	136	---	SE1	176	>50%	lower
2	144	---	SE1	148	---	SE1	180	>50%	lower
3	137	---	SE1	137	---	SE1	181	>50%	lower
4	146	---	SE1	144	---	SE1	178	>50%	lower
5	143	---	SE1	146	---	SE1	180	>50%	lower
Average	143	---	---	142	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	2 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-099	Machine ID:	W-8
Seam ID:	216/217	Welder ID:	TS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	133	---	SE1	194	>50%	lower
2	134	---	SE1	132	---	SE1	193	>50%	lower
3	132	---	SE1	137	---	SE1	190	>50%	lower
4	133	---	SE1	134	---	SE1	189	>50%	lower
5	141	---	SE1	137	---	SE1	195	>50%	lower
Average	136	---	---	134	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	3 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-100	Machine ID:	---
Seam ID:	207/208	Welder ID:	---
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	132	---	SE1	129	---	SE1	190	>50%	upper
2	138	---	SE1	127	---	SE1	192	>50%	upper
3	143	---	SE1	127	---	SE1	182	>50%	upper
4	132	---	SE1	142	---	SE1	189	>50%	upper
5	133	---	SE1	148	---	SE1	193	>50%	upper
Average	136	---	---	134	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	4 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-101	Machine ID:	W-8
Seam ID:	217/222	Welder ID:	TS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	146	---	SE1	160	---	SE1	188	>50%	upper
2	147	---	SE1	162	---	SE1	189	>50%	upper
3	136	---	SE1	166	---	SE1	192	>50%	upper
4	151	---	SE1	152	---	SE1	184	>50%	upper
5	134	---	SE1	159	---	SE1	194	>50%	upper
Average	143	---	---	160	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	5 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-102	Machine ID:	W-2
Seam ID:	222/223	Welder ID:	DS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	128	---	SE1	147	---	SE1	181	>50%	upper
2	129	---	SE1	134	---	SE1	182	>50%	upper
3	132	---	SE1	133	---	SE1	182	>50%	upper
4	146	---	SE1	144	---	SE1	181	>50%	upper
5	142	---	SE1	143	---	SE1	184	>50%	upper
Average	135	---	---	140	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	6 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-103	Machine ID:	W-39
Seam ID:	223/225	Welder ID:	VS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	139	---	SE1	123	---	SE1	185	>50%	upper
2	139	---	SE1	121	---	SE1	184	>50%	upper
3	144	---	SE1	130	---	SE1	187	>50%	upper
4	133	---	SE1	119	---	SE1	182	>50%	upper
5	141	---	SE1	160	---	SE1	185	>50%	upper
Average	139	---	---	131	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	7 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-104	Machine ID:	---
Seam ID:	199/244	Welder ID:	---
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	143	---	SE1	132	---	SE1	178	>50%	upper
2	132	---	SE1	132	---	SE1	179	>50%	upper
3	134	---	SE1	132	---	SE1	179	>50%	upper
4	140	---	SE1	145	---	SE1	177	>50%	upper
5	135	---	SE1	140	---	SE1	183	>50%	both
Average	137	---	---	136	---	---	179	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	8 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-105	Machine ID:	W-2
Seam ID:	229/230	Welder ID:	DS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	163	---	SE1	150	---	SE1	178	>50%	upper
2	159	---	SE1	141	---	SE1	181	>50%	upper
3	155	---	SE1	141	---	SE1	183	>50%	upper
4	154	---	SE1	141	---	SE1	182	>50%	upper
5	158	---	SE1	137	---	SE1	187	>50%	upper
Average	158	---	---	142	---	---	182	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	9 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-106	Machine ID:	W-8
Seam ID:	232/233	Welder ID:	TS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	153	---	SE1	141	---	SE1	184	>50%	lower
2	141	---	SE1	133	---	SE1	187	>50%	lower
3	146	---	SE1	141	---	SE1	189	>50%	lower
4	143	---	SE1	144	---	SE1	182	>50%	lower
5	144	---	SE1	141	---	SE1	187	>50%	lower
Average	145	---	---	140	---	---	186	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	10 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-107	Machine ID:	W-2
Seam ID:	237/238	Welder ID:	DS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	148	---	SE1	183	>50%	upper
2	141	---	SE1	146	---	SE1	184	>50%	upper
3	143	---	SE1	138	---	SE1	186	>50%	upper
4	140	---	SE1	138	---	SE1	181	>50%	upper
5	127	---	SE1	134	---	SE1	186	>50%	upper
Average	139	---	---	141	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	11 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-108	Machine ID:	W-39
Seam ID:	239/241	Welder ID:	VS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	140	---	SE1	128	---	SE1	183	>50%	both
2	136	---	SE1	121	---	SE1	185	>50%	both
3	141	---	SE1	121	---	SE1	186	>50%	both
4	142	---	SE1	152	---	SE1	181	>50%	both
5	136	---	SE1	130	---	SE1	184	>50%	both
Average	139	---	---	130	---	---	184	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/24/11		
Tested By:	bfs	Report #:	13
Checked By:	jdt	Page:	1 of 1

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-109	Machine ID:	W-8
Seam ID:	243/245	Welder ID:	TS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	131	---	SE1	156	---	SE1	202	>50%	lower
2	130	---	SE1	163	---	SE1	199	>50%	lower
3	139	---	SE1	168	---	SE1	197	>50%	lower
4	141	---	SE1	163	---	SE1	198	>50%	lower
5	148	---	SE1	162	---	SE1	203	>50%	lower
Average	138	---	---	162	---	---	200	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	12 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-110	Machine ID:	W-2
Seam ID:	250/251	Welder ID:	DS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	138	---	SE1	147	---	SE1	185	>50%	upper
2	135	---	SE1	143	---	SE1	188	>50%	upper
3	133	---	SE1	149	---	SE1	189	>50%	upper
4	126	---	SE1	152	---	SE1	185	>50%	upper
5	127	---	SE1	147	---	SE1	190	>50%	upper
Average	132	---	---	147	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	13 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-111	Machine ID:	W-39
Seam ID:	254/255	Welder ID:	VS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	153	---	SE1	132	---	SE1	187	>50%	upper
2	132	---	SE1	126	---	SE1	188	>50%	upper
3	133	---	SE1	150	---	SE1	189	>50%	upper
4	134	---	SE1	157	---	SE1	184	>50%	upper
5	137	---	SE1	157	---	SE1	188	>50%	upper
Average	138	---	---	144	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	14 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-112	Machine ID:	W-8
Seam ID:	256/257	Welder ID:	TS
		Date Sampled:	10/12/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	136	---	SE1	151	---	SE1	185	>50%	upper
2	137	---	SE1	134	---	SE1	187	>50%	upper
3	136	---	SE1	139	---	SE1	188	>50%	upper
4	135	---	SE1	146	---	SE1	185	>50%	upper
5	136	---	SE1	148	---	SE1	189	>50%	upper
Average	136	---	---	144	---	---	187	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	15 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-113	Machine ID:	W-39
Seam ID:	194/195	Welder ID:	VS
		Date Sampled:	10/11/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	150	---	SE1	153	---	SE1	191	>50%	upper
2	145	---	SE1	151	---	SE1	193	>50%	upper
3	147	---	SE1	150	---	SE1	193	>50%	upper
4	148	---	SE1	150	---	SE1	189	>50%	upper
5	149	---	SE1	150	---	SE1	193	>50%	upper
Average	148	---	---	151	---	---	192	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/18/11		
Tested By:	ad	Report #:	14
Checked By:	bfs	Page:	17 of 20

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Fillet Extrusion Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-1-114	Machine ID:	W39
Seam ID:	198/199	Welder ID:	VS
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	145	---	SE1	126	---	SE1	181	>50%	lower
2	142	---	SE1	124	---	SE1	184	>50%	lower
3	143	---	SE1	127	---	SE1	186	>50%	lower
4	141	---	SE1	127	---	SE1	180	>50%	lower
5	146	---	SE1	130	---	SE1	182	>50%	lower
Average	143	---	---	127	---	---	183	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	16 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-115	Machine ID:	W-2
Seam ID:	235/236	Welder ID:	DS
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	135	---	SE1	141	---	SE1	188	>50%	lower
2	134	---	SE1	130	---	SE1	192	>50%	lower
3	136	---	SE1	140	---	SE1	193	>50%	lower
4	129	---	SE1	140	---	SE1	188	>50%	lower
5	131	---	SE1	142	---	SE1	192	>50%	lower
Average	133	---	---	139	---	---	191	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	17 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-116	Machine ID:	W-8
Seam ID:	236/237	Welder ID:	TS
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	133	---	SE1	122	---	SE1	184	>50%	upper
2	132	---	SE1	119	---	SE1	185	>50%	upper
3	139	---	SE1	125	---	SE1	187	>50%	upper
4	136	---	SE1	122	---	SE1	182	>50%	upper
5	131	---	SE1	138	---	SE1	186	>50%	upper
Average	134	---	---	125	---	---	185	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GeoTesting EXPRESS

Client:	Parsons Engineering Science		
Project Name:	Geosynthetic Testing		
Project Location:	Syracuse, NY		
Installer:	---		
GTX #:	10596		
Test Date:	10/20/11		
Tested By:	ad	Report #:	15
Checked By:	bfs	Page:	18 of 18

Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods by ASTM D 6392

peel & shear destructive test

Upper Geomembrane:	60 mil textured HDPE	Testing Machine:	Instron 1123
Lower Geomembrane:	60 mil textured HDPE	Testing Speed:	2 in/min
Seaming Method:	Dual Hot Wedge Weld	Grips:	ATS pneumatic
		Specimen Size:	1 in x 8 in

Sample ID:	DS-117	Machine ID:	W-39
Seam ID:	247/248	Welder ID:	VS
		Date Sampled:	10/17/11

	Peel Strength						Shear Strength		
	Weld A			Weld B					
Specimen Number	lb./in	Seam Separation, %	Failure Type	lb./in	Seam Separation, %	Failure Type	lb./in	Elongation, %	Rupture Mode
1	141	---	SE1	127	---	SE1	189	>50%	upper
2	137	---	SE1	132	---	SE1	190	>50%	upper
3	142	---	SE1	130	---	SE1	191	>50%	upper
4	140	---	SE1	131	---	SE1	185	>50%	upper
5	143	---	SE1	130	---	SE1	190	>50%	upper
Average	141	---	---	130	---	---	189	---	---

Comments:

Estimate of seam separation visually determined based upon area of separated bond to the nearest 5%.

Shear test halted for HDPE and LMDPE materials once specimen has elongated 50%.
Shear test halted for PVC, fPP, LLDPE, VFPE and VLDPE once specimen has elongated past machine capacity.

Rupture mode for specimens with >50% elongation (HDPE and LMDPE) or > machine capacity (PVC, fPP, LLDPE, VFPE and VLDPE) interpreted as occurring in the membrane that exhibits yielding.

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

APPENDIX M

Geomembrane Repair Summary Logs

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
8/22/2011	1-001	1-001	P	1-2		200 N		6	2		MX-8	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/22/2011	1-002		P	1-2-3-4		AT T		2	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-003	1-002	P	2-4		12 W		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-004		P	2-4-5-8		AT T		5	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-005		P	5-6-8-9		AT T		4	3		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-006		P	6-7-9-10		AT T		5	3		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-007		P	7-10-11-12		AT T		3	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-008	1-003	P	2-5		300 N		4	2		MX-8	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/23/2011	1-009	1-004	P	5-6		400 N		4	2		MX-8	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/23/2011	1-010	1-005	P	6-7		375 N		4	2		MX-8	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/22/2011	1-011	1-007	P	7-11		477 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-012		P	3-4		163 N		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-013	1-006	P	8-9		49 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-014		P	11-12-13-19		AT T		3	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-015	1-009	P	13-14		150 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-016		P	13-14-19-20		AT T		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
8/23/2011	1-017		P	14-15-20-21		AT T		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-018		P	15-16-21-22		AT T		3	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-019		P	16-17-22-23		AT T		2	1		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-020		P	17-18-23-24		AT T		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-021		P	18-24-25-27		AT T		5	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-022		P	25-26-27		AT T		7	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-023	1-010	P	14-15		250 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-024	1-011	P	15-16		350 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-025		P		16	400 N	8 E	2	1		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-026	1-012	P	16-17		450 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-027		P	24-27		137 N		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-028		C	17-18		360 N		3	14		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-029	1-013	P	17-18		400 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-030		P		25	247 N	10 W	1	1		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/22/2011	1-031	1-014	P	12-19		50 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-032	1-015	P	21-22		75 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
8/23/2011	1-033	1-016	P	23-24		100 N		4	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-034	1-017	P	18-25		300 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-035	1-008	P	11-13		54 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-036	1-018	P	25-26		200 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-037		P	26-27-28		AT T		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-038	1-006 A	P	8-9		21 N		4	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-039	1-006 B	P	8-9		156 N		4	2		MX-8	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/23/2011	1-040		C	8-9		25-169		127	2		MX-8	VS	DWH	8/24/2011	BG	P	VT OK	DWH
8/23/2011	1-041		C	21-22		54-83		29	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-042	1-015 A	P	21-22		50 N		4	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-043	1-015 B	P	21-22		87 N		4	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-044		P	20-21-29		AT T		4	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-045		P	21-22-29		AT T		3	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-046		P	23-24-30		AT T		3	1		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-047		P	24-27-30		AT T		4	1		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/23/2011	1-048		P	27-28		84 N		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
8/23/2011	1-049		P	27-28		58 N		2	2		MX-8	VS	DWH	8/23/2011	BG	P	VT OK	DWH
8/26/2011	1-050		P	16-17		1 N		2	2		MX-8	VS	DWH	8/26/2011	BG	P	VT OK	DWH
8/24/2011	1-051		P		15	3 N	5 E	2	2		MX-14	DS	DWH	8/26/2011	BG	P	VT OK	DWH
8/24/2011	1-052	1-002 B	P	3-4		8 N		10	2		MX-14	DS	DWH	8/24/2011	BG	P	VT OK	DWH
8/24/2011	1-053	1-002 A	P	5-6		508 N		8	2		MX-14	DS	DWH	8/24/2011	BG	P	VT OK	DWH
8/24/2011	1-054		C	2-4		0-22		22	2		MX-14	DS	DWH	8/24/2011	BG	P	VT OK	DWH
9/29/2011	1-055		C	1-3		0-22		22	2		MX-8	VS	DWH	9/29/2011	KP	P	VT OK	DWH
8/24/2011	1-056	1-004 B	P	5-6		420 N		4	2		MX-14	DS	DWH	8/29/2011	KP	P	VT OK	DWH
8/24/2011	1-057	1-004 A	P	5-6		385 N		4	2		MX-14	DS	DWH	8/29/2011	KP	P	VT OK	DWH
9/17/2011	1-058		C	5-6		0-513		513	2		MX-14	DS	DWH	9/17/2011	KP	P	VT OK	DWH
8/26/2011	1-059		P		15	75 N	1 W	2	2		MX-14	DS	DWH	8/26/2011	BG	P	VT OK	DWH
8/26/2011	1-060	1-004 A1	P	5-6		367 N		4	2		MX-14	VS	DWH	8/29/2011	KP	P	VT OK	DWH
8/26/2011	1-061	1-004 C	P	5-Cap		434 N		4	2		MX-14	KP	DWH	8/29/2011	KP	P	VT OK	DWH
8/26/2011	1-062	1-006 C	P	9-Cap		88 N		4	2		MX-14	KP	DWH	8/29/2011	KP	P	VT OK	DWH
9/17/2011	1-063		C	4-8		0-165		165	2		MX-14	KP	DWH	9/17/2011	KP	P	VT OK	DWH
8/26/2011	1-064	1-006 B1	P	4-8		15 N		4	2		MX-14	KP	DWH	8/29/2011	KP	P	VT OK	DWH

Geosyntec
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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
8/26/2011	1-065	1-002 B1	P	3-4		34 N		4	2		MX-14	KP	DWH	8/29/2011	KP	P	VT OK	DWH
8/26/2011	1-066		C	3-4		0-30		30	2		MX-14	KP	DWH	8/29/2011	KP	P	VT OK	DWH
9/12/2011	1-067	1-019	P	31-32		75 N		5	1		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-068		P	31-32-41		AT T		2	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-069		P	32-33-41		AT T		3	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-070	1-020	P	32-33		125 N		5	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-071	1-021	P	33-34		175 N		5	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-072		P	33-34-42		AT T		4	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-073		P	34-35-42		AT T		3	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH
9/12/2011	1-074		P	35-36-43		AT T		3	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-075	1-023	P	36-43		7 E		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-076		P	36-37-43		AT T		2	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-077	1-024	P	37-43		254 N		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-078	1-022	P	37-38		85 N		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-079		P	37-38-44		AT T		4	3		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-080		P	38-39-44		AT T		4	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH

