

Notice of Completion of Closure

Hoot Lake Plant Ash Landfill

Introduction

The purpose of this document is to comply with the notification and certification requirements for coal combustion residual (CCR) facility closure pursuant to 40 CFR Part 257.102(h) stating:

Within 30 days of completion of closure of the CCR unit, the owner or operator must prepare a notification of closure of a CCR unit. The notification must include the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority as required by § 257.102(f)(3). The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(8).

Completion of Closure

During the summer of 2023, Otter Tail Power Company (Otter Tail) completed final closure of the CCR Ash Landfill located at Hoot Lake Plant at 1012 Water Plant Road in Fergus Falls, MN. Onsite construction activities were completed on September 20, 2023. A preliminary Notice of Completion of Closure was posted to the public website on October 16, 2023 while the Construction Documentation and Certification Report was under preparation and review.

The Construction Documentation and Certification Report, prepared by Carlson McCain, was submitted to the Minnesota Pollution Control Agency (MPCA) on November 20, 2023 and approved by the MPCA on January 25, 2024. The Construction Documentation and Certification Report is also attached to this notice.

Deed Notation § 257.102(i)

On January 10, 2024, Otter Tail recorded a notation on the property deed in accordance with § 257.102(i). The notation was also placed in the CCR operating record.

Commencement of Post Closure care Period § 257.104

In alignment with the MPCA's date for initiation of the state post-closure care period, the CCR 30-year post closure care period began on January 11, 2024.

Notifications

The following notifications and recordkeeping requirements required by the federal CCR Rule have been completed:

- § 257.102(h): Completion of a notification that the closure completion certification has been placed in the operating record.
- § 257.105(i)(8): Placement of the closure completion certification in the operating record.
- § 257.105(i)(9): Placement of the deed notation in the operating record.
- § 257.106(i)(8): Notification to the State Director that the closure completion report has been placed in the operating record.
- § 257.107(i)(8): Placement of the notification of closure completion certification on the CCR Rule Compliance Data and Information Website.

PE Certification § 257.102(f)(3)

Consulting Engineer: Carlson McCain, Inc.

I hereby certify that the final cover system of the Hoot Lake Plant CCR Landfill has been designed to meet the requirements of § 257.102(d)(3) and has been constructed in accordance with the written CCR Closure Plan. I certify that I am a duly licensed professional engineer under the laws of the State of Minnesota.

Carl M. Vakmir	January 30, 2024
Paul M. Vukonich, P.E.	Date
License No. 50857	
Owner: Otter Tail Power Company	
I Right	January 30, 2024
Daniel J. Riggs, P.E.	Date
License No. 49559	

215 South Cascade Street PO Box 496 Fergus Falls, Minnesota 56538-0496 218 739-8200 www.otpco.com Be: MT/PV/JH/Env. File F.10.B Webtop: solid waste/mgmt./construction/hoot lake/2023 landfill capping Dan Riggs <pdf copy>



November 20, 2023

Submitted electronically via email to: joseph.p.miller@state.mn.us

Mr. Joseph P. Miller Resource Management and Assistance Division Minnesota Pollution Control Agency 520 Lafayette Road St. Paul, MN 55155

Dear Mr. Miller:

SUBJECT:

OTTER TAIL POWER COMPANY

ELECTRONIC CONSTRUCTION CERTIFICATION REPORT FOR

HOOT LAKE PLANT INDUSTRIAL SOLID WASTE LANDFILL SW-211

Accompanying this letter is a pdf file containing an electronic copy of the construction certification report for the 2023 Cell 2 Final Closure construction project at the Otter Tail Power Company Hoot Lake Plant facility in Fergus Falls, MN. This project closed the last remaining open area of the landfill, and the facility no longer accepts waste. The report is submitted for your review and approval.

Otter Tail expects that upon approval of this construction documentation report, the facility will commence its post-closure care period. Once MPCA approves the enclosed report, Otter Tail will proceed with recording a notation on the property deed to include the landfill feature.

A hard copy or electronic copy on CD can be mailed to your attention upon request.

If you have any questions concerning the report, please contact me at (218) 739-8349.

Sincerely,

Paul Vukonich

Manager, Environmental Services

Enclosure

AN OTTERTAIL COMPANY

CONSTRUCTION CERTIFICATION REPORT

Final Closure Otter Tail Power Hoot Lake Ash Landfill Fergus Falls, Minnesota MPCA Solid Waste Permit No.: SW-211 Carlson McCain Project No.: 4946-05

Prepared for:



Otter Tail Power Company 1012 Water Plant Road Fergus Falls, Minnesota, 56537

November 17, 2023



15650 36TH AVENUE N, SUITE 110 PLYMOUTH, MN 55446

TEL 952,346,3900 FAX 952,346,3901

CARLSONMCCAIN.COM -

ENGINEERING \ LAND SURVEYING \ ENVIRONMENTAL

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Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

CERTIFICATION Final Closure Construction MPCA Permit No. SW-211 Otter Tail Power

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Brannon L. Peterson, P.E.

Date: November 17, 2023 License No.: 58910

1.0 INTRODUCTION

This report presents the results of field observations and testing work performed during construction of the 2023 Final Closure Project (Project) at the Otter Tail Power (OTP) Hoot Lake Ash Landfill (Landfill). Approximately 3.75 acres of open area was capped on the Landfill over portions of the West Phase and Cell 2 to close the Landfill. The construction consisted of subgrade preparation, geomembrane liner installation, granular drainage material placement, borrow source excavation, rooting soil placement, topsoil placement, stormwater runoff control system construction, and turf establishment.

The following companies provided construction services to complete the Project:

<u>Company</u> <u>Activity or Products</u>

Carlson McCain, Inc. (Carlson McCain) Design, QA/QC

Veit & Company, Inc. (Veit) Earthwork (Prime Contractor)

Global Containment Solutions, LLC. Geomembrane Installation (Subcontractor to Veit)

(GCS)

Skaps Industries, Inc. (Skaps) Geomembrane Manufacturer

Soil Engineering Testing, Inc. (SET)

Soil Testing (Subcontractor to Carlson McCain)

Neaton Brothers Erosion, Inc.

Seeding and Turf Restoration (Subcontractor to

(Neaton Brothers) Veit)

Final Cover construction began on June 26, 2023. Construction observation was performed by Carlson McCain during key activities of the project and consisted of observing and recording activities of the prime contractor and subcontractors, answering questions, and interpreting information contained in the Drawings and Specifications as requested by the contractor, and directing testing and quality control activities performed by independent testing firms and construction subcontractors. Full-time construction observation was performed for all final cover geomembrane installation.