Geosyntec
consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/12/2011	1-081		P	39-40-45		AT T		7	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-082		P	40-45-46		AT T		2	1		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-083		P	46-47-48		AT T		2	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-084		P	47-48-49		AT T		3	1		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-085	1-026	P	47-49		40 N		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-086	1-027	P	49-50		104 N		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-087		P	49-50-51		AT T		2	2		MX-14	VS	DWH	9/14/2011	KP	P	VT OK	DWH
9/12/2011	1-088		P	50-51-52		AT T		3	2		MX-14	VS	DWH	9/14/2011	KP	P	VT OK	DWH
9/12/2011	1-089	1-028	P	50-52		165 N		5	2		MX-14	VS	DWH	9/14/2011	KP	P	VT OK	DWH
9/12/2011	1-090	1-029	P	52-53		17 N		5	2		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-091		P	52-53-54		AT T		2	2		MX-14	VS	DWH	9/14/2011	KP	P	VT OK	DWH
9/12/2011	1-092		P	53-54-55		AT T		3	2		MX-14	VS	DWH	9/14/2011	KP	P	VT OK	DWH
9/12/2011	1-093		P	55-56-57		AT T		2	1		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-094		P	56-57-58		AT T		2	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-095	1-030	P	58-59		96 N		5	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-096	1-031	P	59-60		207 N		5	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/13/2011	1-097		P	60-62-63		AT T		3	2		MX-8	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/13/2011	1-098		P	60-63-64		AT T		3	2		MX-8	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/13/2011	1-099		P	60-64-65		AT T		3	2		MX-8	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/13/2011	1-100		P	60-65-66		AT T		3	2		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/13/2011	1-101	1-032	P	60-66		90 N		5	2		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/13/2011	1-102		P	60-66-67		AT T		3	1		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/13/2011	1-103		P	60-67-68		AT T		2	2		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/13/2011	1-104		P	60-68-69		AT T		3	2		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-105		P	60-69-70		AT T		2	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-106		P	60-70-71		AT T		2	1		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-107		P	60-61-71-72		AT T		11	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-108		P		50	72 N	9 E	1	1		MX-14	VS	DWH	9/13/2011	BG	P	VT OK	DWH
9/12/2011	1-109		P	61-72-73		AT T		2	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-110		P	61-73-74		AT T		2	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-111		P	61-74-75		AT T		2	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-112	1-025	P	26-31		194 N		5	2		MX-14	VS	DWH	9/12/2011	BG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/13/2011	1-113	1-033	P	67-68		20 W		5	2		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-114	1-034	P	71-72		16 W		5	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/12/2011	1-115		P	59-60-61		AT T		3	2		MX-14	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/13/2011	1-116		P	67-68		1 W		1	1		MX-8	VS	DWH	9/13/2011	KP	P	VT OK	DWH
9/14/2011	1-117		P	58-59-76-77		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-118		P	59-61-77-79		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-119		P	61-75-81		AT T		14	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-120	1-035	P	76-77		90 N		5	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-121		P	76-77-78		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-122		P	77-78-79		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-123	1-036	P	78-79		199 N		5	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-124		P	78-79-80		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-125		P	75-81		1 N		2	1		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-126		P	79-81-82		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-127		P	79-82-83		AT T		3	1		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-128		P	79-83-84		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/14/2011	1-129		P	79-84-85		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-130		P	79-85-86		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-131		P	79-86-88		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-132		P	78-88-89		AT T		2	1		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-133		P	79-89-90		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-134	1-038	P	79-90		204 N		5	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-135		P	79-80-90-91		AT T		10	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-136		P	80-91-92		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-137		P	80-92-93		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-138		P	80 93-94		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-139		P	80-94-95		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-140		P	80-95-96		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-141		P	80-96-97		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-142		P	80-97-98		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-143		P	98-99		1 N		2	1		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-144	1-037	P	88-89		21 W		5	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/14/2011	1-145		P	86-87-88		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/17/2011	1-146		P	87-88		1 W		1	1		MX-8	VS	DWH	9/17/2011	KP	P	VT OK	DWH
9/14/2011	1-147		P		92	38 W	6 S	1	1		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/14/2011	1-148		P	80-98-99		AT T		2	2		MX-8	VS	DWH	9/16/2011	KP	P	VT OK	DWH
9/17/2011	1-149	1-002 C	P	4-Cap		96 N		5	2		MX-8	VS	DWH	9/17/2011	KP	P	VT OK	DWH
9/19/2011	1-150		P	76-101		1 N		3	2		MX-8	CP	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-151		P	76-100-101		AT T		2	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-152	1-039	P	76-100		60 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-153		P	57-58-76-100		AT T		4	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/26/2011	1-154		P	55-57-100-102		AT T		2	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/26/2011	1-155		P	100-101-102		AT T		2	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-156		P	101-102-136		AT T		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/19/2011	1-157		P	102-103-136		AT T		2	1		MX-8	CP	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-158	1-040	P	102-103		214 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-159		P	54-55-102-103		AT T		2	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/26/2011	1-160		P	52-54-103-104		AT T		6	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/26/2011	1-161		P	103-104-105		AT T		2	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-162	1-041	P	103-105		293 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-163		P	105-107-108		AT T		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-164		P	105-107-131		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-165		P	105-130-131		AT T		1	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-166		P	105-129-139		AT T		1	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-167		P	105-106-129		AT T		4	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-168		P	104-105-106		AT T		3	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-169		P	51-52-104-106		AT T		2	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/26/2011	1-170		P	49-51-106-128-132		AT T		4	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/21/2011	1-171		P	106-128-132		AT T		11	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-172	1-053	P	106-128		101 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-173		P		106	115 N	5 E	1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-174		P	48-49-127-128		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-175	1-051	P	48-127		13 E		5	2		MX-8	VS	DWH	9/26/2011	KP	P	VT OK	DWH
9/26/2011	1-176		P	46-48-126-127		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/21/2011	1-177	1-052	P	126-127		73 N		5	2		MX-8	VS	DWH	9/30/2011	JG	P	VT OK	DWH
9/26/2011	1-178		P	45-46-125-126		AT T		3	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-179		P	39-45-123-125		AT T		4	3		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-180		P	123-125-139		AT T		8	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-181		P	123-139-140		AT T		1	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-182		P	123-135-140		AT T		22	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-183		P	123-124-135		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-184		P	124-135-137		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-185	1-056	P	124-137		99 S		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-186		P	124-137		1 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-187		P	121-123-124		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-188		P	121-122-123		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-189	1-050	P	122-123		121 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-190		P	39-44-122-123		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-191		P	37-44-120-122		AT T		3	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-192	1-049	P	120-122		87 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/21/2011	1-193		P	120-121-122		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-194		P	119-120-121		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-195		P	118-119-120		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-196	1-048	P	118-120		128 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-197		P	37-43-118-120		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-198		P	35-43-116-118		AT T		3	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-199	1-047	P	116-118		168 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-200		P	116-117-118		AT T		3	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-201		P	114-116-117		AT T		3	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-202	1-046	P	114-116		206 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-203		P	114-115-116		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-204		P	35-42-115-116		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-205		P	33-42-112-115		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-206		P	112-113-115		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-207		P	113-114-115		AT T		4	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-208	1-045	P	113-114		243 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/21/2011	1-209	1-044	P	111-113		287 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-210		P	111-112-113		AT T		3	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-211		P	33-41-111-112		AT T		2	1		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-212		P	41-109-111		AT T		14	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/26/2011	1-213		P	26-31-41-109		AT T		22	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-214		P	26-28-109		AT T		3	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-215	1-043	P	109-111		331 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-216		P	109-110-111		AT T		2	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-217		P	28-109-110		AT T		3	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-218	1-042	P	28-109		378 N		5	2		MX-8	VS	DWH	9/26/2011	JG	P	VT OK	DWH
9/21/2011	1-219		P	137-138		1 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-220		P	135-137-138		AT T		2	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-221	1-055	P	134-138		71 S		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-222		P		134	17 S	2 E	1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-223		P		134	17 S	4 E	1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-224		P	134-138		1 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/21/2011	1-225	1-054	P	133-134		107 N		5	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-226		P	133-134		149 S		2	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-227		P	107-131-133		AT T		2	2		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-228		P	107-108-133		AT T		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-229		P	108-133		69 S		2	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/21/2011	1-230		P	108-133		1 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/19/2011	1-231		P	130-131-133		AT T		3	1		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-232		P	130-133-134		AT T		4	2		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-233		P	127-130-134		AT T		2	2		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-234		P	127-129-130		AT T		3	2		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-235		P	127-128-129		AT T		6	3		MX-8	CP	DWH	10/6/2011	JG	P	VT OK	DWH
9/19/2011	1-236		P	106-128-129		AT T		2	2		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-237		P	5-127-134-138-139-1		AT T		10	2		MX-8	CP	DWH	10/6/2011	JG	P	VT OK	DWH
9/19/2011	1-238		P	125-126-129		AT T		3	2		MX-8	CP	DWH	9/26/2011	JG	P	VT OK	DWH
9/19/2011	1-239		P	135-138-140		AT T		2	2		MX-8	CP	DWH	10/6/2011	JG	P	VT OK	DWH
9/19/2011	1-240		P	138-139-140		AT T		3	2		MX-8	CP	DWH	10/6/2011	JG	P	VT OK	DWH

Geosyntec consultants

Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/26/2011	1-241		P	105-108		3 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-242		P		103	3 S		1	1		MX-8	VS	DWH	9/30/2011	KP	P	VT OK	DWH
9/26/2011	1-243	1-051 B	P	46-126		11 W		5	2		MX-8	VS	DWH	9/29/2011	JG	P	VT OK	DWH
9/26/2011	1-244	1-051 A	P	49-128		10 E		5	2		MX-8	VS	DWH	9/29/2011	JG	P	VT OK	DWH
9/26/2011	1-245		C	6-48-49-126-127-12		0-66		66	2		MX-8	VS	DWH	9/29/2011	JG	P	VT OK	DWH
10/25/2011	1-246		P		137	147 N	1 E	15	2		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
10/5/2011	1-247	1-058	P	1-150		44 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/7/2011	1-248		C	1-150		0-178		178	2		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/5/2011	1-249		P	1-141-150		AT T		6	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-250		P	141-142-150-151		AT T		4	3		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
9/29/2011	1-251	1-061	P	141-142		253 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-252		C	1-141		259 N		19	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-253	1-062	P	1-141		306 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-254		C	1-141		367 N		33	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-255		P	1-141		419 N		2	1		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-256		P	1-141				3	1		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
9/29/2011	1-257		P	1-3-141		AT T		2	1		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
9/29/2011	1-258		P	3-141		540 N		6	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/7/2011	1-259		P	141-142		675 N		5	2		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/5/2011	1-260		P	3-141-145		AT T		5	3		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-261		P	3-4-145		AT T		3	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-262		P	4-8-145		AT T		5	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-263		P	8-9-145		AT T		5	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-264		P	9-144-145		AT T		3	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-265		P	9-10-144		AT T		2	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-266		P	10-144		9 E		2	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-267		P	10-12-144		AT T		2	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-268		P	12-19-144		AT T		2	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-269		P	19-20-144		AT T		2	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-270		P	143-146-153		AT T		4	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-271		P	142-143-151-152		AT T		3	1		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-272		P	143-152-153		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/5/2011	1-273	1-060	P	151-152		125 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-274	1-059	P	150-151		86 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-275		P	151-152-155		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-276	1-057	P	152-155		12 E		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-277		P	152-153-155		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-278		P	147-153-154		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-279		P	147-148-154-158		AT T		4	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-280		P	146-147-153		AT T		3	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-281	1-058 B	P	143-153		257 N		5	2		MX-14	LV	DWH	10/7/2011	JG	P	VT OK	DWH
10/6/2011	1-282	1-063	P	147-148		293 N		5	2		MX-14	LV	DWH	10/7/2011	JG	P	VT OK	DWH
10/5/2011	1-283		P	147-148		464 N		4	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-284		P		147	509 N	10 W	1	1		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-285		P	146-147		531		3	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-286	1-065	P	149-156		168 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-287	1-064	P	148-149		332 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-288		P	148-149-158-159		AT T		2	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/5/2011	1-289		P	149-156-159-160		AT T		4	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-290		P	159-160-162		AT T		3	2		MX-8	VS	DWH	10/7/2011	JG	P	VT OK	DWH
10/5/2011	1-291		P	160-161-162		AT T		2	2		MX-8	VS	DWH	10/7/2011	JG	P	VT OK	DWH
10/5/2011	1-292	1-068	P	161-164		45 N		5	2		MX-8	VS	DWH	10/7/2011	JG	P	VT OK	DWH
10/5/2011	1-293		P	156-157-160-161		AT T		2	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-294		P	157-161-163		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-295	1-066	P	156-157		400 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-296	1-067	P	157-163		436 N		5	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-297		P	157-163		463 N		3	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-298		P	163-166-167		AT T		5	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-299		P	166-167-169		AT T		3	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-300		P	166-168-169		AT T		3	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-301		P	166-168		401 N		4	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-302		P	163-165-166		AT T		4	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-303		P	165-166-168		AT T		3	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/6/2011	1-304	1-070	P	165-168		253 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/5/2011	1-305		P	163-164-165		AT T		2	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-306	1-069	P	164-165		140 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-307	1-071	P	168-170		230 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-308		P	168-170-171		AT T		3	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/6/2011	1-309	1-072	P	168-171		406 N		5	2		MX-8	VS	DWH	10/5/2011	JG	P	VT OK	DWH
10/5/2011	1-310		P	168-169-171		AT T		2	2		MX-8	VS	DWH	10/6/2011	JG	P	VT OK	DWH
10/5/2011	1-311		P	169-171		540 N		3	2		MX-14	LV	DWH	10/6/2011	JG	P	VT OK	DWH
10/7/2011	1-312	1-058 A	P	149-156		184 N		5	2		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/7/2011	1-313		P	158-159		18 N		2	2		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/6/2011	1-314		P		142	476 N	1 W	2	2		MX-14	LV	DWH	10/14/2011	TS	P	VT OK	DWH
10/7/2011	1-315		P		168	22 N		2	1		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/7/2011	1-316	1-058 C	P	1-Cap		68 N		5	2		MX-14	LV	DWH	10/7/2011	TS	P	VT OK	DWH
10/7/2011	1-317		B	86-87		5 N		5	2		MX-8	VS	DWH	10/10/2011	KP	P	VT OK	DWH
10/7/2011	1-318		B	86-87		9 N		5	2		MX-8	VS	DWH	10/10/2011	KP	P	VT OK	DWH
10/7/2011	1-319		B	86-87		13 N		5	2		MX-8	VS	DWH	10/10/2011	KP	P	VT OK	DWH
10/7/2011	1-320		B	86-87		17 N		5	2		MX-8	VS	DWH	10/10/2011	KP	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/12/2011	1-321		P	171-172-179		AT T		3	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-322		P	171-172		293 N		6	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-323		P	170-171-172		AT T		3	3		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-324	1-082	P	170-172		103 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-325	1-073	P	172-173		56 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-326		P	172-173-179-180		AT T		2	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-327	1-079	P	179-180		574 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-328		P	180-181-186		AT T		3	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-329		P	181-182-186		AT T		2	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-330		P	173-174-180-181		AT T		2	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-331	1-080	P	174-181		10 E		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-332	1-074	P	173-174		135 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-333	1-075	P	174-175		200 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-334		P	174-175-181-182		AT T		3	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-335		P	202-204		692 N		1	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-336	1-081	P	182-183		587 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/12/2011	1-337		P	175-176-182-183		AT T		2	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-338	1-076	P	175-176		287 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-339	1-077	P	176-177		347 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-340		P	176-177-184		AT T		3	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-341		P	176-183-184		AT T		2	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-342		P	183-184-185		AT T		2	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/25/2011	1-343		P	185-200		693 N		1	1		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
10/12/2011	1-344		P	184-185-200		AT T		3	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-345		P	177-178-184-200		AT T		9	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-346	1-078	P	177-178		410 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/17/2011	1-347	1-091	P	178-187		165 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-348		P	178-187		190 N		3	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-349		P	178-187-201		AT T		10	3		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/12/2011	1-350		P	178-200-201		AT T		1	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-351	1-093	P	200-201		622 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-352		P	200-201-221		AT T		2	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/12/2011	1-353		P	201-202-221		AT T		3	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-354	1-094	P	201-202		563 N		5	2		MX-8	VS	DWH	10/12/2011	TS	P	VT OK	DWH
10/17/2011	1-355		P	187-188-201-202		AT T		6	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-356	1-083	P	178-1876		248 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-357	1-084	P	188-189		209 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-358		P	188-189-202-203		AT T		2	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/12/2011	1-359	1-095	P	202-203		520 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-360		P	202-203-204		AT T		2	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-361		P	203-204-205		AT T		2	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-362	1-096	P	203-205		465 N		5	2		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/17/2011	1-363		P	189-190-203-205		AT T		3	1		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH
10/17/2011	1-364	1-098	P	190-205		8 W		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-365	1-085	P	189-190		173 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-366		P	190-191-205-206		AT T		4	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-367	1-097	P	205-206		414 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-368		P	191-192-206-208		AT T		4	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)

Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07

Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/17/2011	1-369		P	192-193-208-209		AT T		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-370		P	193-194-209-215		AT T		2	1		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/24/2011	1-371		P	255-256		1 E		1	1		MX-8	VS	DWH	10/24/2011	KP	P	VT OK	DWH
10/17/2011	1-372	1-086	P	190-191		134 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/11/2011	1-373		P	206-212		3 W		6	3		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-374		P	206-208-212		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-375		P	206-210-212		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-376		P	206-210-211		AT T		3	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-377		P	206-211		1 W		3	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-378		P	206-207		170 S		6	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-379		P	206-207-211		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/25/2011	1-380		P	206-207		1 S		1	1		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
10/11/2011	1-381		P	207-209-210-211		AT T		7	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-382		P	208-209-210-212		AT T		6	3		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-383		P	209-215-218		AT T		3	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-384		P	215-218-219		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/11/2011	1-385		P	215-216-219		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-386		P	209-213-218-220		AT T		5	3		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-387		P	213-214-220		AT T		5	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-388		P	214-217-220		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-389		P	217-218-220		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-390		P	217-218-219		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/11/2011	1-391		P	216-217-219		AT T		2	2		MX-8	KP	DWH	10/11/2011	MAB	P	VT OK	DWH
10/18/2011	1-392	1-100	P	207-209		608 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/25/2011	1-393		P	207-209		694 N		1	1		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
10/17/2011	1-394	1-087	P	191-192		93 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-395	1-088	P	193-194		59 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-396		P	194-195-215-216		AT T		2	1		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-397		P	195-196-216-217		AT T		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/17/2011	1-398	1-089	P	195-196		54 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-399	1-090	P	196-197		121 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-400		P	196-197-217-222		AT T		3	1		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/18/2011	1-401	1-101	P	217-222		613 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-402		P	222-223-224		AT T		2	1		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/18/2011	1-403	1-102	P	222-223		544 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/17/2011	1-404		P	197-198-222-223		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/17/2011	1-405	1-092	P	197-198		93 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-406		P	198-199-223-225		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-407	1-103	P	223-225		471 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-408		P	223-224-225		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-409		P	225-265		133 E		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-410		P	225-264-265		AT T		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-411		P	225-263-264		AT T		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-412		P	225-261-263		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-413		P	225-260-261		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-414		P	225-258-260		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-415		P	225-257-258		AT T		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-416		P	225-256-257		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/18/2011	1-417		P	225-255-256		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-418		P	225-254-255		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-419		P	225-252-254		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-420		P	225-251-252		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-421		P	225-250-251		AT T		9	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-422		P	225-249-250		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-423		P	225-247-249		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-424		P	199-225-247		AT T		2	1		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH
10/18/2011	1-425		P	199-246-247		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-426		P	199-244-246		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-427	1-104	P	199-244		338 N		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-428		P	199-243-244		AT T		3	1		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH
10/18/2011	1-429		P	199-242-243		AT T		2	1		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH
10/18/2011	1-430		P	199-241-242		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-431		P	199-240-241		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-432		P	199-238-240		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/18/2011	1-433		P	199-237-238		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-434		P	199-236-237		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-435		P	199-235-236		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-436		P	199-234-235		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-437		P	199-233-234		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-438		P	199-231-233		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-439		P	199-230-231		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-440		P	199-229-230		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-441		P	199-228-229		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-442		P	199-226-228		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-443		P	226-227-228		AT T		6	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-444		P	229-230		4 N		4	3		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-445	1-105	P	229-230		61 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-446		P	230-231-232		AT T		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-447		P	231-232-233		AT T		5	2		MX-8	VS	DWH	10/18/2011	BH	P	VT OK	DWH
10/18/2011	1-448	1-106	P	232-233		50 E		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/18/2011	1-449		P	233-234		2 N		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-450		P	235-236		3 N		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-451	1-107	P	237-238		91 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-452		P	238-239-240		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-453		P	239-240-241		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-454	1-108	P	239-241		69 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/21/2011	1-455	1-109	P	243-245		23 N		5	2		MX-8	VS	DWH	10/21/2011	KP	P	VT OK	DWH
10/18/2011	1-456		P	243-244-245		AT T		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-457		P	244-245-246		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-458		P	247-248-249		AT T		2	1		MX-5	DS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-459		P	248-249-250		AT T		2	1		MX-5	DS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-460	1-110	P	250-251		65 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-461		P	252-253-254		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-462		P	253-254-255		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-463	1-111	P	254-255		99 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-464	1-112	P	256-257		118 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/18/2011	1-465		P	257-258-259		AT T		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-466		P	257-259		5 E		3	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-467		P	258-259-260		AT T		2	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-468		P	261-262-263		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-469		P	262-263-264		AT T		2	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/17/2011	1-470		P	172-173		132 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/18/2011	1-471	1-099	P	216-217		428 N		5	2		MX-5	DS	DWH	10/19/2011	BH	P	VT OK	DWH
10/12/2011	1-472		P	204-205		692 N		1	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-473		P	200-221		697 N		1	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/12/2011	1-474		P	202-221		694 N		1	1		MX-8	VS	DWH	10/13/2011	TS	P	VT OK	DWH
10/17/2011	1-475	1-039 B	P	76-100		45 N		5	2		MX-5	DS	DWH	10/17/2011	TS	P	VT OK	DWH
10/17/2011	1-476	1-039 A	P	76-100		75 N		5	2		MX-5	DS	DWH	10/17/2011	TS	P	VT OK	DWH
10/17/2011	1-477		C	76-100		50-70		20	2		MX-5	DS	DWH	10/17/2011	TS	P	VT OK	DWH
10/17/2011	1-478	1-073 A	P	172-173		219 N		5	2		MX-5	DS	DWH	10/21/2011	BH	P	VT OK	DWH
10/17/2011	1-479		C	172-173		0-217		217	2		MX-5	DS	DWH	10/21/2011	BH	P	VT OK	DWH
10/18/2011	1-480	1-113	P	194-195		245 N		5	2		MX-5	DS	DWH	10/21/2011	BH	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
10/17/2011	1-481	1-114	P	198-199		149 N		5	2		MX-8	VS	DWH	10/21/2011	BH	P	VT OK	DWH
10/18/2011	1-482	1-115	P	235-236		41 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-483	1-116	P	236-237		81 E		5	2		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-484		P	224-225		694 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-485		P	205-206		691 N		1	1		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
10/18/2011	1-486		P	231-232		11 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-487		P	251-252		30 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/17/2011	1-488	1-073 C	P	173-Cap		118 N		5	2		MX-5	DS	DWH	10/21/2011	BH	P	VT OK	DWH
10/18/2011	1-489		P	224-225		694 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-490		P	222-224		696 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/18/2011	1-491		P	217-222		693 N		1	1		MX-8	VS	DWH	10/19/2011	BH	P	VT OK	DWH
10/24/2011	1-492		P	234-235		1 E		1	1		MX-8	VS	DWH	10/24/2011	KP	P	VT OK	DWH
10/24/2011	1-493		P	237-238		1 E		1	1		MX-8	VS	DWH	10/24/2011	KP	P	VT OK	DWH
10/24/2011	1-494		P	243-245		1 E		1	1		MX-8	VS	DWH	10/24/2011	KP	P	VT OK	DWH
10/24/2011	1-495	1-073 B	P	169-171		686 N		5	2		MX-8	VS	DWH	10/25/2011	KP	P	VT OK	DWH
11/2/2011	1-497		B		253	27 E	10 S	6	4		MX-5	LV	DWH	11/14/2011	KP	P	VT OK	DWH

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Repair Summary Log

Project: Onondaga Lake Sediment Consolidation Area (SCA)
Location: Camillus, New York ProjNo: GJ4706 TaskNo: 07
Description: Construction Quality Assurance for Onondaga SCA Phase I Cell

Primary / Secondary: Primary Series: 1

Repair Date	Repair ID	DS No	Repair Type	Location				Size			Welder I.D.		QA ID	Non-Destructive Testing				
				Seam	Panel	Distance (ft.)	Offset (ft.)	Length (ft.)	Width (ft.)	Dia. (ft.)	Mach ID	Oper ID		Date	Oper ID	Result (p/f)	Action	QA ID
11/2/2011	1-498		B		253	27 E	5 S	6	4		MX-5	LV	DWH	11/14/2011	KP	P	VT OK	DWH
11/2/2011	1-499		B	253-255		27 E		6	4		MX-5	LV	DWH	11/14/2011	KP	P	VT OK	DWH
10/18/2011	1-500	1-117	P	247-248		89 E		4	2		MX-8	VS	DWH	10/19/2011	BH	p	VT OK	DWH
10/28/2011	1-501		P		78	130 S	4 W			2	MX-8	VS	DWH	10/28/2011	BH	p	VT OK	DWH
11/22/2011	1-502		P		79	34 S	7 W			2	MX-5	KP	DWH	11/22/2011	KP	p	VT OK	DWN
11/22/2011	1-503		P		79	52 S	8 W			2	MX-5	KP	DWH	11/22/2011	KP	p	VT OK	DWH
11/22/2011	1-504		P		79	39 S	7 W			2	MX-8	LV	DWH	12/14/2011	LV	p	VT OK	DWH
5/21/2012	1-505		P		175	63 N	7 E	4	2		X16	VC	BC	5/21/2012	LV	p	VT OK	BC
5/21/2012	1-506		P		14	86 N	2 E	5	3		X16	VC	BC	5/21/2012	LV	p	VT OK	BC
5/21/2012	1-507		P		15	64 N	10 E	3	2		X16	VC	BC	5/21/2012	LV	p	VTOK	BC
5/21/2012	1-508		P		128	170 S	3 W	2	2		X16	VC	BC	5/21/2012	LV	p	VT OK	BC

APPENDIX N

Geomembrane Leak Location Survey

Electrical Leak Testing of the 60-mil Geomembrane Liner for Honeywell Sediment Consolidation Area Camillus, New York

Prepared for:

Parsons
301 Plainfield Rd.
Suite 305
Syracuse, New York 13212
June 8, 2012

Prepared by:

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THG Project No. 4510

TABLE OF CONTENTS

1.0 INTRODUCTION 2

2.0 LEAK TEST INVESTIGATION 3
- 2.1 Background 3
  - 2.2.1 Leak Detection Sensitivity 3
  - 2.2.2 Electrical Continuity Survey 4
- 2.3 Water Lance Method (ASTM D 7703) 4

3.0 CONCLUSION 6

4.0 REFERENCES 7

LIST OF FIGURES

1. Site Location Map
2. Cell Location Map
3. Cell A
4. Cell B
5. Cell C
6. Cell D
7. Cell E
8. Cell F
9. Cell G
10. Cell H
11. Cell I
12. Cell J
13. Sensitivity Test Cell F

1.0 INTRODUCTION

The Sediment Consolidation Area (SCA) is constructed to provide containment of sediments dredged as part of the Onondaga Lake Remedy. The SCA is constructed in phases, with the first phase consisting of 25 acres of a 60-mil HDPE geomembrane on compacted clay and subsequently covered with one foot of 4" minus drainage gravel (Figure 1).

Parsons engaged THG Geophysics, Ltd. (THG) to perform a leak test of the geomembrane in accordance with ASTM Standards. The leak test is an electrical conductivity test of the geomembrane based upon the *mise-à-la-masse* geophysical survey method (ASTM D 7007 and ASTM D 7703). The *mise-à-la-masse* survey is an electrical resistivity method that has been used in the mining industry since the 1920s for delineating electrically conductive subsurface ore bodies. Within the landfill and other industrial operations that require impermeable geomenbrane liners, this test is very effective in detecting holes in the geomembrane by using water as an electrically conductive medium.

Following the passage of Sub-Title D, landfills were required to line waste cells with a geomembrane. The regulatory agencies realized the potential for the creation of liner holes and tears in the geomembrane during and post construction. THG was requested in 1991 by the Pennsylvania Department of Environmental Protection and several landfill companies to find methods to test geomembranes for holes. THG recognized that a leak test using DC current would be effective in detection of holes and tears; this method was subsequently developed into ASTM standards D 7707 and 7703, the two standards used to test the geomembrane at the SCA. Since then THG has conducted dozens of electrical leak tests totaling over 700 acres, the largest test consisting of 30 acres.

2.0 LEAK TEST INVESTIGATION

2.1 Background

A leak test of the SCA Phase I cell geomembrane was conducted from October 2011 through May 2012 (Figure 2). Two methods of liner leak investigation were used. The dipole method (ASTM D 7007) was used after drainage gravel had been installed. The water lance method (ASTM D 7703) was used in selected areas prior to gravel placement (as a preliminary check) and in areas where drainage gravel is not to be installed. Prior to geomembrane installation, a series of wires was placed under the geomembrane to ensure better communication with the ground (Figure 2).

2.2 Dipole Method (ASTM D 7007)

Approximately 22 acres of Phase 1 of the SCA are covered with drainage gravel. This area was divided into 10 roughly 300-foot by 300-foot test cells, labeled Cell A through Cell J (Figures 3 through 12). The 10 cells were tested for leaks in accordance with ASTM D 7007.

The electrical continuity survey consists of applying an electrical potential between the geomembrane and protective cover. Cathodes were placed roughly in the center of each cell. An electrical potential of between 300 and 700 volts DC was placed into each cell between the cathode and the anode, which in this case consisted of the wires placed under the geomembrane. Note that each 300'-sq cell is a separate test and each operator judges, based upon the current gravel saturation conditions and a cell-specific sensitivity test, how much current to apply to the cell to effectively detect a leak.

The electrical potential causes electric current to flow through holes in the insulating geomembrane material. The current density around the leak is used to detect and locate the leak. The cover material at the site is a coarse gravel (4" minus) and as such the survey was conducted in the rain (when practical) to ensure electrical communication. If rain was not occurring at the time of the survey then an industrial pivoting sprinkler was deployed to saturate the gravel.

2.2.1 Leak Detection Sensitivity

A leak sensitivity test was performed at each cell in accordance with ASTM D 7007 Annex A3 (Procedures for leak detection sensitivity test for surveys with earth material covering the geomembrane using an artificial leak) (Figure 13). An artificial leak (i.e., a small circular metal plate) was placed beneath the drainage gravel at each of the 10 cells and a series of measurements were recorded to determine the leak signal and background noise level for each of the 10 cells (Figures 2 and 13).

The background noise level (N) is the ambient noise with the current to the cell turned on but the artificial leak turned off (i.e., disconnected) and is measured as the difference between the maximum and minimum measured potential (Figure 13). The background noise level in the 10 cells ranged from 0.03 v to 0.06 v.

The signal (S) plus noise is the current reading from the artificial leak with the current turned on and the artificial leak turned on. The signal plus noise potential ranged from 0.31 v to 0.43 v.

The data farthest from the artificial leak with an R value less than 3 determines the maximum distance to detect the artificial leak :

$$R = \frac{(S + N)}{N}$$

In all cases, the R-value was greater than 3 for the 5-foot spaced survey; consequently, the survey was conducted using a 5-foot spacing. Figure 13 shows an example of the work performed to determine the R-value from a sensitivity survey.

2.2.2 Electrical Continuity Survey

Stainless steel electrodes connected to a multi-meter probe were inserted into the drainage gravel to measure the flow of electricity at a spacing of every 5 square feet. The multimeter is connected to a datalogger (Polycorder; Omnidata, Logan, UT), and the datalogger is triggered to collect the measurement for subsequent download to a computer. Further the multimenter is integrated with a multi-test detector (Texas Research Institute, Austin Texas). Over 35,000 records were collected and a potential map of the electric field confirmed the locations of 4 anomalies (Figure 2).

Maps of the electrical potential for each cell were used to ensure no anomalies were overlooked during data collection (Figures 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12). These maps show the voltage potential that exists within each cell at the time of the testing. Anomalies are those readings that show a low voltage or high voltage and are assumed to be a hole; and thus require additional testing. If the retested anomaly proved to be a false positive then the anomaly was ignored. Note that the maps are not modified after retesting. Consequently, these figures are only useful for the initial survey.

Anomalies that are detected and flagged in the field and anomalies indicated on these maps were retested by repositioning the cathode and testing each anomaly. The retesting also helped to locate the holes more precisely.

The 4 locations were exhumed, and 5 holes were repaired, and retested both electrically and with a vacuum box. All repairs tested as tight and were properly sealed. Areas in Phase 1 in which gravel was remediated were resurveyed on May 31, 2012. No leaks were found in these remediated areas.

2.3 Water Lance Method (ASTM D 7703)

The east and west berms consist of approximately 100 feet by 650 feet of exposed 60-mil geomembrane. The method used to test the exposed geomembrane on these berms was the water lance method (ASTM D 7703). This method was also used to test exposed geomembrane in the sumps prior to gravel and riser installation as a preliminary check. At the time of this preliminary check, portions of the geomembrane in the sumps were covered with

water and these water-covered portions of the sumps were testing in accordance with ASTM D 7007. After gravel and riser installation, the geomembrane in the sumps was tested again in accordance with ASTM D 7007, as described above.

The water lance consists of a hydraulic tube with 2 detection electrodes separated by 1 meter that are within the flow of water. Approximately 24 volts DC is applied to the water (and upstream of the detection electrodes). The water lance test uses a multi-test meter that produces an increased beeping per second, a string of lights, a volt meter, and an arrow system to show the direction of the leak. The ground is an electrode tied to the network of wires beneath the 60-mil liner.

Water is jetted through the lance to the exposed liner. Water penetrating the liner will complete the circuit and the increased electrical potential will be detected by the multi-test meter. This method has a significant advantage over other methods since the operator must look at the liner and thus the entire exposed liner is carefully inspected for dimples, cuts, poor repairs and other penetrations of the liner in addition to the electrical leak test.

One hole was detected on the east berm (Figure 2).

3.0 CONCLUSIONS

SCA Phase I consists of approximately 22 acres of drainage gravel covering HDPE geomembrane and approximately 2.5 acres of exposed geomembrane. Two methods of liner leak investigation were used. The dipole method (ASTM D 7007) was used after drainage gravel had been installed. The water lance method (ASTM D 7703) was used in selected areas prior to gravel placement (as a preliminary check) and in areas where drainage gravel is not to be installed. The portion of SCA Phase 1 that was covered with drainage gravel was divided into 10 cells with cathodes placed into the center of each cell and the anode (ground) was attached to wires that were placed beneath the liner. An approximately 300-volt low amperage potential field was established at each cathode; and a total of approximately 35,000 records were collected. The exposed portions of the geomembrane were tested by the water lance method. The liner leak investigation was performed by THG Geophysics crews under the direction of Peter J. Hutchinson, PhD, PG.

The leak detection survey showed the presence of 5 holes (in 4 locations) beneath the drainage gravel and one hole on the east berm. The holes were subsequently repaired and tested as tight.

4.0 REFERENCES

ASTM D6747-12. Standard Guide for Selection of Techniques for Electrical Detection of Leaks in Geomembranes

ASTM D7007-09. Standard Practices for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials

ASTM D7703-11. Standard Practice for Electrical Leak Location on Exposed Geomembranes Using the Water Lance System

Boryta, D. A., and M. N. Nabighain (1985). "Method for determining a Leak in a Pond Liner of Electrically Insulating Sheet Material." US Patent No. 4,543,525; September 24, 1985.

Boryta, D. A., and P. M. Brown (1988). "Method for Determining the Location of a Leak in a Pond Liner Formed of Electrically Insulating Material" US Patent No. 4,771,246; September 13, 1988.

Darilek, G. T. and J. O. Para (1988). The Electrical Leak Location Method for Geomembrane Liners. San Antonio, TX, Southwest Research Institute.

Fountain, L. (1988). Detection and location of leaks in geomembrane-lined liquid waste impoundments using an electrical technique. San Antonio, TX, Department of Geosciences Southwest Research Institute: 117-126.



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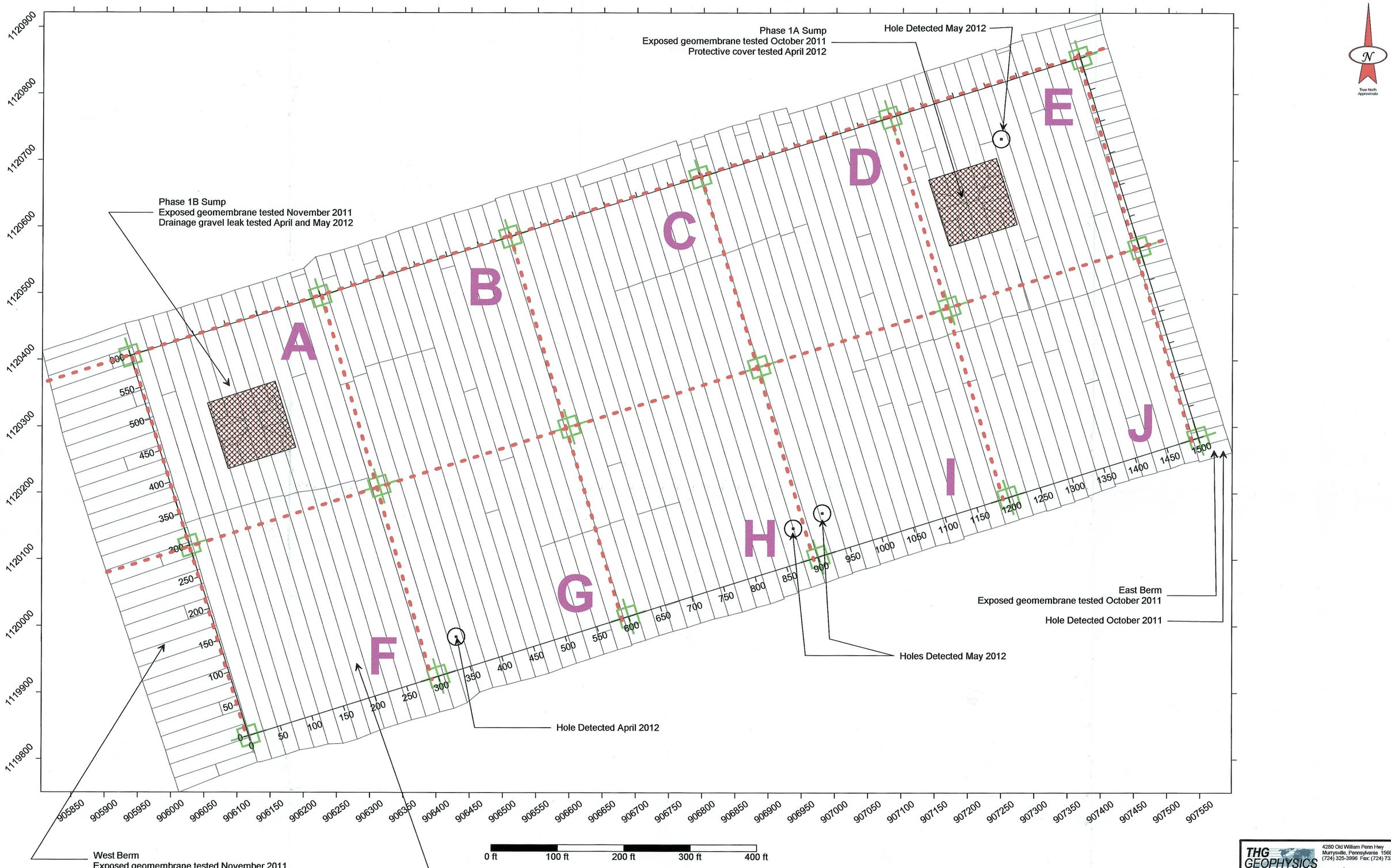
0 ft 1000 ft 2000 ft 3000 ft

Figure 1
Site Location Map

Leak Location Survey
Solvay Waste Project
Syracuse, New York

SCALE: 1:24,000	PROJECT NO.: 322-4510	DRAWING NO.: DWG4510F1
DATE : 5/13/12		
DRAWN BY: PJH	SOURCE: 2012 Google Map Aerial Photograph	
CHECKED BY: PJH		



Notes

Geophysical survey conducted October 2011 through May 2012. Areas A, B, D, D, E, H, and I tested the week of May 13, 2012.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

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DES	MHB	4/13/12
DRN	PJH	4/13/12
CHK	PJH	5/24/12
REV	PJH	5/24/12
PROJ MGR.	PJH	5/24/12

SCALE: 1" =100'

SOURCE: Parsons, 2012

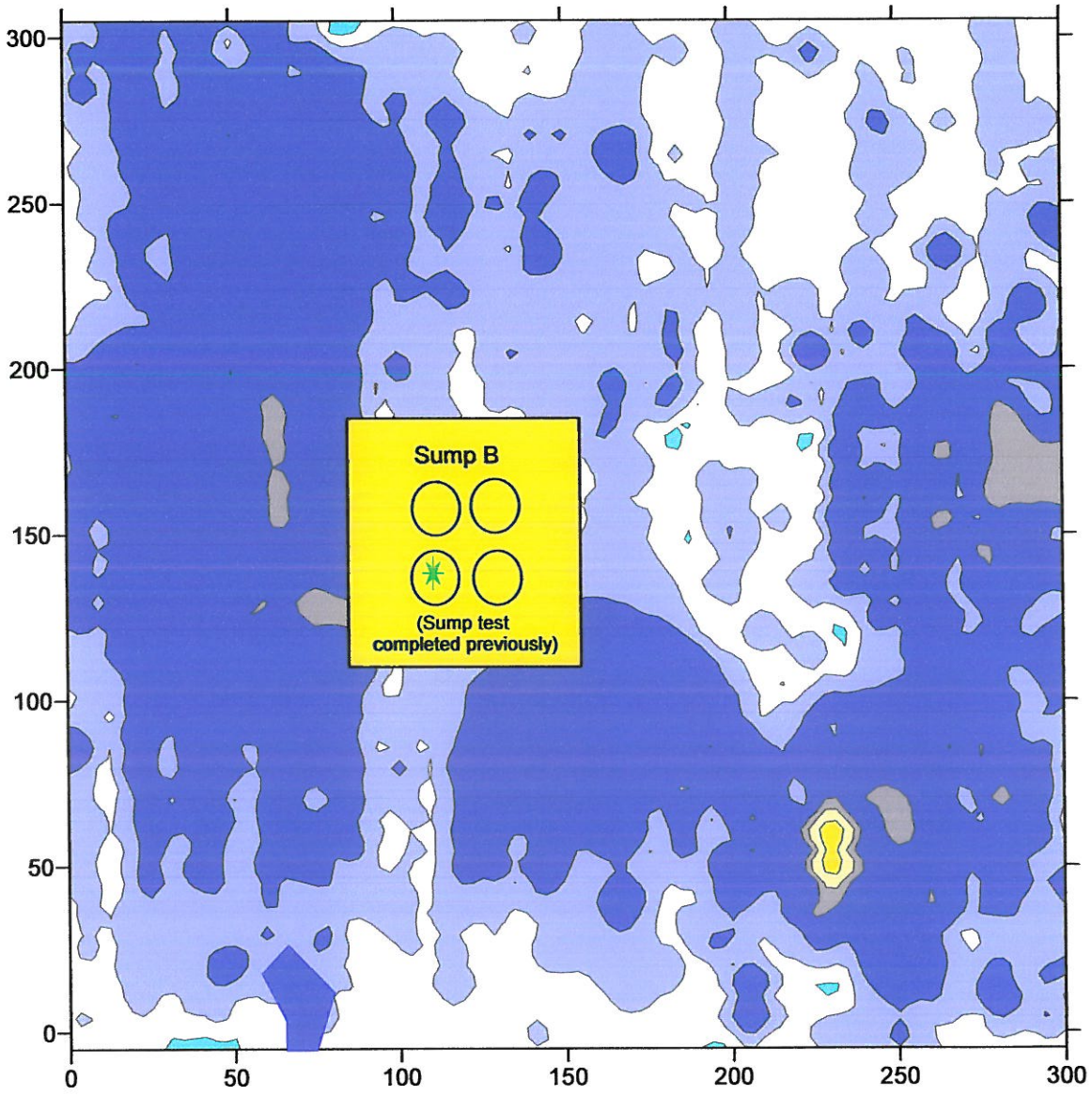
PROJECT:
Geophysical Leak Investigation
Solvay Waste Project
Syracuse, New York

SHEET TITLE:
Figure 2
Liner Integrity Test Location Map

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

DRAWING NO.: DWG4510F2



Color Scale

5 V | 1 V | 0.5 V | 0.25 V | 0.1 V | 0.05 V | 0.01 V | 0 V | -0.01 V | -0.05 V

0 ft 20 ft 40 ft 60 ft 80 ft

Legend

Cathode Location

Notes

Geophysical survey conducted May 15, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed
between the geomembrane and clay layer.

Locations are approximate. Map distortion
may exist. Entire area of interest was tested.

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DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

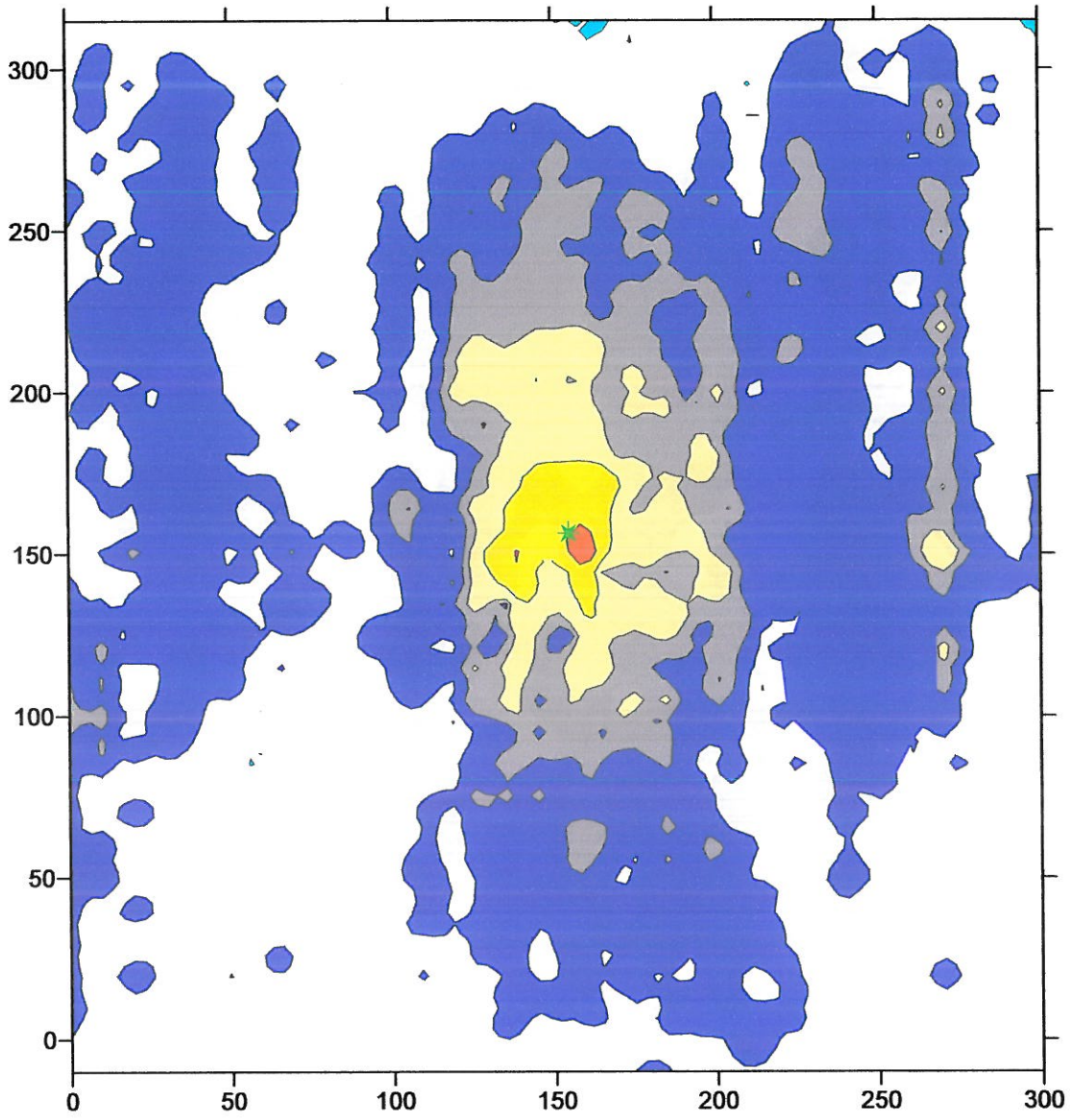
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.:
Figure 3
Area A

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F3



Color Scale

5 V | 1 V | 0.5 V | 0.25 V | 0.1 V | 0.05 V | 0.01 V | 0 V | -0.01 V | -0.05 V

True North Approximate

0 ft 20 ft 40 ft 60 ft 80 ft

Legend

Cathode Location

Notes

Geophysical survey conducted May 15, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4220 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7501
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

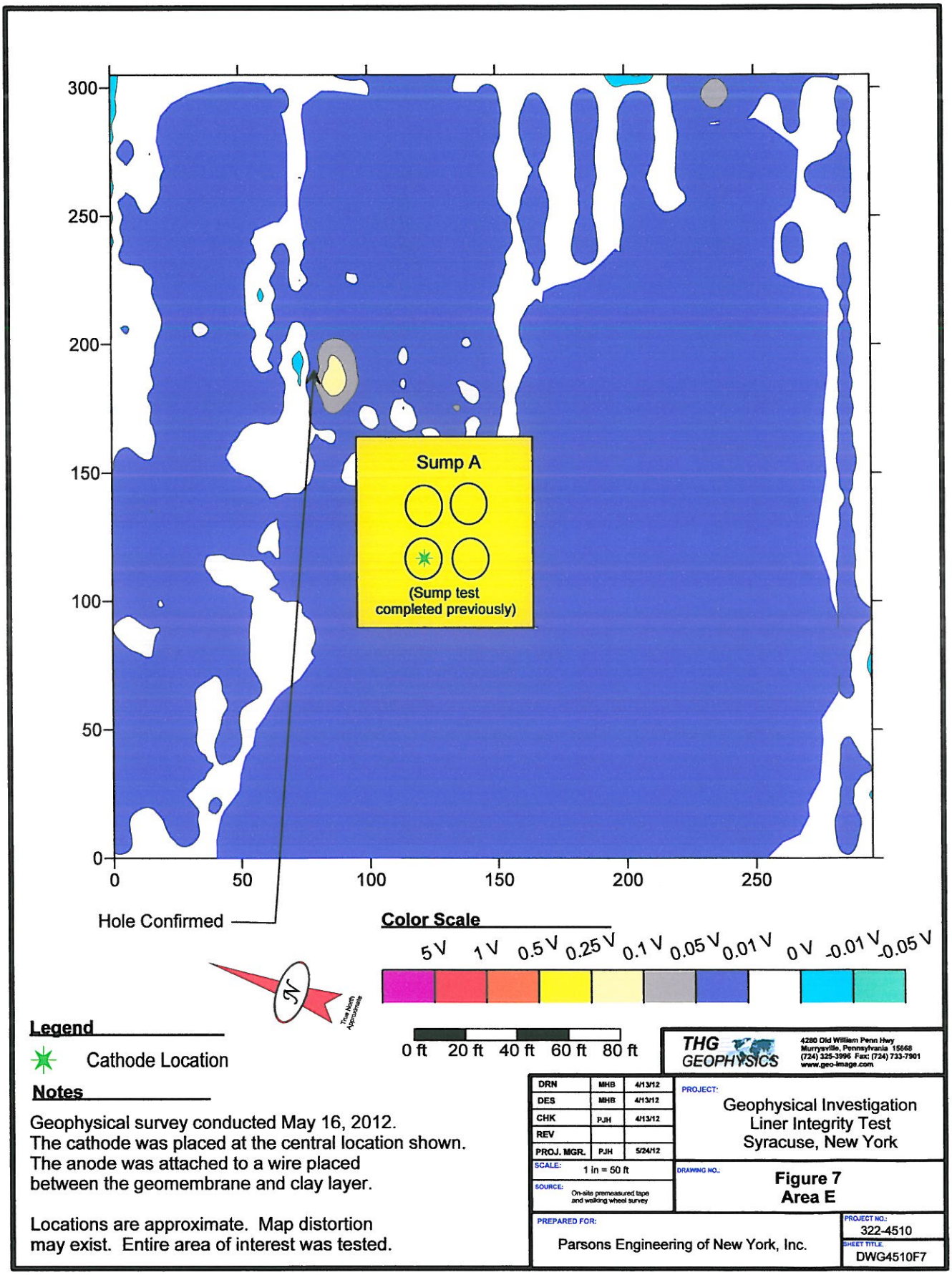
PROJECT: Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.: **Figure 4**
Area B

PREPARED FOR: Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F4



Legend

Cathode Location

Notes

Geophysical survey conducted May 16, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4280 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey

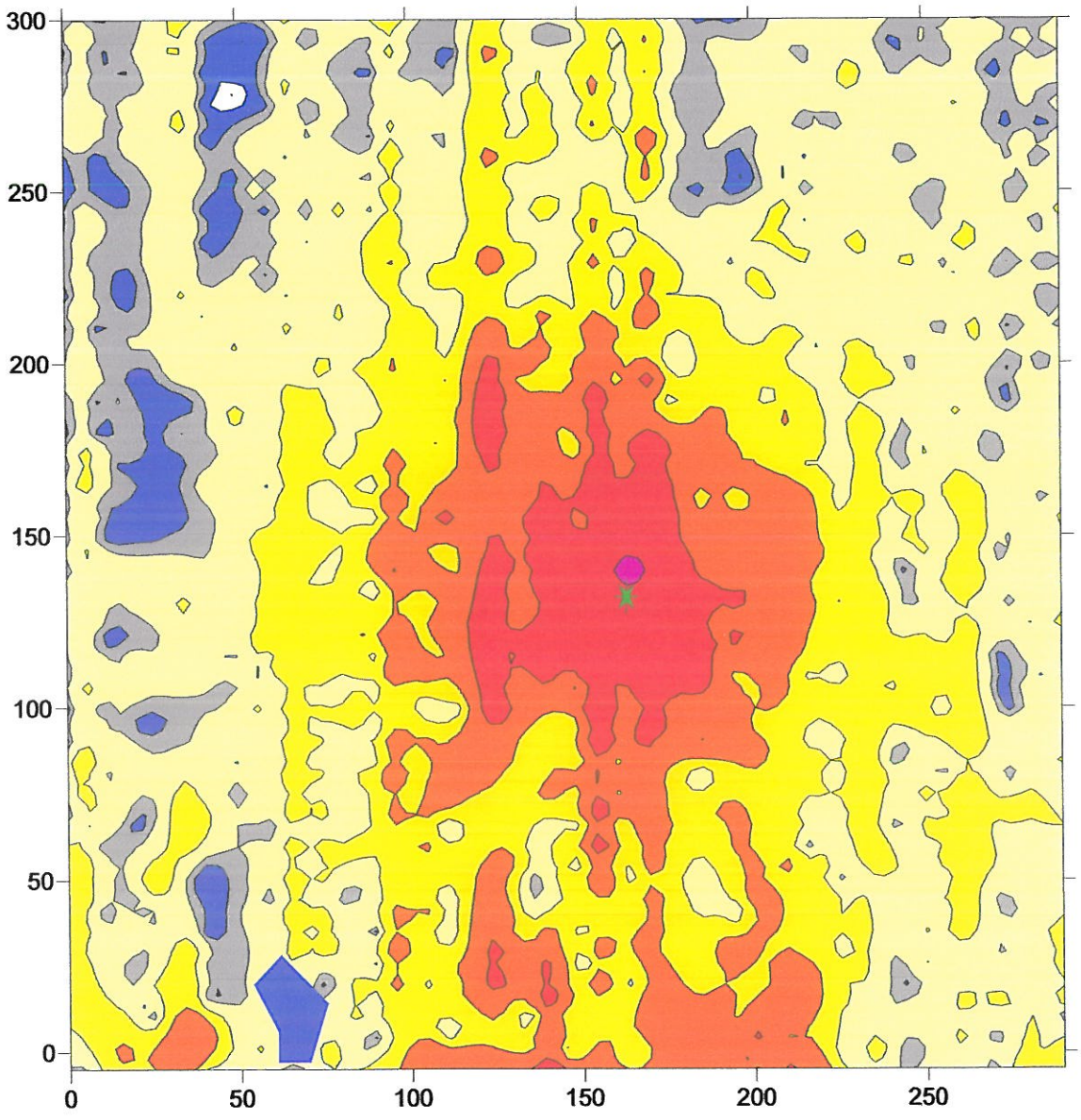
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.:
Figure 7
Area E