Construction was performed in accordance with MPCA Permit No SW-211, and "Technical Specifications 2023 Final Cover Construction", prepared by Carlson McCain, Inc. dated January 2023. Deviations from the Technical Specifications and Drawings are noted on the enclosed Record Drawings and are described in the following sections of this report.

Notation of Final Closure of the Landfill will be made on the Deed for the property filed with Otter Tail County and will be submitted to the MPCA in an addendum to this report. Deed

Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

Notation will include a Closure Record and construction documentation for the Landfill and carry the County Recorder's seal. The Closure Record shall detail an estimate of waste disposed in the Landfill, that the land has been used as a CCR unit, including other land use of the property, that land use is restricted under the post-closure care requirements as provided by Code of Federal Regulations § 254.104(d)(1)(iii), and a survey plat of the site prepared and certified by a land surveyor registered in Minnesota.

2.0 CONSTRUCTION MATERIALS AND METHODS

The following paragraphs provide general descriptions of materials and methods used during construction. Reference should be made to the Technical Specifications for more detailed information on the construction materials. Construction was completed as shown in the Construction Photographs in Appendix A and the Record Drawings in Appendix F.

2.1 Subgrade Preparation

To begin subgrade preparation for final cover construction, ash was excavated using an excavator and GPS dozer and was re-placed where fill was needed to achieve the permitted liner grades. Where ash was at liner grades, the ash was over-excavated at least 12 inches. Where additional fill was needed to reach liner grades, common fill was excavated from onsite borrow, hauled to the project area by off-road haul trucks, spread with a GPS dozer in 12-inch loose lifts, and compacted with a vibratory smooth drum roller. At least 12 inches of buffer soil was placed over all ash to protect the final cover geomembrane. At liner grades, rocks larger than 3 inches were removed by hand. The subgrade was then smoothed by back dragging with a skid-steer and rolled with a smooth-drum roller, providing a uniform surface prior to liner deployment.

An excavator exposed the edge of existing final cover geomembrane along the tie-in. A laborer worked with the excavator to remove the plywood markers used to protect and identify the edge of the existing geomembrane. The laborer hand-shoveled any remaining soils left on the existing geomembrane. The subgrade was then surveyed with GPS equipment to verify the subgrade was within tolerance of the permitted grades. The geomembrane installers inspected the subgrade prior to deployment of the geomembrane and confirmed the subgrade was acceptable by signing the Subgrade Acceptance Forms included in Appendix C. Subgrade preparation activities are shown in Photos 1 and 2 in Appendix A.

2.2 LLDPE Geomembrane Liner

Final cover liner was installed directly over the buffer layer and consisted of 40-mil textured linear-low density polyethylene (LLDPE) geomembrane. Geomembrane was manufactured by Skaps and was delivered to the site in 24-foot wide by 715-foot-long rolls. Manufacturer's quality control certificates for the geomembrane rolls are included in Appendix C. The rolls were inspected upon arrival to ensure the roll numbers matched the manufacturer's certifications and to verify they were not damaged.

Rolls were deployed using a skid-steer equipped with a spreader bar. The skid-steer either lifted the roll at the base of the Project Area then backed up to deploy the panels or sat on the top of the slope while the geomembrane was pulled downslope by hand by the liner crew. Laborers worked alongside the roll being deployed to align the panel, remove wrinkles, and secure the panels in-place with sandbags.

Deployment started on the south half of the project area, then progressed westward and then northward to cover all open area of the landfill. Adjacent LLDPE panels were seamed together

Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

using a dual-wedge fusion welder whenever possible. Patches, seams, and boots that could not be wedge welded, were extrusion welded. One pipe penetration boot was installed on the final cover liner for the cleanout pipe located on the west side of the landfill.

The tie-in to existing final cover was wedge welded where practical. The final cover termination along the toe of the slope was extrusion welded to the existing primary 60-mil high density polyethylene (HDPE) base liner, as noted in the Record Drawings in Appendix F.

LLDPE geomembrane seam testing and quality control is discussed in Section 3.2. Panel orientation, panel number, seam, destruct, and repair locations are shown on the As-built Panel Layout Drawings in Appendix C. Geomembrane installation is shown in Photos 3 through 10 in the Construction Photo Log in Appendix A.

2.3 Granular Drainage Material

The drainage sand used for the final cover project was hauled in from offsite. Source and inplace material testing of the granular drainage material was conducted as described in Section 3.4 to confirm the material met project specifications. Testing showed the material had a few small, rounded rocks larger than 3/8-inch diameter. All granular drainage material passed the 1/2-inch sieve and greater than 99% of material passed the 3/8-inch sieve. Because this was a small deviation from specification, the rocks were rounded, and the final cover will not have additional pressure after construction, the material was approved for use by the Engineer.

Granular drainage material hauled to the site was stockpiled, then loaded into off-road trucks and dumped on the final cover area. Drainage material was placed in minimum 3-foot-thick lifts on haul roads utilized by trucks driving over the geomembrane. A dozer utilizing GPS equipment then spread the material over the geomembrane by rolling it off the edge of previously placed material in a single 1-foot-thick lift. Granular drainage material was spread upwards from the bottom of the final cover area to prevent wrinkling and damage to the geomembrane.

Granular drainage material thickness was verified using GPS survey equipment as described in Section 3.1. Additionally, thickness at random locations was checked by the spotter working alongside the dozer, who dug down to the geomembrane with a square-nosed shovel and measured the thickness of the placed layer. The drainage layer was fine-graded and verified to be within the specified thickness tolerance prior to placement of overlying layers.

To drain infiltrated stormwater over the final cover, 4-inch draintile with filter sock was also installed on top of the geomembrane along the toe of the stormwater berm and around the edges of final, as shown in the Record Drawings in Appendix F. Granular drainage layer placement is shown in Photos 11 and 12 in Appendix A.

2.4 Rooting Soil

After placement of the granular drainage material, rooting soil was placed on the final cover. Rooting soil was obtained from borrow on the southeast side of the Landfill and spread 1-foot thick by the dozer equipped with GPS. Rooting soil was placed thicker on the upper portion of

Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

the cap to construct the stormwater berm, as shown in the Record Drawings in Appendix F. Thickness was verified as discussed in Section 3.1.

2.5 Site Restoration

Final cover topsoil was placed in a single lift following placement and thickness verification of the previous layers. There was not enough topsoil in stockpile onsite and in borrow to complete the project, so some topsoil was imported to the site. Imported topsoil was tested as described in Section 3.4.3. To place the topsoil for the final cover, material was pushed directly upslope or hauled onto the final cover with off-road tucks. After dumping the topsoil on the final cover area, a dozer utilizing GPS spread the material in a single 6-inch lift. Compaction of the topsoil layer was restricted to the least extent possible to place and grade the layer. Additional topsoil berms were placed on the north and south sides of the landfill to direct stormwater as shown in the Record Drawings in Appendix F. Final thickness verification was completed as described in Section 3.1.

Stabilization of all disturbed areas was completed by September 22, 2023. Site stabilization includes seeding with, dormant mixture, and fertilizer, dragging, and covering the soil with erosion control blanket or mulch according to the Specifications and Drawings. Erosion control blanket was installed on all slopes greater than 10% and was stapled in-place. Areas flatter than 10% grade were mulched. A stormwater ditch draining to the north and south of the landfill was covered with turfmat to prevent scouring. A road crossing as well as a rip rap plunge pool were placed on the south side of the stormwater ditch. The road crossing consisted of rock ballast from onsite rock sources, graded to drain across the landfill access road. The rip rap plunge pool consisted of MNDOT Class 3 rip rap underlain by 8-ounce non-woven geotextile and was installed at the base of the south ditch for energy dissipation.

Additionally, topsoil was placed over a depression on the top of the existing final cover to drain stormwater and additional area was seeded and blanketed on the north slope of the landfill where vegetation was sparse, as shown in the Record drawings in Appendix F. Information on seeding and stabilization measures is included in Appendix E. Topsoil placement and site restoration is shown in Photos 13 through 17 in Appendix A.

3.0 TESTING AND QUALITY CONTROL

Carlson McCain on-site personnel coordinated and observed testing and quality control activities performed by independent testing firms and subcontractor internal CQA technicians. Testing and quality control procedures and results are presented below.

3.1 Surveying and Material Thickness Verification

Calson McCain completed all survey and grade verification using GPS equipment. Earthwork verification surveying included survey shots at grade breaks and on a 100-foot grid on the liner subgrade, the top of granular drainage material layer, top of rooting soil layer, and at the finished grade (top of topsoil layer) within the Project area. Survey shots were repeated over the established grid points to verify material thicknesses. Construction staking was completed by the contractor, using their own GPS equipment and personnel to verify material thickness as needed.

Additional GPS survey shots were taken during final cover construction for as-built records. These survey shots included: berm breaklines, flowlines, and locations of restoration activities. Complete survey data is contained in Appendix B.

3.2 LLDPE Geomembrane Testing and Quality Control

All geomembrane installation was performed with construction oversight by a dedicated, CQA technician from GCS and an on-site field engineer from Carlson McCain. Construction testing and quality control activities for installation of the composite final cover liner included the following:

- reviewing panel/roll and resin certifications from the manufacturer
- inspecting and accepting of subgrade surface upon which composite liner was installed
- preparing and testing pre-seaming trial welds
- observing panel/roll deployment, placement/positioning, and seaming
- performing non-destructive testing of all seams
- performing destructive testing of seams
- observing and non-destructively testing patches and repairs

Prior to delivery of the LLDPE geomembrane to the site, the manufacturer submitted precertification documentation for properties of the rolls to be used on the Project, as required by the Specifications. The roll certifications are included in Appendix C. The subgrade was inspected and approved for installation of liner by GCS prior to deployment. The Subgrade Acceptance Form is included in Appendix C.

Pre-seaming trial seams were prepared at the beginning of each seaming period with each piece of seaming equipment by the corresponding operator. Generally, there were two seaming periods on each day that seaming was performed (morning and afternoon). One-inch-wide

Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

coupons were cut out of the trial seams and tested on-site by the geomembrane installer, under observation by Carlson McCain personnel, for mechanical seam strength (shear and peel) using a calibrated tensiometer. All trial seams met the minimum required seam strengths of 60 pounds per inch (lbs/in) for shear and 50 lbs/in for peel of split-wedge-welded seams, and 60 lbs/in for shear and 44 lbs/in for peel of extrusion-welded seams. Trial seam tests are reported on the Trial Weld Forms included in Appendix C.

All seams were non-destructively tested for leaks using either the air-channel test for dual-wedge welded seams or the vacuum box test for extrusion welded seams. Non-destructive testing was completed until each seam achieved passing results; any leaks found through non-destructive testing were repaired and re-tested. Non-destructive testing is included on the Panel Seaming Forms and Repair Forms in Appendix C.

Destructive seam tests were performed on samples taken randomly from seams in the installed geomembrane. Carlson McCain marked destructive samples at a rate of one sample per 500 lineal feet of seam and walked over every seam of the final cover geomembrane. A total of 13 destructive seam samples were marked and tested. The destructive seam samples were tested on-site by the geomembrane installer, under observation by Carlson McCain personnel, for shear and peel strength using a calibrated tensiometer. All seam destructive testing passed in accordance with the Technical Specifications and results are recorded on the Destructive Testing Forms included in Appendix C.

Repairs at seam joints, seam burnouts, rips, tears, or other holes in the geomembrane were mended by extrusion welding a geomembrane patch or cap over damaged areas. Small punctures or manufacturer deformities in the geomembrane were repaired by placing an extrusion bead over damaged areas. All patches, caps, and beads were vacuum tested to verify that the repairs did not leak. Repairs to the geomembrane liner are noted on the As-built Panel Layout Drawing and Repair Forms included in Appendix C.

The 40-mil textured LLDPE geomembrane was installed and tested in conformance with the Technical Specifications. The geomembrane installer's As-built Panel Layout Drawing, Subgrade Acceptance Forms, Tensiometer Calibration Certificate, and Quality Control Reports are included in Appendix C.

3.3 Soil Testing

SET performed soil-testing activities on granular drainage material, and topsoil for the project. Granular drainage material testing included soil classification, grain size analysis, and permeability analysis. Topsoil testing included analyses of grain-size. Topsoil samples were also sent to the University of Minnesota Soils Testing Laboratory for organic matter, pH, and fertilizer recommendation.