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F7





Color Scale





Legend

Cathode Location

Notes

Geophysical survey conducted April 24, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4200 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3596 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

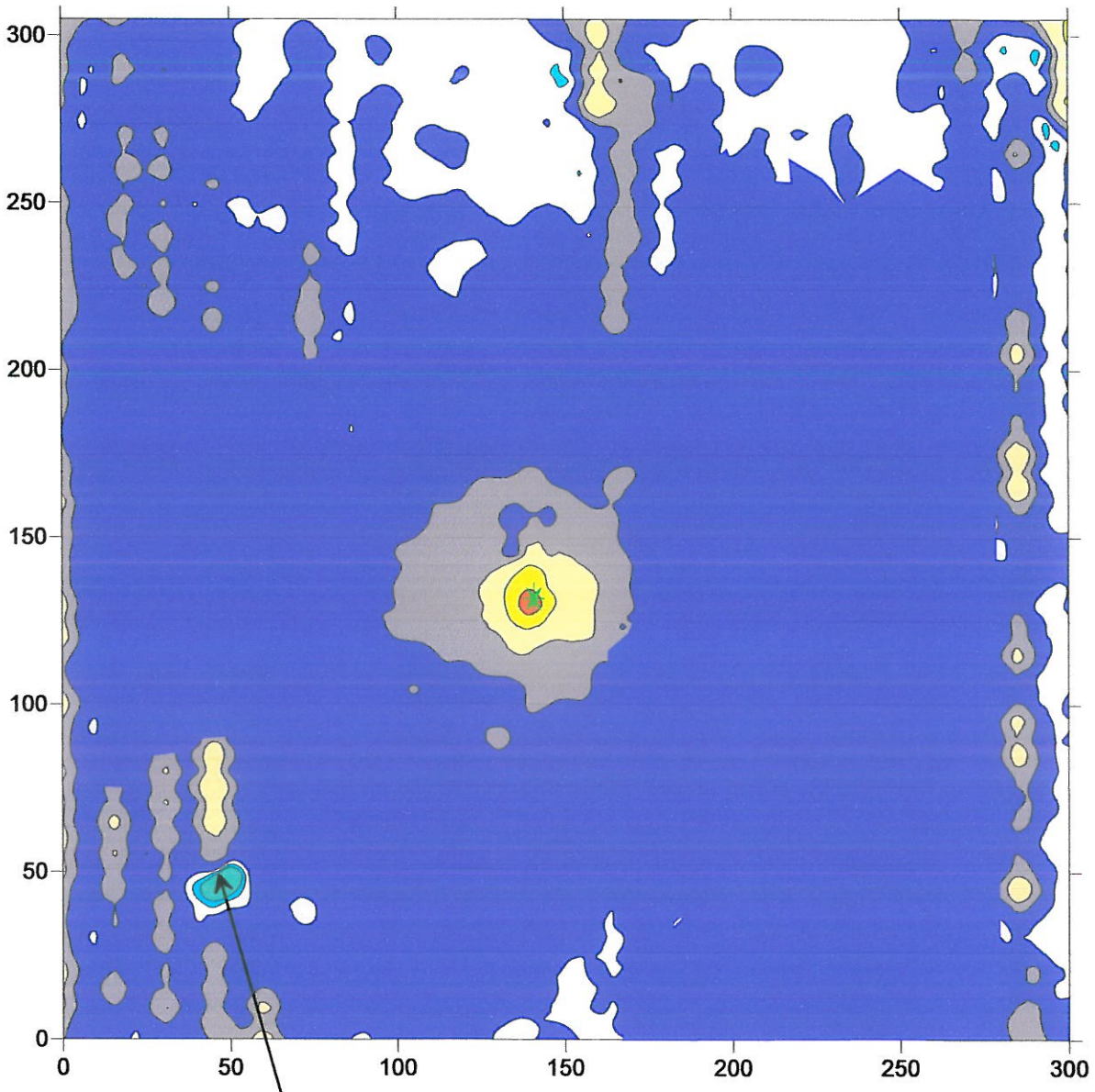
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.:
Figure 8
Area F

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F8



Legend

Cathode Location

Notes

Geophysical survey conducted April 24, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4299 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7991
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	4/13/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

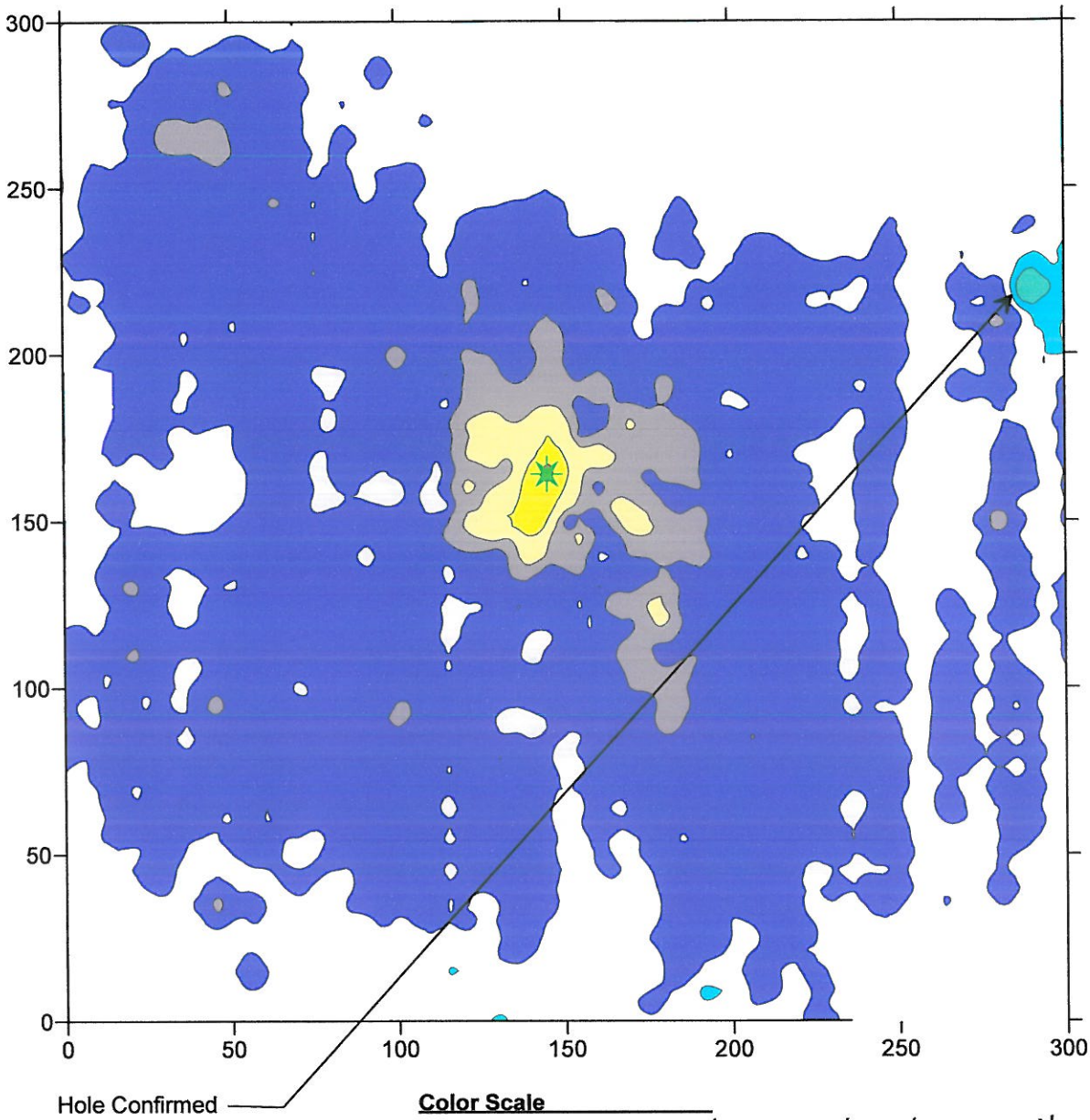
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.
Figure 9
Area G

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F9



Color Scale

5 V | 1 V | 0.5 V | 0.25 V | 0.1 V | 0.05 V | 0.01 V | 0 V | -0.01 V | -0.05 V

0 ft 20 ft 40 ft 60 ft 80 ft

Legend

Cathode Location

Notes

Geophysical survey conducted May 16, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4280 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

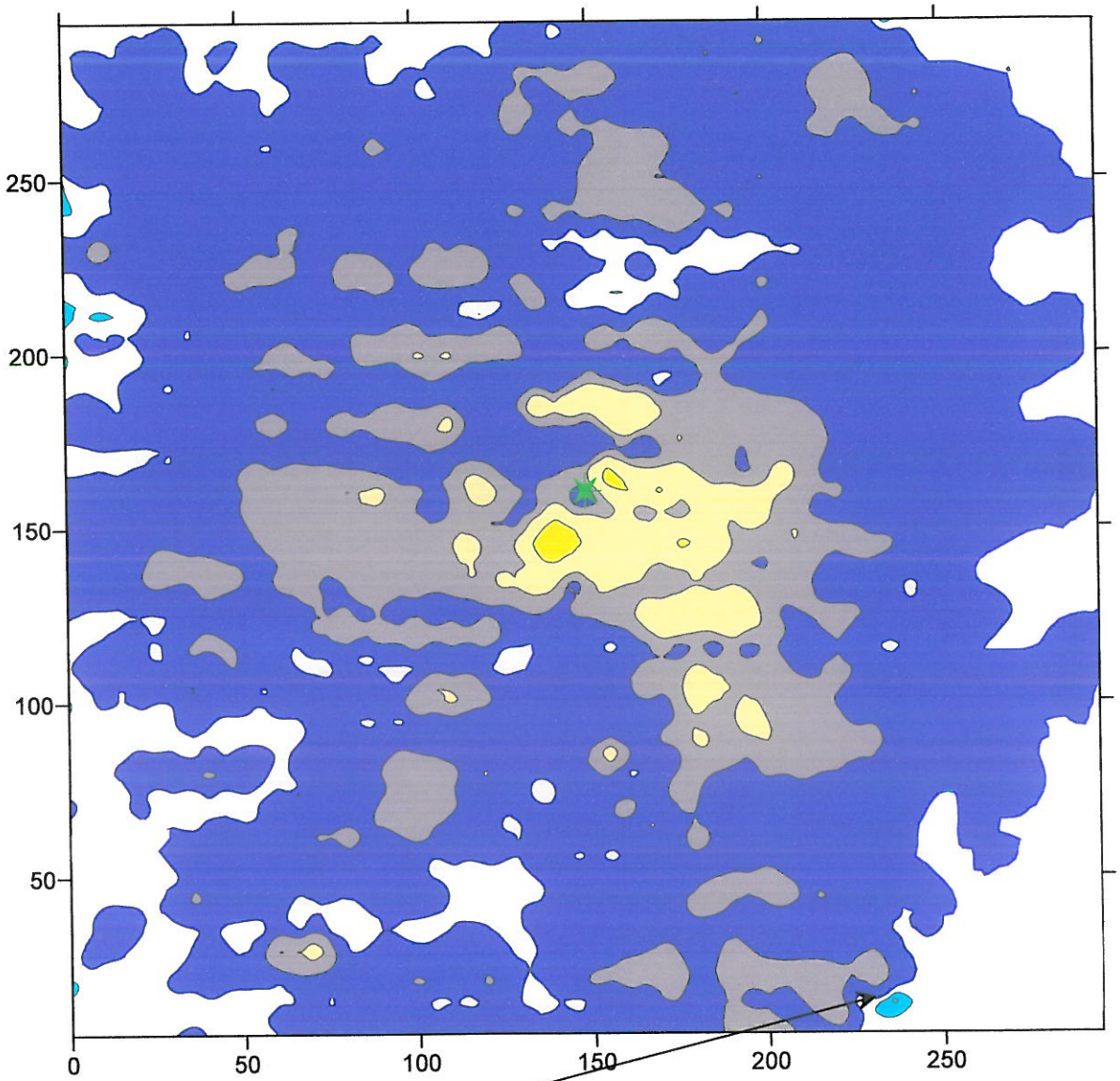
PROJECT: Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.: **Figure 10**
Area H

PREPARED FOR: Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F10



Legend

Cathode Location

Notes

Geophysical survey conducted May 14, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4280 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey.

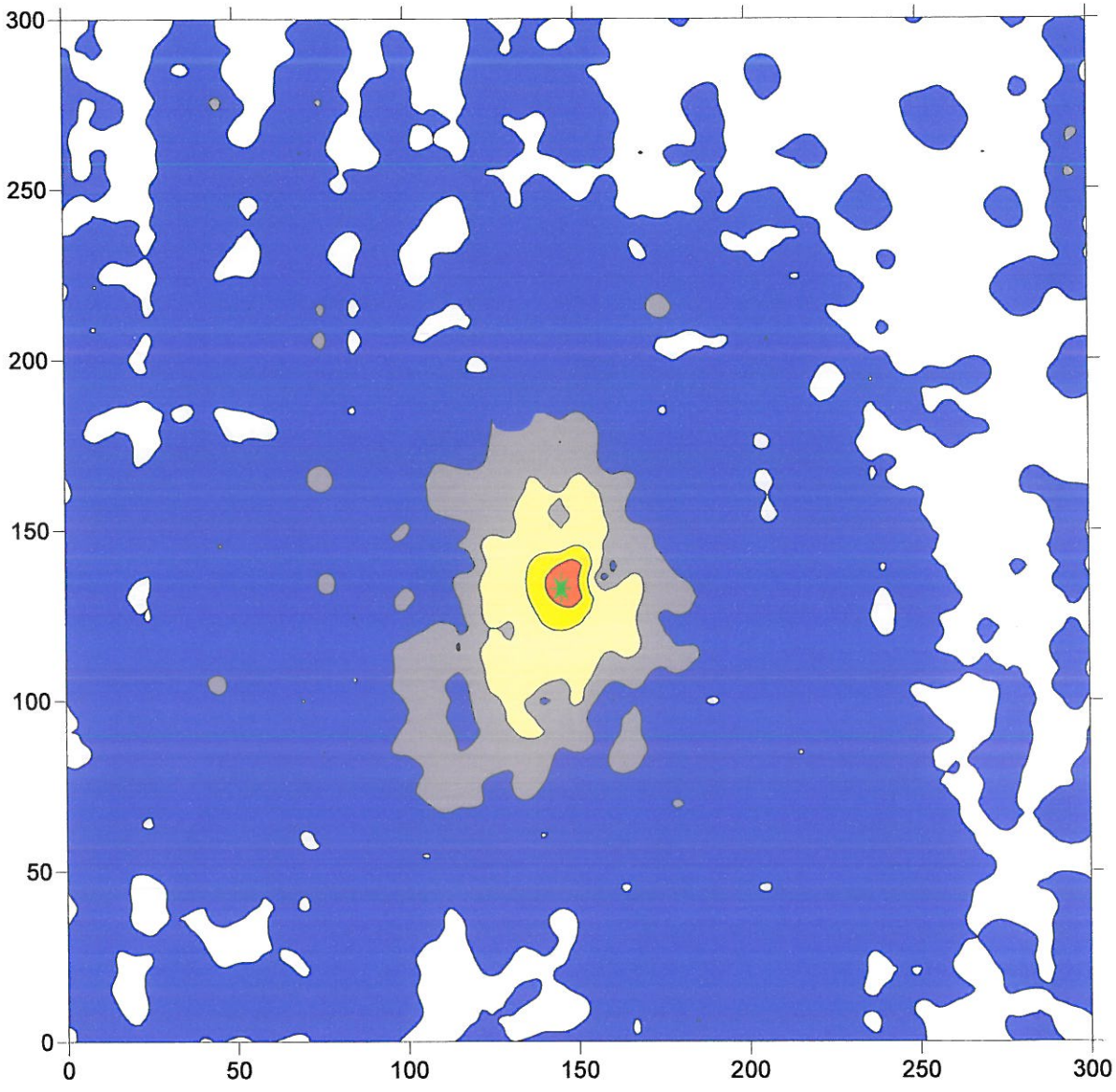
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

DRAWING NO.:
Figure 11
Area I

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.:
322-4510

SHEET TITLE:
DWG4510F11



Color Scale

5 V 1 V 0.5 V 0.25 V 0.1 V 0.05 V 0.01 V 0 V -0.01 V -0.05 V

N True North Approximate

0 ft 20 ft 40 ft 60 ft 80 ft

Legend

Cathode Location

Notes

Geophysical survey conducted April 25, 2012.
The cathode was placed at the central location shown.
The anode was attached to a wire placed between the geomembrane and clay layer.

Locations are approximate. Map distortion may exist. Entire area of interest was tested.

THG GEOPHYSICS
4280 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	4/13/12
DES	MHB	4/13/12
CHK	PJH	4/13/12
REV		
PROJ. MGR.	PJH	5/24/12

SCALE: 1 in = 50 ft

SOURCE: On-site premeasured tape and walking wheel survey

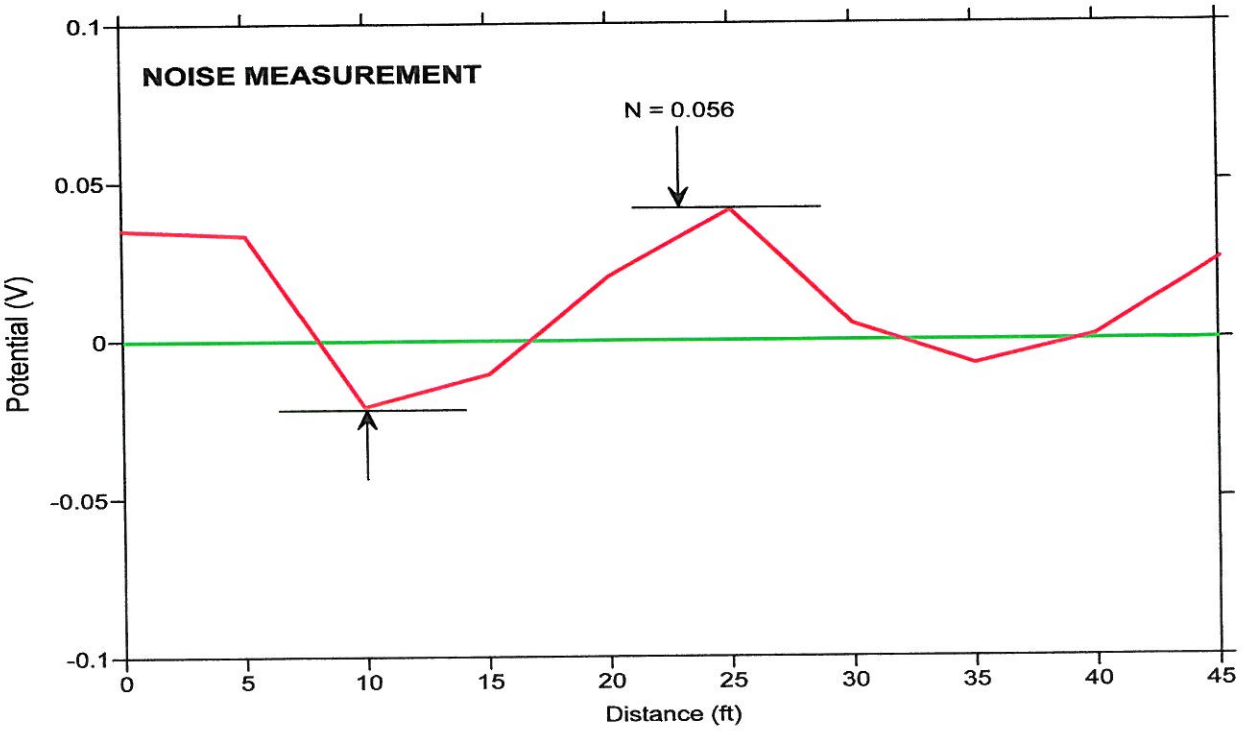
PROJECT:
Geophysical Investigation
Liner Integrity Test
Syracuse, New York

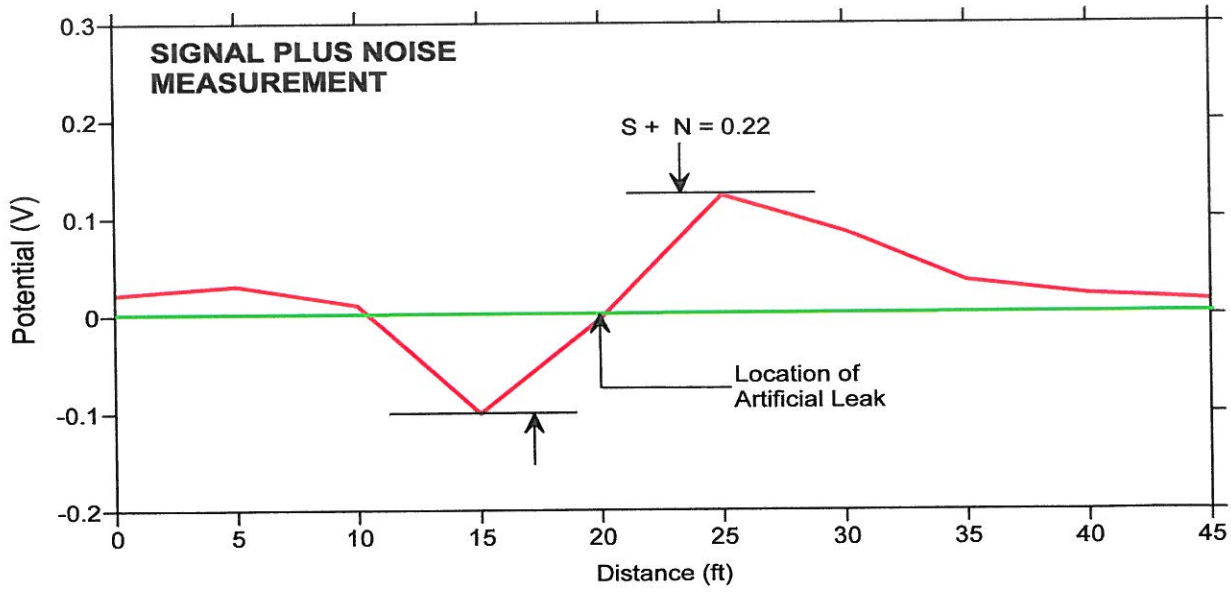
DRAWING NO.:
Figure 12
Area J

PREPARED FOR:
Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F12





Notes

R = (S + N) / N = 0.22/0.056 = 3.9

THG GEOPHYSICS
4280 Old William Penn Hwy
Murrysville, Pennsylvania 15668
(724) 325-3996 Fax: (724) 733-7901
www.geo-image.com

DRN	MHB	6/6/12
DES	MHB	6/6/12
CHK	PJH	6/6/12
REV		
PROJ. MGR.	PJH	6/6/12

SCALE:

SOURCE: On-site premeasured tape and walking wheel survey.

PROJECT: Geophysical Investigation Liner Integrity Test Syracuse, New York

DRAWING NO.: **Figure 13 Sensitivity Test Cell F**

PREPARED FOR: Parsons Engineering of New York, Inc.

PROJECT NO.: 322-4510

SHEET TITLE: DWG4510F13

APPENDIX O

Record Drawings

- Contractor's Record Drawings
- Geomembrane Panel Layout and Seam Repair/Destructive Sample Location Drawings

Contractor's Record Drawings

- Subgrade
- Low-Permeability Soil Layer
- Geotextile Panel Layout
- Gravel Drainage Layer

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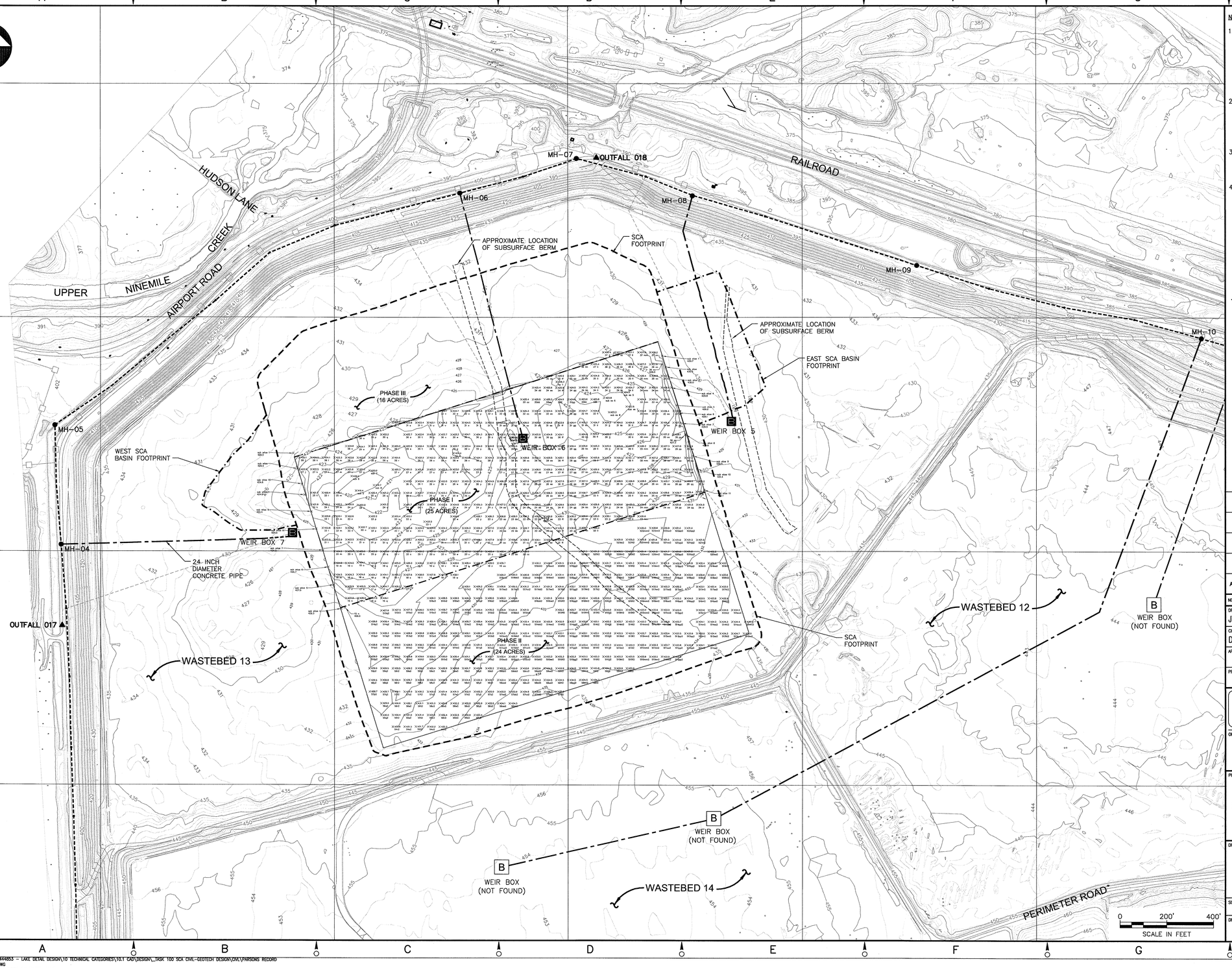

NOTES:

1. THE TOPOGRAPHIC CONTOURS SHOWN ON THIS DRAWING OUTSIDE OF THE SCA WERE OBTAINED FROM A TOPOGRAPHIC MAP COMPILED BY TVGA CONSULTANTS USING PHOTOGRAMMETRIC METHODS BASED ON AERIAL PHOTOGRAPHY PERFORMED ON 6 APRIL 2008. THE MAP WAS COMPILED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS FOR 1 INCH EQUAL TO 50 FEET SCALE. THE TOPOGRAPHIC MAP WAS PROVIDED TO GEOSYNTEC BY PARSONS.
2. COORDINATES SHOWN HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983/1996 (NAD 83/96) – NEW YORK STATE PLANE GRID, ZONE CENTRAL. ELEVATIONS SHOWN HEREIN ARE EXPRESSED IN FEET AND REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. THE ELEVATIONS AND TOPOGRAPHIC CONTOURS INSIDE PHASE I AND II OF THE SCA WERE OBTAINED FROM FIELD MEASUREMENTS TAKEN BY PARSONS DURING THE 2011 AND 2012 CONSTRUCTION SEASONS.
4. REMAINING PHASE II SUBGRADE ELEVATIONS TO BE MEASURED PRIOR TO LOW PERMEABILITY SOIL LAYER CONSTRUCTION.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND

- 430 — EXISTING GROUND ELEVATION (FEET) (NOTE 1)
- EXISTING ROAD
- B WEIR BOX 5 — EXISTING WEIR BOX
- PERIMETER LEACHATE COLLECTION PIPE
- INTERIOR LEACHATE COLLECTION PIPE (NOTE 5)

RECORD DRAWING

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PER: _____ DATE: _____

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	5/2/12	JTS	DDS	

DRAWN BY	JTS	DATE 5/2/12
CHECKED BY	DDS	DATE 5/2/12
APPROVED BY		DATE
PROJECT MGR.		DATE

SEAL: STATE OF NEW YORK — DAVID D. STEELE — LICENSED PROFESSIONAL ENGINEER — No. 082293

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 444853
WBS

PROJECT TITLE
Honeywell
SEDIMENT CONSOLIDATION AREA
ONONDAGA LAKE BOTTOM
SUBSITE REMEDIAL DESIGN

DRAWING TITLE
EXISTING SITE CONDITIONS

SCALE: SCALE: 1" = 200'
(IF PRINTED ON 22x34 SHEET)

DRAWING NO. 444853-101-C-002A REV. A

FILE NAME: P:\HONEYWELL -SYR\444853 – LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVIL\PARSONS RECORD DRAWINGS\444853-101-C-002A.DWG
PLOT DATE: 5/3/2012 4:17 PM PLOTTED BY: SIVALIA, JACK

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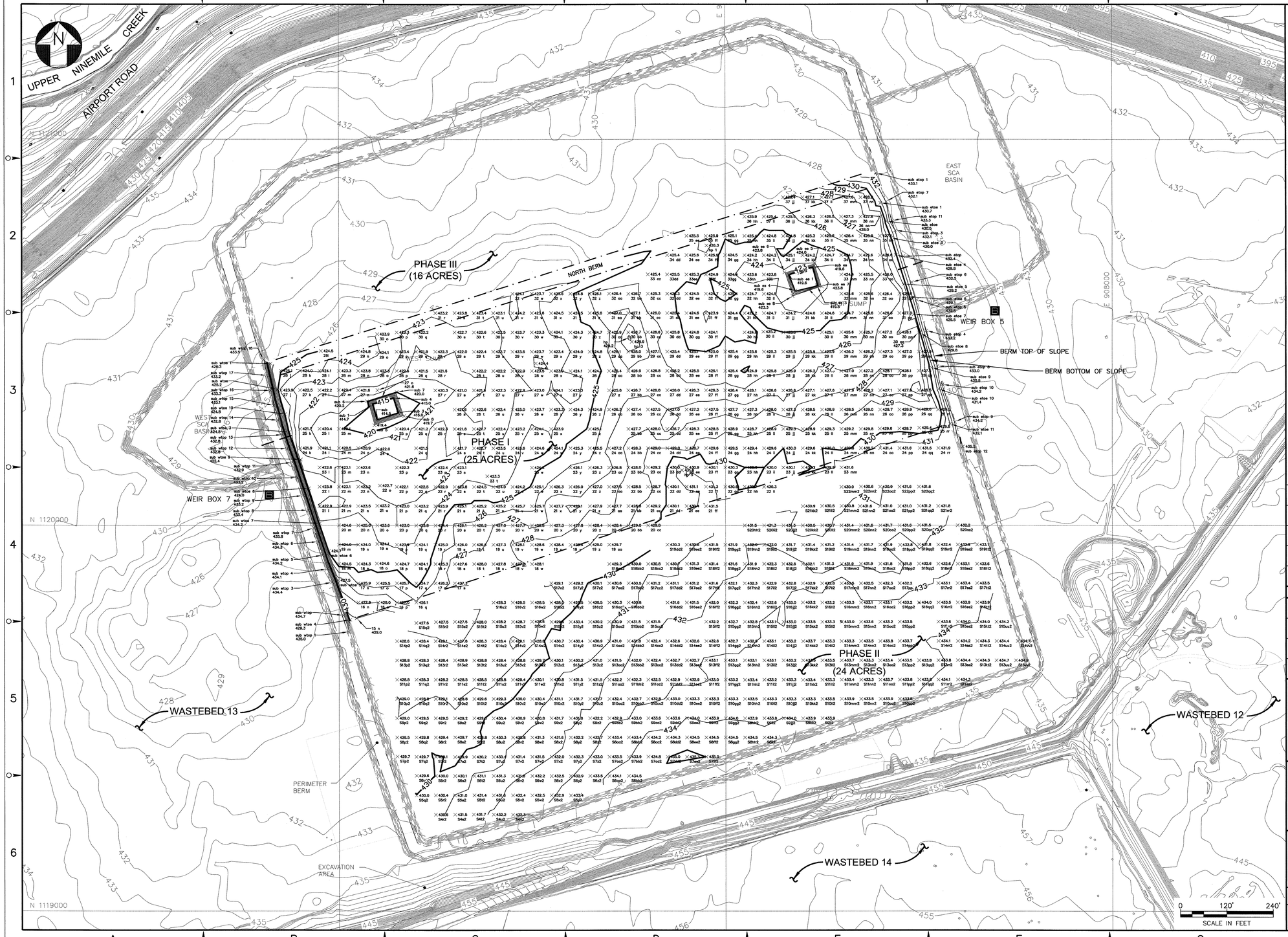

NOTES:

1. THE TOPOGRAPHIC CONTOURS SHOWN ON THIS DRAWING OUTSIDE OF THE SCA WERE OBTAINED FROM A TOPOGRAPHIC MAP COMPILED BY TVGA CONSULTANTS USING PHOTOGRAMMETRIC METHODS BASED ON AERIAL PHOTOGRAPHY PERFORMED ON 6 APRIL 2008. THE MAP WAS COMPILED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS FOR 1 INCH EQUAL TO 50 FEET SCALE. THE TOPOGRAPHIC MAP WAS PROVIDED TO GEOSYNTEC BY PARSONS.
2. COORDINATES SHOWN HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983/1996 (NAD 83/96) – NEW YORK STATE PLANE GRID, ZONE CENTRAL. ELEVATIONS SHOWN HEREIN ARE EXPRESSED IN FEET AND REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. THE ELEVATIONS AND TOPOGRAPHIC CONTOURS INSIDE PHASE I AND II OF THE SCA WERE OBTAINED FROM FIELD MEASUREMENTS TAKEN BY PARSONS DURING THE 2011 AND 2012 CONSTRUCTION SEASONS.
4. REMAINING PHASE II SUBGRADE ELEVATIONS TO BE MEASURED PRIOR TO LOW PERMEABILITY SOIL LAYER CONSTRUCTION.
5. DESIGN GRADES FOR SCA BERMS AND BASIN BERMS ARE SHOWN FOR REFERENCE.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND

- 430 — EXISTING GROUND ELEVATION (FEET) (NOTE 1)
- 440 — PROPOSED PERIMETER BERM
- 427 — SUBGRADE 1 FT CONTOUR
- 430 — SUBGRADE 5 FT CONTOUR
- EXISTING ROAD
- EXISTING WEIR BOX (WEIR BOX 5)
- PHASE BOUNDARY

RECORD DRAWING

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PER: _____ DATE: _____

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	5/2/12	JTS	DDS	

DRAWN BY JTS — DATE 5/2/12
CHECKED BY DDS — DATE 5/2/12
APPROVED BY — DATE
PROJECT MGR. — DATE

SEAL: DONALD D. STEELE, STATE OF NEW YORK, LICENSED PROFESSIONAL ENGINEER, NO. 082292

PARSONS
COMMERCIAL TECHNOLOGY GROUP
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 444853
WBS