3.3.1 Granular Drainage Material

Imported granular drainage material was tested at stockpile locations on-site and once placed throughout the duration of the project. Source and in-place sampling included hydraulic conductivity analysis to determine permeability and particle size analysis to determine maximum particle size, percent passing the No. 200 sieve, and uniformity coefficient for the drainage material. Approximately 7,000 cubic yards of granular drainage material was placed over the 3.75 acre project, requiring four source hydraulic conductivity tests (1 test per 2,000 cubic yards), two source particle size tests (1 test per 5,000 cubic yards), four source soil classification and descriptions (1 test per 2,000 cubic yards), four in-place hydraulic conductivity tests (1 test per acre), and four in-place particle size tests (1 test per acre) according to MPCA guidance. Samples were taken at the rates listed above, note four source particle size tests were taken (exceeding requirements) to obtain the required number of soil classifications and descriptions. All samples met the Specifications for minimum permeability of 1.0 x 10-2 centimeters per second, uniformity coefficient less than 6.0, and no more than 5% passing the No. 200 sieve. All samples had 100% passing the 1/2-inch sieve, but several samples did not meet the particle size requirement of 100% passing the 3/8-inch sieve. Greater than 99% of the granular drainage material passed the 3/8-inch sieve though, and the rocks retained on the 3/8inch sieve were round in nature. Due to the low variance (less than 1% difference) from Specifications and round nature of the rocks, it was concluded the material would not harm the final cover geomembrane and was deemed acceptable by Carlson McCain for granular drainage material. Test results for granular drainage material are summarized in Table 1. Complete results are included in Appendix D for all granular drainage material testing.

3.3.2 Topsoil

Onsite topsoil has been shown to support vegetation, but because additional topsoil had to be imported for the project, the imported material was tested to determine suitability and fertilizer recommendations. Topsoil testing included analyses of particle size, organic matter, and pH, and was completed according to MPCA guidance; one test was completed per requirements for the source material for particle size and soil classification and description, while three tests were completed to fulfill the minimum requirement for nutrient testing. The material met requirements for particle size but did show pH slightly higher than the recommended range. Fertilizing was completed according to recommendations from the University of Minnesota Soils Testing Laboratory at a rate of 0 lbs Nitrogen, 40 lbs Phosphorous, and 40 lbs Potassium and the topsoil was determined to be capable to support plant growth, so the slightly higher pH was approved by Carlson McCain. Topsoil testing is summarized in Table 2 and test results are included in Appendix D.

Construction Certification Report – Final Closure OTP Hoot Lake Ash Landfill

4.0 CONCLUSION

Construction of the 2023 Final Closure Project at the OTP Hoot Lake Ash Landfill has been completed in material conformance with the "Technical Specifications 2023 Final Cover Construction", prepared by Carlson McCain, Inc. dated January 2023, and in compliance with the requirements for notification, construction, materials, and testing contained in MPCA Permit No. SW-211. Final Closure of the OTP Hoot Lake Ash Landfill (SW-211) has been completed in accordance with the Closure Plan dated September 18, 2017, with MN Administrative Rules § 7035.2635 and with Code of Federal Regulations § 257.102(f)(3).

Tables

Table 1
Granular Drainage Material Testing Summary
2023 Hoot Lake Ash Landfill Final Closure
Otter Tail Power

Sample No.	Percent Passing 3/8 inch Sieve	Percent Passing No. 4 Sieve	Percent Passing No. 200 Sleve	USCS Soil Classification	Uniformity Coefficient	Constant Head Permeability (cm/sec)
			Source Tests			
S-1	100	100	0.1	SP	3.1	4.3 x 10-2
S-2	100	100	0,1	SP	3.0	4.5 x 10-2
S-3	99.7	99.7	0.3	SP	3.0	1.9 x 10-2
S-4	99.7	99.5	0.6	SP	2,9	1.9 x 10-2
Average	99.9	99.8	0.3	SP	3.0	3.2 x 10 ⁻²
			In-Place Tests			
P-1	99.6	98.7	0.6	SP	3.1	2.2 x 10-2
P-2	99.9	99.7	0.6	SP	3.1	1.7 x 10-2
P-3	99.7	99.4	0.5	SP	3.1	1.7 x 10-2
P-4	99.6	99.4	0.7	SP	3.3	1.8 x 10-2
Average	99.7	99,3	0.6	SP	3.1	1.9 x 10 ⁻²
Required	100	_	≤ 5.0	SP, SC, SM, SW-SM, SW-SC, SP-SM, SP-SC	≤ 6.0	≥ 1.0 x 10 ⁻³

Notes:

- 1. Source testing was completed from stockpiled material onsite.
- 2. Samples S-3, S-4, P-1, P-2, P-3, and P-4 have >99% Passing the 3/8 inch sieve; accepted by Engineer
- 3. See lab reports in Appendix D for additional information

Table 2

Topsoil Source Testing Summary 2023 Hoot Lake Ash Landfill Final Closure Otter Tail Power

Sample No.	Percent Passing 2 inch Sieve	Percent Passing No. 4 Sleve	Percent Passing No. 10 Sleve	Percent Passing No. 200 Sieve	USCS Soil Classification	Organic Matter	рН
T-1	100	96	95	74.5	CL.	-	-
HLP1	_		-	-		4.7	7.9
HLP2	_	_	-		-	4.5	8,0
HLP3		-	_	-		4.6	7.8
Average	100	96	95	75	CL	4.6	7.9
Guldance	100	-	≥90		SM, ML, SC, SC- SM, CL, ML, MH	-	6.1-7.5

Notes:

- 1. Source testing was completed from stockpiled material onsite.
- 2. Samples HLP1, HLP2, and HLP3 show pH slightly above recommended range, soil fertiliezed according to recommendation; accepted by Engineer
- 3. See lab reports in Appendix D for additional information

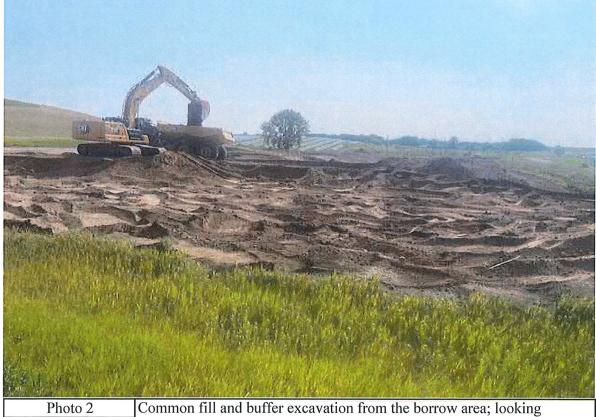
Appendix A – Construction Photographs

Hoot Lake Ash Landfill 2023 Final Closure



Photo 1 7/10/2023

Subgrade grading, looking northeast at landfill.

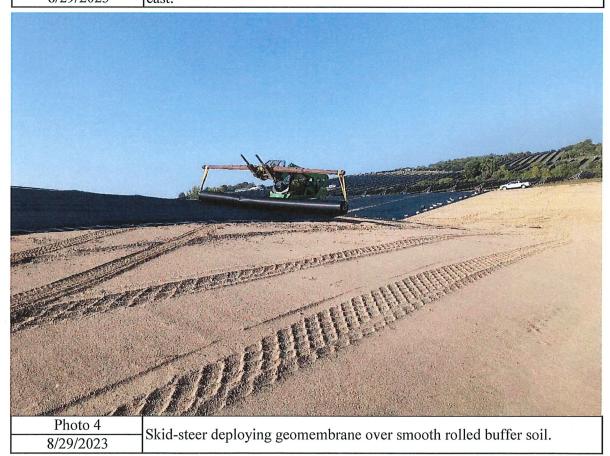


7/10/2023

Common fill and buffer excavation from the borrow area; looking southwest.

Hoot Lake Ash Landfill 2023 Final Closure



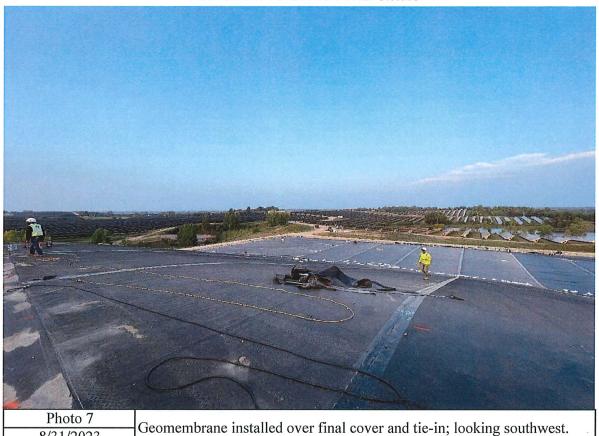


Hoot Lake Ash Landfill 2023 Final Closure





Hoot Lake Ash Landfill 2023 Final Closure





Construction Photographs Hoot Lake Ash Landfill 2023 Final Closure



Photo 9 8/31/2023

Vacuum tested repair of destruct sample location

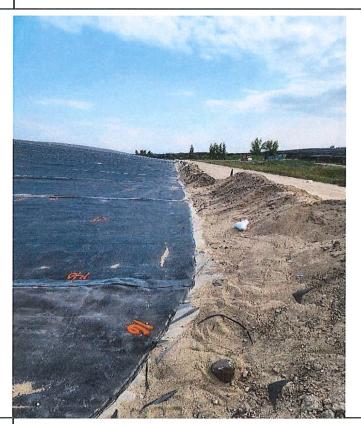


Photo 10 8/31/2023

Extrusion welded final cover geomembrane to base liner geomembrane.

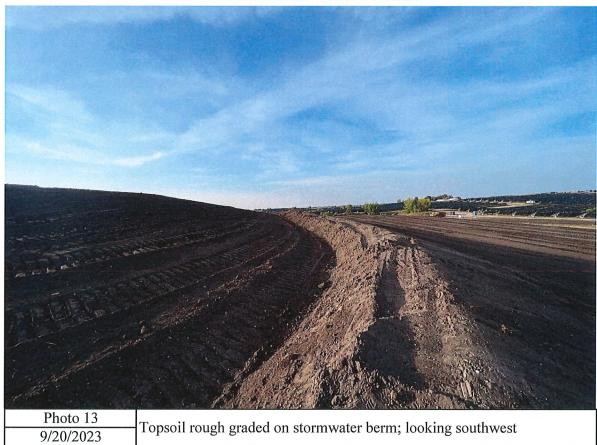






Photo 12 Granular drainage material placement over geomembrane on south slope; looking northeast.

Hoot Lake Ash Landfill 2023 Final Closure



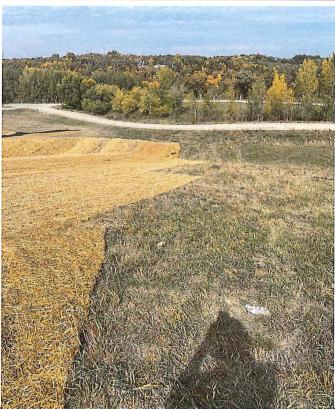


Photo 14 Erosion control blanket placed over final cover along north half of tie-in to existing liner; looking north.

Construction Photographs Hoot Lake Ash Landfill 2023 Final Closure



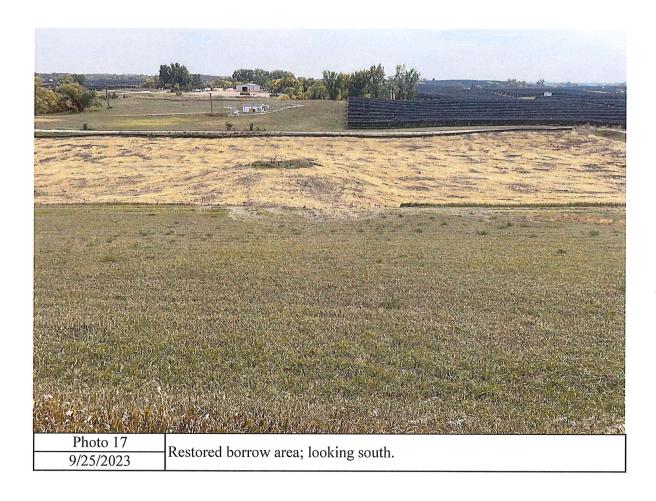
Photo 15 9/25/2023

Turf mat placed through north stormwater channel; looking south.



Photo 16 9/25/2023 Turf mat placed through south stormwater channel below landfill, rip rap plunge pool at base; looking south.

Construction Photographs Hoot Lake Ash Landfill 2023 Final Closure



Carlson McCain, Inc.