PROJECT TITLE
Honeywell
SEDIMENT CONSOLIDATION AREA
ONONDAGA LAKE BOTTOM
SUBSITE REMEDIAL DESIGN

DRAWING TITLE
BERM AND SUBGRADE GRADING PLAN

SCALE: 1" = 120'
(IF PRINTED ON 22x34 SHEET)

DRAWING NO. 444853-101-C-003A
REV. A

FILE NAME: P:\HONEYWELL -SYR\444853 - LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVIL\PARSONS RECORD DRAWINGS\XREF\A2991002.DWG
PLOT DATE: ----- PLOTTED BY: SNALIA, JACK

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NOTES:

1. THE TOPOGRAPHIC CONTOURS SHOWN ON THIS DRAWING OUTSIDE OF THE SCA WERE OBTAINED FROM A TOPOGRAPHIC MAP COMPILED BY TVGA CONSULTANTS USING PHOTOGRAMMETRIC METHODS BASED ON AERIAL PHOTOGRAPHY PERFORMED ON 6 APRIL 2008. THE MAP WAS COMPILED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS FOR 1 INCH EQUAL TO 50 FEET SCALE. THE TOPOGRAPHIC MAP WAS PROVIDED TO GEOSYNTEC BY PARSONS.
2. COORDINATES SHOWN HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983/1996 (NAD 83/96) – NEW YORK STATE PLANE GRID, ZONE CENTRAL. ELEVATIONS SHOWN HEREIN ARE EXPRESSED IN FEET AND REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. THE ELEVATIONS AND TOPOGRAPHIC CONTOURS INSIDE PHASE I OF THE SCA WERE OBTAINED FROM FIELD MEASUREMENTS TAKEN BY PARSONS DURING THE 2011 AND 2012 CONSTRUCTION SEASONS.
4. DESIGN GRADES FOR SCA BERMS, BASIN BERMS AND PHASE II AND PHASE III TOP OF LOW PERMEABILITY SOIL LAYER SHOWN FOR REFERENCE.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND

- 430 — EXISTING GROUND ELEVATION (FEET) (NOTE 1)
- 427 — AS–BUILT TOP OF LOW PERMEABILITY LAYER 1 FT CONTOUR
- 430 — AS–BUILT TOP OF LOW PERMEABILITY LAYER 5 FT CONTOUR
- 435 — DESIGN TOP OF LOW PERMEABILITY LAYER 1 FT CONTOUR
- PROPOSED PERIMETER BERM
- EXISTING ROAD
- EXISTING WEIR BOX (WEIR BOX 5)
- PHASE BOUNDARY
- BREAKLINE

RECORD DRAWING

THESE DRAWINGS HAVE BEEN ANNOTATED TO REFLECT MAJOR CHANGES, IF ANY, WHICH HAVE OCCURRED DURING CONSTRUCTION. THESE DRAWINGS HAVE BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS WHO ARE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED. TO THE BEST OF OUR KNOWLEDGE, INFORMATION, AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

PER: _____ DATE: _____

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	5/2/12	JTS	DDS	

DRAWN BY: JTS	DATE: 5/2/12
CHECKED BY: DDS	DATE: 5/2/12
APPROVED BY	DATE
PROJECT MGR.	DATE

SEAL: STATE OF NEW YORK — DAVID D. STEEL — LICENSED PROFESSIONAL ENGINEER — No. 082203

PARSONS
COMMERCIAL TECHNOLOGY GROUP
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 444853
WBS:

PROJECT TITLE
Honeywell
SEDIMENT CONSOLIDATION AREA
ONONDAGA LAKE BOTTOM
SUBSITE REMEDIAL DESIGN

DRAWING TITLE
TOP OF LOW PERMEABILITY SOIL LINER

SCALE: SCALE: 1" = 120' (IF PRINTED ON 22x34 SHEET)

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FILE NAME: P:\HONEYWELL -SYR\444853 – LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVIL\PARSONS RECORD DRAWINGS\RR3\K2991002.DWG
PLOT DATE: ----- PLOTTED BY: SMALIA, JACK

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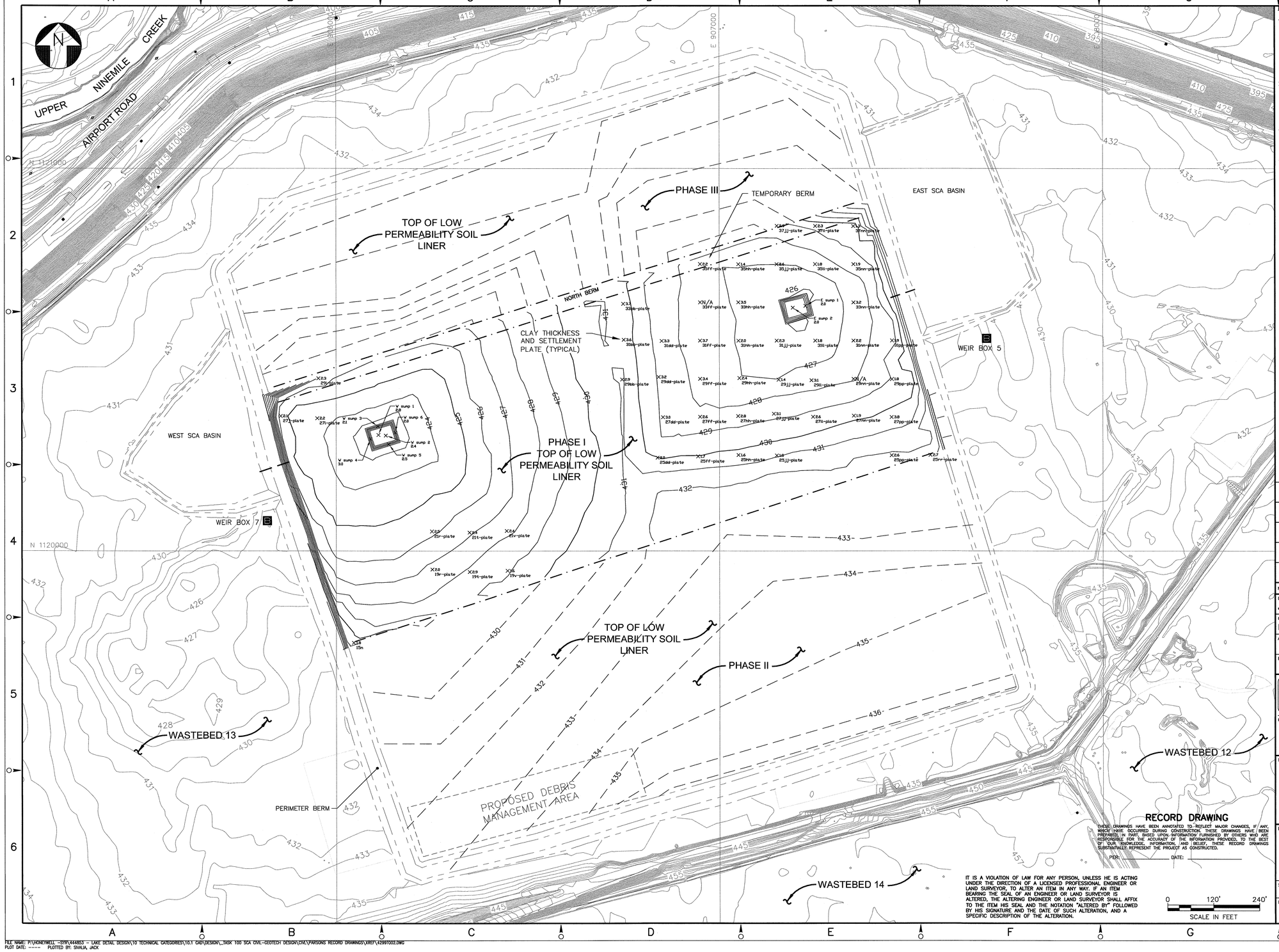

NOTES:

1. THE TOPOGRAPHIC CONTOURS SHOWN ON THIS DRAWING OUTSIDE OF THE SCA WERE OBTAINED FROM A TOPOGRAPHIC MAP COMPILED BY TVGA CONSULTANTS USING PHOTOGRAMMETRIC METHODS BASED ON AERIAL PHOTOGRAPHY PERFORMED ON 6 APRIL 2008. THE MAP WAS COMPILED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS FOR 1 INCH EQUAL TO 50 FEET SCALE. THE TOPOGRAPHIC MAP WAS PROVIDED TO GEOSYNTEC BY PARSONS.
2. COORDINATES SHOWN HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983/1996 (NAD 83/96) – NEW YORK STATE PLANE GRID, ZONE CENTRAL. ELEVATIONS SHOWN HEREIN ARE EXPRESSED IN FEET AND REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. THE ELEVATIONS AND TOPOGRAPHIC CONTOURS INSIDE PHASE I OF THE SCA WERE OBTAINED FROM FIELD MEASUREMENTS TAKEN BY PARSONS DURING THE 2011 AND 2012 CONSTRUCTION SEASONS.
4. DESIGN GRADES FOR SCA BERMS, BASIN BERMS AND PHASE II AND PHASE III TOP OF LOW PERMEABILITY SOIL LAYER SHOWN FOR REFERENCE.

LEGEND

430	EXISTING GROUND ELEVATION (FEET) (NOTE 1)
427	AS-BUILT TOP OF LOW PERMEABILITY LAYER 1 FT CONTOUR
430	AS-BUILT TOP OF LOW PERMEABILITY LAYER 5 FT CONTOUR
435	DESIGN TOP OF LOW PERMEABILITY LAYER 1 FT CONTOUR
	PROPOSED PERIMETER BERM
	EXISTING ROAD
WEIR BOX 5	EXISTING WEIR BOX
	PHASE BOUNDARY
	BREAKLINE
N/A	PLATE NOT LOCATED
X 2.6	THICKNESS MEASURED BY CORING FROM TOP OF LOW PERMEABILITY SOIL LAYER TO PLATE PLACED ON SUBGRADE
27dd-plate	DATA LABEL

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	5/2/12	JTS	DDS	

DRAWN BY	JTS	DATE 5/2/12
CHECKED BY	DDS	DATE 5/2/12
APPROVED BY		DATE
PROJECT MGR.		DATE

SEAL: STATE OF NEW YORK — DAVID D. STEPHENS — No. 082255 — LICENSED PROFESSIONAL ENGINEER

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 444853
WBS

PROJECT TITLE
Honeywell
SEDIMENT CONSOLIDATION AREA
ONONDAGA LAKE BOTTOM
SUBSITE REMEDIAL DESIGN

DRAWING TITLE
TOP OF LOW PERMEABILITY SOIL LINER CLAY THICKNESS

SCALE: 1" = 120'
(IF PRINTED ON 22x34 SHEET)

DRAWING NO. 444853-101-C-004B
REV. A

RECORD DRAWING
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PER: DATE:

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0 120' 240'
SCALE IN FEET

FILE NAME: P:\HONEYWELL -SYR\444853 – LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVL\PARSONS RECORD DRAWINGS\XREF\429970002.DWG
PLOT DATE: ~~~~ PLOTTED BY: SIVALIA, JACK

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NOTES:

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3. THE ELEVATIONS AND TOPOGRAPHIC CONTOURS INSIDE PHASE I OF THE SCA WERE OBTAINED FROM FIELD MEASUREMENTS TAKEN BY PARSONS BEFORE MAY 15, 2012.
4. DESIGN GRADES FOR SCA BERMS, BASIN BERMS AND PHASE II AND PHASE III TOP OF GRAVEL DRAINAGE LAYER SHOWN FOR REFERENCE.

LEGEND

- SURVEY POINT
- 427.5 / 34kk — ELEVATION / POINT NUMBER
- 430 — EXISTING GROUND ELEVATION (FEET) (NOTE 1)
- 427 — AS-BUILT TOP OF GRAVEL LAYER, 1 FT CONTOUR
- 430 — AS-BUILT TOP OF GRAVEL LAYER, 5 FT CONTOUR
- 435 — DESIGN TOP OF GRAVEL LAYER 1 FT CONTOUR
- EXISTING ROAD
- B WEIR BOX 5 — EXISTING WEIR BOX
- PHASE BOUNDARY

RECORD DRAWING

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PER: DDS DATE: 6/20/12

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	6/20/12	JTS	DDS	

DRAWN BY	JTS	DATE 6/20/12
CHECKED BY	DDS	DATE 6/20/12
APPROVED BY		DATE
PROJECT MGR.		DATE

SEAL: STATE OF NEW YORK · DAVID D. SIEGEL · 082293 · LICENSED PROFESSIONAL ENGINEER

PARSONS
COMMERCIAL TECHNOLOGY GROUP
OFFICE 301 PLAINFIELD ROAD SYRACUSE, NY 13212 (315) 451-9560

JOB 444853
WBS

PROJECT TITLE
Honeywell
SEDIMENT CONSOLIDATION AREA
ONONDAGA LAKE BOTTOM
SUBSITE REMEDIAL DESIGN

DRAWING TITLE
TOP OF GRAVEL DRAINAGE LAYER

SCALE: SCALE: 1" = 120' (IF PRINTED ON 22x34 SHEET)

DRAWING NO. 444853-101-C-006A REV. A

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FILE NAME: P:\HONEYWELL -SYR\444853 - LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVIL\PARSONS RECORD DRAWINGS\SCA\444853-101-C-006A\444853-101-C-006A.DWG
PLOT DATE: 6/20/2012 2:11 PM PLOTTED BY: SWALIA, JACK

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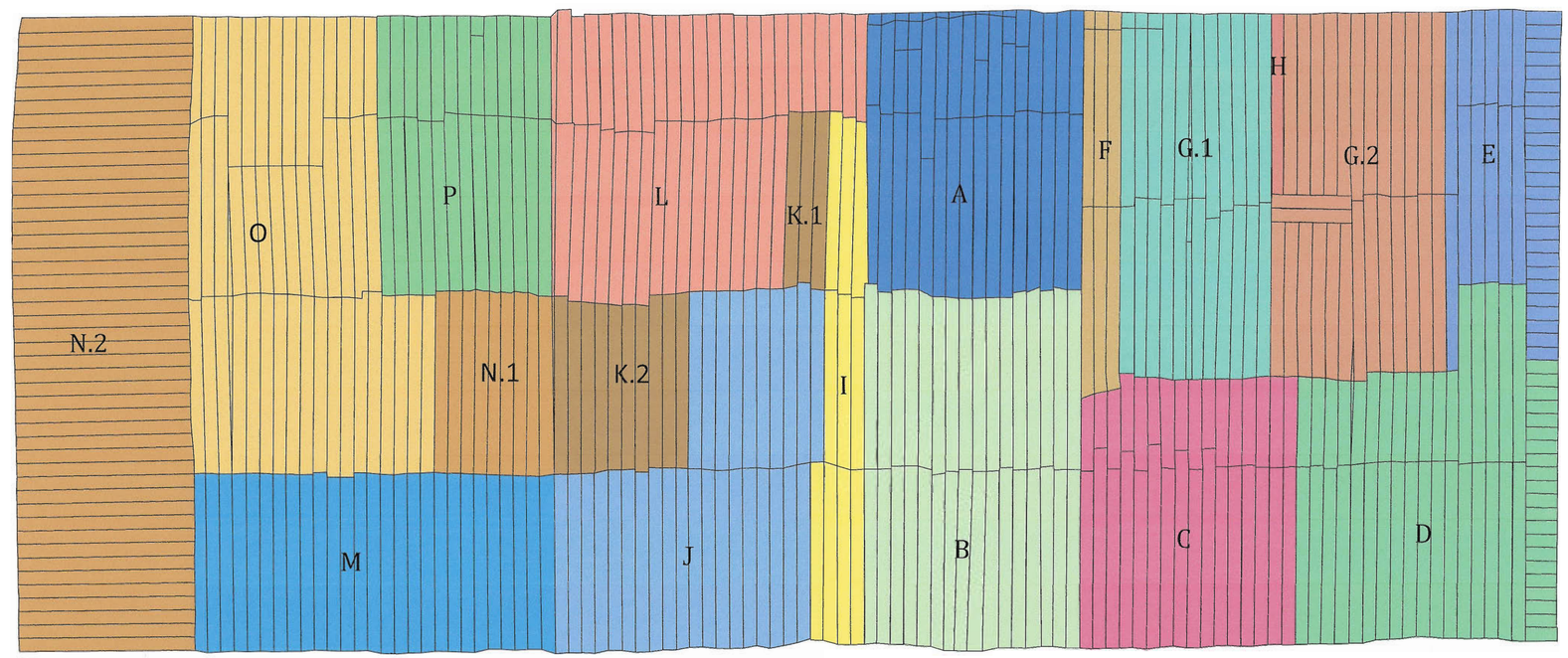

PHASE 1 SCA GEOTEXTILE FABRIC PANEL LOCATION PLAN

SCALE: 1"=80'

NOTES:

1. SEE DRAWING 444853-100-C-902 FOR GEOTEXTILE FABRIC PANEL ROLL NUMBERS TABLE.

RECORD DRAWING

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PER: DDS DATE: 6/20/12

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	RECORD DRAWING	6/20/12	JTS	DDS	

DRAWN BY	JTS	DATE	6/20/12
CHECKED BY	DDS	DATE	6/20/12
APPROVED BY		DATE	
PROJECT MGR.		DATE	

SEAL: STATE OF NEW YORK — DAVID D. STEVENS — No. 083290 — LICENSED PROFESSIONAL ENGINEER

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 444853

WBS

PROJECT TITLE

Honeywell
ONONDAGA LAKE
SCA CIVIL-GEOTECHNICAL DESIGN
SYRACUSE, NEW YORK

DRAWING TITLE

PHASE 1
SCA GEOTEXTILE INSTALLATION
SHEET 1 OF 2

SCALE: SCALE: 1" = 80'
(IF PRINTED ON 22x34 SHEET)

DRAWING NO: 444853-100-C-901

REV. A

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80 40 0 80 160

SCALE: 1"=80'

FILE NAME: P:\HONEYWELL -SYR\444853 - LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVIL\PARSONS RECORD DRAWINGS\SCA GEOTEXTILE\444853-100-C-901.DWG
PLOT DATE: 6/20/2012 2:46 PM PLOTTED BY: SINUKA, JACK

NOTES:

1. SEE DRAWING 444853-100-C-902 FOR GEOTEXTILE FABRIC PANEL LOCATIONS PLAN.

Roll Numbers Used By Area

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
13040 - 1812	13040 - 1817	13040 - 1702	13040 - 1730	13040 - 1746	13040 - 1805	13040 - 1690	13040 - 5338	13040 - 1693	13040 - 1711	13040 - 1708	13040 - 1717	13040 - 1789	13040 - 1695	13040 - 1692	13040 - 1694
13040 - 1815	13040 - 1819	13040 - 1744	13040 - 1734	13040 - 1774	13040 - 1806	13040 - 1691		13040 - 1714	13040 - 1720	13040 - 1712	13040 - 1725	13040 - 1824	13040 - 1704	13040 - 1697	13040 - 1713
13040 - 1816	13040 - 1825	13040 - 1752	13040 - 1745	13040 - 1775	13040 - 1807	13040 - 1696		13040 - 1749	13040 - 1743	13040 - 1715	13040 - 1732	13040 - 1863	13040 - 1721	13040 - 1742	13040 - 1729
13040 - 1857	13040 - 1842	13040 - 1761	13040 - 1751	13040 - 1782	13040 - 1808	13040 - 1698		13040 - 1765	13040 - 1754	13040 - 1716	13040 - 1733	13040 - 5324	13040 - 1722	13040 - 1766	13040 - 1747
13040 - 1859	13040 - 1843	13040 - 1769	13040 - 1753	13040 - 1784	13040 - 1809	13040 - 1699		13040 - 1776	13040 - 1762	13040 - 1718	13040 - 1741	13040 - 5325	13040 - 1735	13040 - 1767	13040 - 1759
13040 - 1860	13040 - 1910	13040 - 1810	13040 - 1756	13040 - 1788	13040 - 1811	13040 - 1700		13040 - 1777	13040 - 1778	13040 - 1719	13040 - 1750	13040 - 5329	13040 - 1760	13040 - 1798	13040 - 1779
13040 - 1865	13040 - 1913	13040 - 1813	13040 - 1757	13040 - 1791		13040 - 1701		13040 - 1795	13040 - 1780	13040 - 1723	13040 - 1755	13040 - 5331	13040 - 1763	13040 - 1883	13040 - 1781
13040 - 1866	13040 - 1914	13040 - 1821	13040 - 1758	13040 - 1793		13040 - 1703		13040 - 1880	13040 - 1786	13040 - 1724	13040 - 1785	13040 - 5332	13040 - 1814	13040 - 1884	13040 - 1783
13040 - 1867	13040 - 1915	13040 - 1823	13040 - 1790	13040 - 1796		13040 - 1705		13040 - 5381	13040 - 1802	13040 - 1726	13040 - 1787	13040 - 5343	13040 - 1828	13040 - 1902	13040 - 1835
13040 - 1870	13040 - 1917	13040 - 1827	13040 - 1847	13040 - 1797		13040 - 1706		13040 - 5382	13040 - 1830	13040 - 1727	13040 - 1792	13040 - 5347	13040 - 1947	13039 - 4831	13040 - 1929
13040 - 1872	13040 - 1918	13040 - 1831	13040 - 1850	13040 - 1801		13040 - 1707			13040 - 1838	13040 - 1728	13040 - 1794	13040 - 5365	13040 - 5330	13040 - 5335	13040 - 1950
13040 - 1873	13040 - 1919	13040 - 1832	13040 - 1851	13040 - 1803		13040 - 1709			13040 - 1839	13040 - 1736	13040 - 1799	13040 - 5416	13040 - 5333	13040 - 5336	13040 - 1951
13040 - 1877	13040 - 1922	13040 - 1836	13040 - 1853	13040 - 1829		13040 - 1710			13040 - 1844	13040 - 5419	13040 - 1800	13040 - 5421	13040 - 5339	13040 - 5355	13040 - 5377
13040 - 1879	13040 - 1924	13040 - 1837	13040 - 1854	13040 - 1861		13040 - 1731			13040 - 1845	13040 - 5420	13040 - 1818	13040 - 5427	13040 - 5340	13040 - 5356	13040 - 5383
13040 - 1885	13040 - 1925	13040 - 1840	13040 - 1856	13040 - 1892		13040 - 1737			13040 - 1846		13040 - 1820	13040 - 5436	13040 - 5341	13040 - 5363	13040 - 5396
13040 - 1886	13040 - 1927	13040 - 1841	13040 - 1862	13040 - 1956		13040 - 1738			13040 - 1868		13040 - 1822	13040 - 5445	13040 - 5342	13040 - 5364	13040 - 5400
13040 - 1887	13040 - 1928	13040 - 1848	13040 - 1864			13040 - 1739			13040 - 1871		13040 - 1826	13040 - 5447	13040 - 5344	13040 - 5369	13040 - 5405
13040 - 1888	13040 - 1930	13040 - 1849	13040 - 1869			13040 - 1740			13040 - 1882		13040 - 1834	13040 - 5449	13040 - 5345	13040 - 5379	13040 - 5434
13040 - 1889	13040 - 1931	13040 - 1852	13040 - 1876			13040 - 1748			13040 - 1890		13040 - 1855	13040 - 5450	13040 - 5346	13040 - 5380	13040 - 5441
13040 - 1891	13040 - 1932	13040 - 1916	13040 - 1881			13040 - 1764			13040 - 1912		13040 - 1874	13040 - 5452	13040 - 5349	13040 - 5391	13040 - 5471
13040 - 1893	13040 - 1933	13040 - 1920	13040 - 1900			13040 - 1768			13040 - 5322		13040 - 1875	13040 - 5455	13040 - 5350	13040 - 5393	
13040 - 1894	13040 - 1934	13040 - 1941	13040 - 1901			13040 - 1770			13040 - 5327		13040 - 1878	13040 - 5456	13040 - 5351	13040 - 5394	
13040 - 1895	13040 - 1935	13040 - 1944	13040 - 1904			13040 - 1771			13040 - 5334		13040 - 1897	13040 - 5458	13040 - 5352	13040 - 5395	
13040 - 1896	13040 - 1936	13040 - 1949	13040 - 1908			13040 - 1772			13040 - 5337		13040 - 1905	13040 - 5460	13040 - 5353	13040 - 5402	
13040 - 1898	13040 - 1937		13040 - 1909			13040 - 1773			13040 - 5348		13040 - 1906	13040 - 5463	13040 - 5354	13040 - 5403	
13040 - 1899	13040 - 1938		13040 - 1911			13040 - 1804			13040 - 5446		13040 - 1923	13040 - 5464	13040 - 5357	13040 - 5404	
13040 - 1903	13040 - 1939		13040 - 1921			13040 - 1833			13040 - 5448		13040 - 1946	13040 - 5473	13040 - 5358	13040 - 5406	
	13040 - 1940		13040 - 1926			13040 - 1858			13040 - 5451		13040 - 5370		13040 - 5359	13040 - 5407	
	13040 - 1942		13040 - 1948			13040 - 1907			13040 - 5465		13040 - 5392		13040 - 5360	13040 - 5408	
	13040 - 1943		13040 - 1952			13040 - 1945					13040 - 5410		13040 - 5366	13040 - 5411	
	13040 - 1954		13040 - 1953			13040 - 1961					13040 - 5424		13040 - 5367	13040 - 5412	
	13040 - 1955		13040 - 1958			13040 - 5323					13040 - 5430		13040 - 5368	13040 - 5415	
	13040 - 1957		13040 - 1959			13040 - 5326					13040 - 5433		13040 - 5372	13040 - 5417	
	13040 - 1960					13040 - 5328							13040 - 5374	13040 - 5422	
						13040 - 5361							13040 - 5375	13040 - 5423	
						13040 - 5362							13040 - 5384	13040 - 5425	
						13040 - 5371							13040 - 5385	13040 - 5426	
						13040 - 5373							13040 - 5388	13040 - 5428	
						13040 - 5376							13040 - 5389	13040 - 5432	
						13040 - 5378							13040 - 5397	13040 - 5437	
						13040 - 5386							13040 - 5398	13040 - 5440	
						13040 - 5387							13040 - 5399	13040 - 5459	
						13040 - 5390							13040 - 5401	13040 - 5466	
						13040 - 5409							13040 - 5413		
						13040 - 5443							13040 - 5414		
						13040 - 5444							13040 - 5418		
						13040 - 5454							13040 - 5431		
						13040 - 5457							13040 - 5435		
						13040 - 5462							13040 - 5438		
						13040 - 5474							13040 - 5442		
						13040 - 5475							13040 - 5453		
													13040 - 5461		
													13040 - 5467		
													13040 - 5468		
													13040 - 5469		
													13040 - 5470		
													13040 - 5472		
													13040 - 5476		
													13040 - 5477		

PHASE 1 SCA GEOTEXTILE FABRIC PANEL ROLL NUMBERS TABLE

SCALE: NOT TO SCALE

NOTICE:
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PER: DDS DATE: 6/20/12

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	RECORD DRAWING	6/20/12	JTS	DDS	

DRAWN BY: JTS	DATE: 6/20/12
CHECKED BY: DDS	DATE: 6/20/12
APPROVED BY:	DATE:
PROJECT MGR.:	DATE:

SEAL: STATE OF NEW YORK — DAVID D. STEELE — LICENSED PROFESSIONAL ENGINEER — No. 082293

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560
JOB: 444853
WBS:

PROJECT TITLE: **Honeywell**
ONONDAGA LAKE
SCA CIVIL-GEOTECHNICAL DESIGN
SYRACUSE, NEW YORK

DRAWING TITLE: PHASE 1 SCA GEOTEXTILE INSTALLATION SHEET 2 OF 2

SCALE: NO SCALE

DRAWING NO.: 444853-100-C-902 REV.: A

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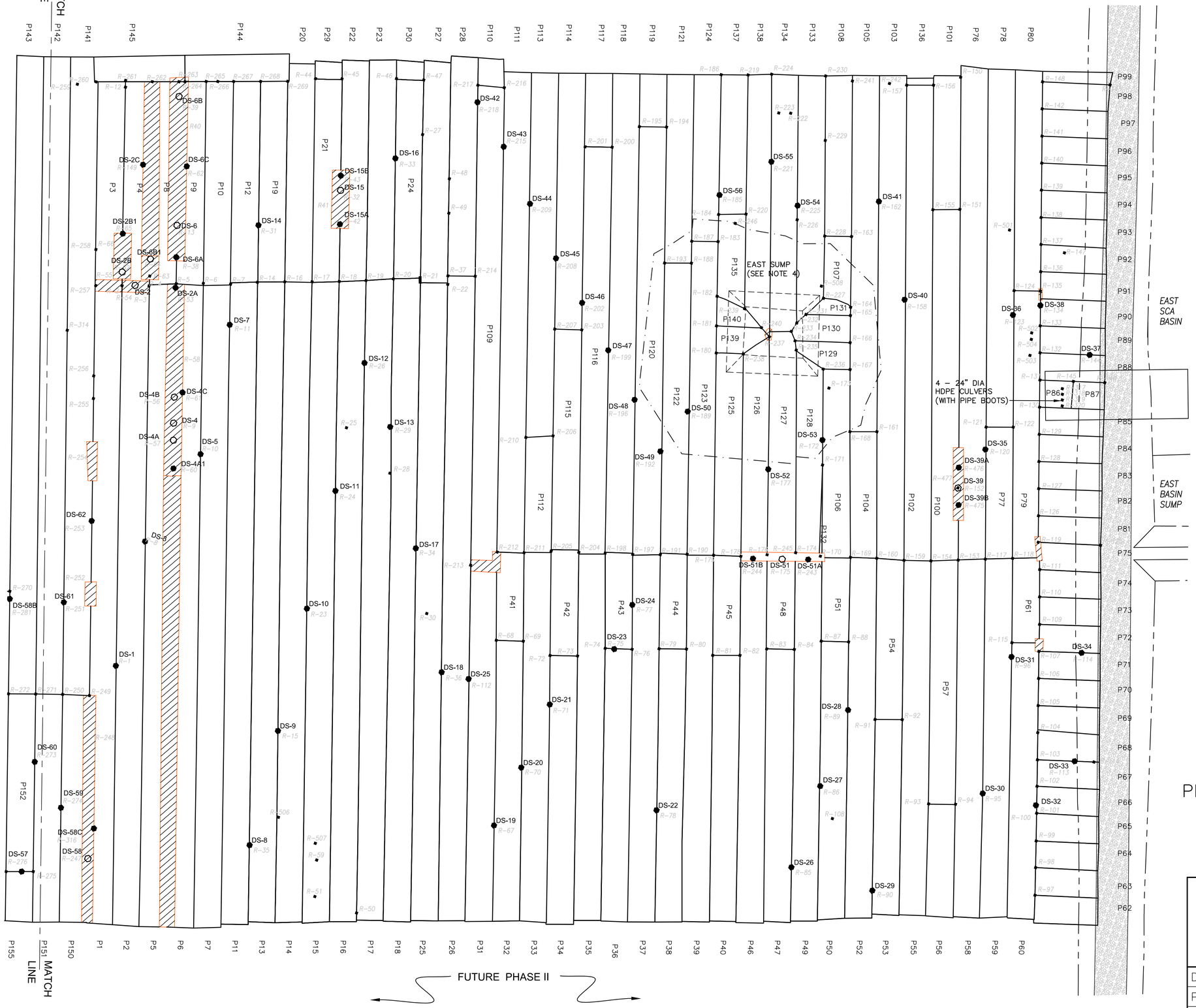
FILE NAME: P:\HONEYWELL -SYR\444853 - LAKE DETAIL DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN_TASK 100 SCA CIVIL-GEOTECH DESIGN\CIVL\PARSONS RECORD DRAWINGS\SCA GEOTEXTILE\444853-100-C-902.DWG
PLOT DATE: 6/20/2012 2:35 PM PLOTTED BY: SIVALIA, JACK

Geomembrane Panel Layout and Seam Repair/Destructive Sample Location Drawings



N

0 40' 80'
SCALE IN FEET

LEGEND

- P3 — GEOMEMBRANE PANEL
- R-1 — PATCH REPAIR
- DS-1 — DESTRUCTIVE SAMPLE (PASS)
- DS-2 — DESTRUCTIVE SAMPLE (FAIL)
- CAPPED SEAM
- LINER SEAM
- TOE OF SLOPE
- SUMP LOCATION BOUNDARY
- GEOSYNTHETIC CLAY LINER LIMITS (SEE NOTE 4)
- EXTRUSION WELD

NOTES:

1. PANEL LOCATIONS BASED ON FIELD SURVEYS CONDUCTED BY PARSONS FIELD PERSONNEL USING GLOBAL POSITION SYSTEM (GPS) DURING THE INSTALLATION (WITH THE EXCEPTION OF REPAIR NOs. XX AND XX WHICH ARE APPROXIMATE). PANELS ARE SHOWN AS MEASURED BY THE SURVEY (I.E. TWO DIMENSIONS).
2. ALONG THE PERIMETER, A SACRIFICIAL GEOMEMBRANE WAS INSTALLED OVER THE CUSHION GEOTEXTILE. THE GEOMEMBRANE FLAP WAS EXTRUSION WELDED ALONG THE NORTHERN BOUNDARY.
3. THE EAST AND WEST PORTIONS OF THE GEOMEMBRANE WERE TERMINATED IN AN ANCHOR TRENCH AND BACKFILLED.
4. A GEOSYNTHETIC CLAY LINER (GCL) WAS INSTALLED ADJACENT TO AND IN THE TWO SUMP AREAS.
5. DESTRUCTIVE SEAM SAMPLES WERE REPAIRED BY EXTRUSION WELDING A CAP/PATCH. AS PART OF THE FAILING DESTRUCTIVE REPAIRS, (I) DESTRUCTIVE SEAM SAMPLE NO. 2 IS BOUNDED BY DS2–B1 ON THE BEFORE SIDE AND DS2–A ON THE AFTER SIDE; (II) DESTRUCTIVE SEAM SAMPLE NO. 4 IS BOUNDED BY DS2–B1 ON THE BEFORE SIDE AND DS4–A1 ON THE AFTER SIDE; AND (III) DESTRUCTIVE SEAM SAMPLE NO. 6 IS BOUNDED BY DS4–A1 ON THE BEFORE SIDE AND DS6–A ON THE AFTER SIDE.

PHASE I GEOMEMBRANE PANEL DRAWING
ONONDAGA LAKE SEDIMENT CONSOLIDATION AREA
CAMILLUS, NEW YORK

Geosyntec consultants

ACTON, MA

DATE:	2012 FEB	SCALE:	AS SHOWN
PROJECT NO.	GJ4706B	FILE NO.	
DOCUMENT NO.	12 GJ4706	FIGURE NO.	1 of 2

T:\PROJECTS_CASD\O\ONONDAGA_LAKE\DWG\2012.01.31 AS-BUILT PANEL

WEST SCA BASIN

WEST BASIN SUMP

BASIN BERM

4 – 24" DIA HDPE CULVERS (WITH PIPE BOOTS)

WEST SUMP (SEE NOTE 4)

MATCH LINE

MATCH LINE

FUTURE PHASE II

N

0 40' 80'
SCALE IN FEET

LEGEND

- P3 — GEOMEMBRANE PANEL
- R-1 — PATCH REPAIR
- DS-1 — DESTRUCTIVE SAMPLE (PASS)
- DS-2 — DESTRUCTIVE SAMPLE (FAIL)
- CAPPED SEAM
- LINER SEAM
- TOE OF SLOPE
- SUMP LOCATION BOUNDARY
- GEOSYNTHETIC CLAY LINER LIMITS (SEE NOTE 4)
- EXTRUSION WELD

NOTES:

1. PANEL LOCATIONS BASED ON FIELD SURVEYS CONDUCTED BY PARSONS FIELD PERSONNEL USING GLOBAL POSITION SYSTEM (GPS) DURING THE INSTALLATION (WITH THE EXCEPTION OF REPAIR NOs. XX AND XX WHICH ARE APPROXIMATE). PANELS ARE SHOWN AS MEASURED BY THE SURVEY (I.E. TWO DIMENSIONS).
2. ALONG THE PERIMETER, A SACRIFICIAL GEOMEMBRANE WAS INSTALLED OVER THE CUSHION GEOTEXTILE. THE GEOMEMBRANE FLAP WAS EXTRUSION WELDED ALONG THE NORTHERN BOUNDARY.
3. THE EAST AND WEST PORTIONS OF THE GEOMEMBRANE WERE TERMINATED IN AN ANCHOR TRENCH AND BACKFILLED.
4. A GEOSYNTHETIC CLAY LINER (GCL) WAS INSTALLED ADJACENT TO AND IN THE TWO SUMP AREAS.

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PROJECT NO.	GJ4706B	FILE NO.	
DOCUMENT NO.	12 GJ4706	FIGURE NO.	2 of 2

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