Appendix B – Survey Verification Data

Final Cover Survey Verification Tabulation Final Cover Survey Verification Figures

Final Cover Survey Verification Tabulation

Survey Verification Tabulation Hoot Lake Ash Landfill 2023 Final Closure Otter Tall Power

	Hee Gr	de Casign				A 6.0	Lipas Srada				at Gard's Dr	dy age (ayer		T		As but	North Late	her.		T		B-ts topsof i	Fyer		5-21	Makera	r
PART NA	Karding (2)	Earthy (%)	Permiss (0)	Karding (h)	Legentes	Elevation M	Dayston Offer tous been	Concerts	Print No.	Korkha (**)	To Bre tha	Estation (*)	County Crainings	Patricia	Karthing (h)	Linear (%)	Greature (%)	Pooting let	Carcanach				ĭ	Toposti	_	£	Continued to
							Design	,					Material Products (10	7,001,00	traduct 64	Tunt 62	TO STATE (19)	Principal (4)	Lancasacta	120	hardene (10	Funget (4)	En inter (cd	Thickness, No.	F-4	M. S. S.	ĺ
15:1	18 OTO	43140.H	1,720.15	164 (1) 17	415,650.54	L190.07	6.13		2001	195,432.75 195,432.15	413,577,74 413,550,54	TIPTA TIPTA	123	83	tta,cstr.	439.33	LURE	1.44	T4 in play	1001	164,426 74	CAPILL	219453	43.0	2.11	431	Тем
122	\$5,6334	42174139	1,720.11	164, 7130	01 7111		913		2012	15 013	43761.6	LZILIS	121		104,0150	415,751.23	121171 121121	147	CCU plate play	4002	164,731.6	413,650,07	11974	0.54	213	213	····
125	345, CU (4)	429.674.52	3,790 13	264,47E39	415,718.32		6.50		2004	196,432.04	C3 77.2.63	TRIG	14	3304	114, 433.99	61/319	121177	0.28	CCU think, play	#CC4	165,531.15	415.732.43	1,152.11	0.50	2.02	211	
1 100	24 (251)	43,56,51	1290.00 1210.33	166 C635	435,5413 435,54173		5.08 5.08		25% 25%	125 47113	431700	1,790,58	105	1025	12 02	43 54 5	1,77164	0 ls	CV feet also	40%	15,024	CIUMA	1,742.17	0.91	183	£51	
1007	\$54,197.35	433.71.33	1,237 49	155,67731	411,1:425		-0.26		2/2/7	144,117.53	411 (137	1,779.11	111	1357	12157-0	634 E74 17	1,0076	0.91	CO P EX SU	4938	18/53Th	6;4 F415	130037	CEZ	211	215	
1223	555,371.24	437313	1,721.00	1627.132	11.5 7(165	1,701 (1	6.01		2201	11111111	1,1743.77	1,774.10	\$19	102	\$84,171.2E	414.753.14	1,196.63	0.32		629	\$64,571.21	E176341	1,7711	0.55	222	235	
1212	154 34155	437313	121426	166 143 25	4(5 700 t) 4(5 560 j)	1,254,37	-0.11	Subgrada Live, place	2009 2012	16437022	423 542 34	1,294,27	107	3509	11 10 201	423,662,42	3,296.50	673		4501	164,309 00	CUTTO	127711	0.5)	301	2.13	
1211	154 154 158	13.53.00	1,141.14	124, K4 35	(13,545)	1,701.44	413	23,22,23	271	143617	43,633	1293.49	1.05	151	164 344 87	42130166	12513	0.EE		6 73	104,964.00	418,642 45 418,543 64	LEUR	0.51	201 2A2	125	ļ
1211	154,36430 164,36222	ET DIA	121200	BA MA CS	113,621.17	123147	-\$13		2712	16535406	(REAR)	1210.51	1.03	Ktt	164,313.00	423,638.09	175151	965		4712	168.363.31	413,635 17	1,234.16	0.55	323	117	
1216	B4.335.24	C1.01.33	13:751	154.162.02 154.157.04	423,631.54 434,825.87	1,500,05	6.31	Subgrada High at Ferin	2013 3014	155.35.74 155.10.23	4;33(152 4:3100.77	130134	132	1715	MANUTE IN COLUMN	415 A11 31	120125	141	God that, play	- C3	1727.0TG	41.00.11 41.00.71	rear	0.82	232	7.51	
1015	1473414	411,142.15	171114	194,131.73	415 895 22	1,313.23	C 29	action and the second	1013	145,114.76	4:1117.13	(31(3)	125	3773	154.518.67	415,522.37	13:13	L97	Tein olay	514	161.337.23	13 0513	1,41403	0.11	211	124	Samestar Jam
LETA .	16431144	43,163	17/424	\$87.11TT?	सम्बद्धाः		17.6		2024	194,313.33	42931555	(31143	1.09	1531	144,81274	421 845 71	List	6.52	111,127	4:15	164,313 64	C# 60 11	13:10	4.73	211	133	-
122	15,1711	613,763,14 613,175,22	1,333.00	264 342.54	413,717.87		0.06 -C.08		3017	16537117 16433026	425725	133139 12513	116	Eit.	101,000,00	419,911.54	Litria Litria	ES7		4212 4212	164 270 13	415,770.03	1,312.33	4.12	211	224	
Test .	365 239 53	63,03.61	121426	164 759 33	F-3,612.23	1,25115	-0.13	Suring made Line, colory	27.9	154,214.16	41),625.55	1.255.16	113	3235	104,799.11	4.3,423.43	12035	624		4213	164 222 07	C1 125.55	3,296.41	9.55	2.02	123	
\$224	Frt 144 12	441434	1300.00	EST EST	4151511	110135	-0.10		2000	ME ZHLU	42 (33)	1,54,69	104	3-23	161,251.03	CHETTA	13/158	638		4.3	15E754.17	419,573.43	130214	0.50	5.03	222	
1221	26 16 17	419,392.33	13374	164,247.71	49,EL9 49,EL9	F3771	100	Subgrade Love, et ay	232	1M.243.05	CHOIN	1,112,17	113	3,725 3,722	155,253.04	433,ESCH 431,ESCH	1307.44	1.51	Subgrada kon, chay	421L 452L	186,277.FL	CARL	133414	0.49	211	2.35	
1229	126 763 45	4:3.971.02	1,332.00	163.25231	(13,171.55	(Marci	004		223	183522	13 MA EI	1,123.37	133	1:21	165352-0	4772472	131177		SAFIG C., DY	4CZZ	HAZER I	61010	133431	634	111	227	Salgrade lov, olay
1224	164,210 87	CH TILES	TTLZ	(84.171.6)	419.781.56	L3:124	6,C2		2174	164,21434	425 741 67	1356.26	LU	3124	104 131 14	411,721.71		0.52	• • •	4024	\$44,250.03	41.7(143	132742	6.57	311	724	
1225	156,12975 154,224.40	E-2 E51 27	L255.20	FR 72.40	4(144527	135451	-0.07 0.03		224 224	144.729.41 184.723.55	#25,637.21 #12,637.21	130194 139733	124	3025 3224	167 1777	41 110 14		153	CON ONL OLD	4325	184 229 73	4:4 65°33	1,10758	0.33	2.62	7.25	(
1527	154,224.58	63577.25	12015	145,126.89	41137533	2,211111	-6 fri		227	130,224.79	425,17811	1251.54	117	322	162 319 33	421 573 34		45	654 6 a. day	43D	144,135 64	43817323	127030	0.13	221	7.07	
1231	(4.11.6) (4.11.6)	49,047	1,1-025	144.311.45	479 (7.2.59	1300	411		2.29	1967371-62	CS CLC	131917	1.09	100	194.201	CI (CIL)S	131173	63.0		C.18	165,21134	43122	TELL	0.46	241	140	
123	HA STYAR	4314235	1111.6	164,104.25 364,177.64	61)73 H	1,313.73	13.0		2029	16117.0	GANZE O	LESUE	122	100 A	154,139 19	413,E245 413,E234	1388 1334	1.56	Can thing and	400	104,155,24	43,03.0	TELE	0.66	211	7.23	
1211		2:5 703 34	ப்பக	165,173,51	431,753.23	\$2100	0 M		\$254	18/0774	137134	L\$11.50	136	1231	141,173,13	413,721,61	1,141.29	049	Court olay	635	(41.17.E)	423,972,63 413,776,37	131743	9.47 9.41	221	1.0	rea
1712	\$44,175.11 \$46,142.71	4(1)1101	111144	165 DATE	47128177	1,11155	-119	Subgrada Low allay	1712	154.174.54	13,113,01	2,324 17	122	1001	145,175.23	43.539.54	1,33534	117	Adjust began	4232	14212219	415,111.11	1,356 64	0.36	233		Lityrada low okry
1-137-1	365,141.87	43156	128754 129637	194.1013 194.1013	413,575.33	3,30700 3,300 PG	0.54 0.03		533	\$127.147.20 \$27.147.22	435375.14 4314.65.74	1,351.17	179	131	155,162.59 155,162.54	4035749	1,21534	0 45	COUNTY NATA	EH:	Tex 2023	4,5 573.43	1,73018	C44	2.02	323	
1231	£211123	625,713.77	731720	\$84,141CF	828 719.77	TTTCDE.	6.03		3015	164.161.21	437331	LULU	115	\$2.55 \$2.55	16K 161 00	SAMIN	EIILL	0.35	@veiken	433	156 111 04	413 1 6 42	111212	653	122	301	
128	36 DEL	CALAD	1,111.00	\$64,14163		DUG	43		±36	#AJJLH	*23,824.53	1kuh	712	124	161 141 14	411414		0.53		4035	166,131.76	43 L.641	1,17911	5.72	221	245	
158	25 1345	437EE	1312.00	124 124 15	4;1,8% f5 4;3,724 f5	Due	-0.33	SAgrada Line, edan	7317	164 (342)	425,804.16	1,313.14	131	130	165 134 77	413,793,99 413,793,34	1,3019	0.55		43)T	164,114.75	#1.750.ES	1,11434	4.13	111	227	
1:70	366 103.87	4:14:17	L209 33	154 173 #3	413 637 67	1325	0.00		7237	184,124.25	419,533.31	1,300.13	140	1.719	164 17134	C113213	1330.39	0.50		- 27)	155,1:3.16	613,727.20 63,632.79	13/11	0.57	141	242	
1140	166 170 71	418 571 76	130141	164,100,00	G3377.B	1200	64.5	~~~	k-o	191,1931	4357777	1,3tgaj	143	E-63	154,137.27	#11,379 7E	THE	0.14	CC42 skiek chry	4.5	161.132.23	4357.71	1203	0.54	321	235	
1347	Ter 02373	4:340:33	LENER	164,19313	433,93331 433,734,33	1,533,17	0.00	Subgrade kow, pkay	25-11 25-11	144,527.29	425,500.31 423,351.48	1,333.34	100	104	14,0214	(11,939.11) (22,937,11)	13037	130		643	144,551.41	43,252	TOTAL	0.57	211	235	
ita	254,C70,71	PECCALUL	133334	162 (452)	41111552	Lista	-311	Subgrada Low, eday	23	155,521.13	433,833.30	L1:434	131	300	151 00168	41124	1,11724	C40	S.Agrada love, play	60	144.00123	413 E3131	110/23	947	2.11	245	Literate levi, play
124	255,071.59 255 C73.59	414 72E 30	177210	155,172.47	455 722 23	1,5:0.01	0.01		2044	146.071.17	6322133	Unics	124	3044	144,077.18	4:1726 12	1,11150	0.53		4544	148,71144	419.724.74	1,31212	0.33	20	2 05	
154	25,03.53	CHEST	111474	165 271.75	614345	1,310.00	0.26 -0.13		E4	14(2)(2)	434417	Child	121	324	154 073 06	6.9.30} 41, 6.9.636.97	LIME2 LIMES	Q.59 Q.50		4345 A345	186 03488	E. 1. E. 2. 1.7	131244	0.17	21)	234	
1547	BH 013.13	411.775.11	1304.52	104 053 91	GATOLIA	722013	-0.27		2:47	CHETTRE	423 TOLES	1331.93	130	10	154,035 %	C17842	1327.47	0.52		4245	164 CSS 37	419,030 E4	1,377.05	0.17	241	111	
154	344,034.53 344,034.54	समामभ	103.0	164 (72) 37	ELITED.	TIRE!	-0.23		2:4	istica a	43,191.94	L317.57	156	1.4	164,029,67	OP4	1,31772	6.53		44	146,029.63	C3,577.17	13EL25	0.23	211	1.13	
\$243 \$234		411/15634	131114	364,029,14 165,031,01	43,DAB	13352	-513	Subgrade Low, edity Subgrade Low, edity	1072	164(23)35	43153E	1,35147	121	333	186,029.18 146,0077	CALSIAN.	1,302.53	041	Gardet, da,	450	146,025.55	413,535.37	\$301.11	0.56	2.52	140	-
1231	166 C17.13	6;1,791.34	1,302.30	\$64,012.01	tame.	1,175,71	411	Subgrada Longella y	2231	186,231.43	1371111	1,801 (1)	117	3-33 3-31	195.00.15	111.721.11	1414	037	024 6 EX, 629	427	166,537.87	423,E75,56 413,751,39	13/13/2	872	211 211	235	
17.23		414,742.77	120124	150.00714	דבם יבו	1,35923	-0 C2		1577	184.507.04	115.7(3.1)	1,100.53	107	\$252	155 2750	41174177	1,920,52	015		4732	16.00*31	623 749 35	133140	4.51	2.02	725	
104	166 (XVLT) 164 (XXLE)	E(3 (35.54	1,291.05 1,291.05	199,00482	63 DK D	139374	-0.10	Subgrada Love, oktop Subgrada Love, oktop	2054	164,001.59	421225 24 429304 85	1,279.17	121 131	\$253 \$254	166 022 54	411 (233)	1,502.53	475		10	154,004 60	423 CES 22	132B	4.52	1.52	7.29	
1299	164.000.16	CHIECE	LIBLE	155 030 21	411 110 15	1,31471	6.29	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	103	125,9V1 50	23377	LIPST	135	3254	157 030 19	1113m12	12022	9.73	CONTRACT SERV	4233	124 202 22	4;13£;59	1,24312	150	2.03	244	
1254	165,550 41	transia.	LLUDID	153,624,75	4(1,477)	129975	-0.25	3/Aprelia Long plany	77.4	145,510 22	धासम	LEKER I	\$34	1.246	103114	43 13739	1,101.31	0.55		44	143,012.11	413.827.31	រោងព	424	2.11	231	
1017		#35334	LETTE	145,656.53 165 P7076	403355	120133	-0.15	Literate high at the in play. Literature at the in play.	2057 2058	167671	#;9 #72.52 #:3 551.33	130512	127 Li)	\$257 \$258	157 167 17	421 173 34	1,376 31	131	Server Serv	4531		413 671.50	133313	6.57	211	46	immedia lem
	MATARI	414,772.45	1343.00	345,01978	Girto	121729	0.79	Kither Keek (as)	2'41	727 477 11	(13,779.16	195516	12	329	163,010 82	433,545.63	129137	034			147,919.85	43351B	125127	631	-25	222	
L'A3		HERTE	1,714.14	145,75715	F3 13175	LIST	1 C3		2243	\$62,627.71	(JEJH	1,329,33	112	1000	143,91764	C3 (517)	1,250,27	839		40	11131114	CHARLES.		(1)	211	130	
1047		411,701.58	1,711,50	165,421,531	413 66171	1252.43	-457		2761	142327.33	C3 2C2 77	1,212,13	134	12G	143,517 03	679 77857 E-9 (63 69	129134	649	CENTRAL I	461 462	143.537.64	433 724.53	1,251.85	0.33	222	1.42	
124	345.971.60	\$13,716 tz	137630	155,127,13	137110	1,749.11	427		1243	145,000,50	43,71.11	1251.11	134	16	\$27.035.52 \$27.036.52	£9,7419	1,292.64	647	GTSF State glay	4563	RESERVE	43 6473	120133	434	12	275	
1066		1311133	1.173.20	RE4211	413 451.75	5,720.00	-0.12	Subgrada Line, Glary	35(165,971 F1	4:3,153.00	1,223.94	110	1005	243 834.13	t;06593£	1,292.54	2.53		424	145.124.23	43177.0		033	112	125	
1043		(1) (1) (2) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	110111	153 312 G2	40404	1,290.04	E53	Subgrade High pt Fering play (2365		43331.21 43 ELM	1.771.13	111	2013	147,147,14	CHECK !	1.211.43	14	COLUMN others	4765	145 512 15	4HEAT		9.11	231	ш	
1167	H11517	42722	1365.77	107 0 1 2 1	415 FEEL ED	120.32	-901		2361	385.915.27 385.976.83	425,02.04	1,227.01	100	1044	uumb areuu	43,E512 43,7E53	12114	0.43	000 में से तील	60	165 012 65 165 008 21	429,783 89	126111	0.74	121	7.36	
1363	US EC131	(3BID	1,101.50	163 0 144	411111111	UZZ	414	S. Sgrade Low, etc.;	133	157,8433	421,524 20	\$207.13	2.17	3301	165,57437	areaer!	121114	411		- C-	163,904.31	63,414.14	12024	925	101	236	
1001	U5 970.25	C338425	1201.21	117,850.01	#127547H	126325	6.04		3043	KENCO	425,534.37	2317.51	1.11	LNI	14235211	trata	1201.77	017		40Eh	155.605.31	4:1 11135	120131	851	1.62	325	
	Contra thousand																										

FOTE AND AN Employ those from Sovery in Percentility of the

(writer 1800) PC.

From Stati Form (1800) Hose takes Part (2000) Form (as or /Landrador) Care Papart (1900) Form (as 1800) Hose takes 1900 (as or /Landrador) (as 1800) Form (as 1800) Hose takes 1900 (as or /Landrador) (as 1800) Form (as 1800) Hose takes 1900) Form (as 1800) F

Point No.	Northing	Easting	Elevation	Description
5000	166441.85	419888.54	1291.56	ECB
5001	166445.33	419884.29	1290.86	ECB
5002	166443.11	419834.09	1289.88	ECB
5003	166444.25	419795.29	1289.83	ECB
5004	166447.19	419777.71	1289.65	ECB
5005	166454.75	419753.28	1288.88	ECB
5006	166449.23	419686.86	1289.31	ECB
5007	166445.48	419631.44	1289.81	ECB
5008	166441.97	419587.46	1290.24	ECB
5009	166440.89	419561.31	1289.68	ECB
5010	166425.03	419560.71	1290.79	ECB
5011	166353.90	419560.47	1290.34	ECB
5012	166294.22	419562.58	1290.17	ECB
5013	166223,12	419564.61	1289.90	ECB
5014	166154.22	419568.55	1289.05	ECB
5015	166081.74	419572.04	1288.61	ECB
5016	166012.16	419573.41	1288.02	ECB
5017	165940.87	419575.26	1287.32	ECB
5018	165906.06	419577.90	1287.29	ECB
5019	165897.32	419585.23	1286.97	ECB
5020	165892.19	419596.51	1287.06	ECB
5021	165893.52	419665.17	1287.18	ECB
5022	165896.54	419739.69	1287.82	ECB
5023	165899.20	419805.29	1287.66	ECB
5024	165902.95	419880.08	1289.10	ECB
5025	165959.08	419878.17	1302.17	ECB
5026	165968.76	419887.74	1304.98	ECB
5027	165986.38	419893.00	1309.36	ECB
5028	166004.59	419897.40	1316.58	ECB
5029	166006.81	419887.58	1316.01	ECB
5030	166025.12	419891.22	1316.88	ECB
5031	166074.87	419907.01	1328.92	ECB
5032	166104.78	419913.71	1334.38	ECB
5033	166108.23	419936.90	1334.47	ECB
5034	166103.65	419959.23	1334.43	ECB
5035	166104.36	419990.41	1334.04	ECB
5036	166124.97	419989.41	1334.07	ECB
5037	166126.35	419996.79	1334.01	ECB
5038	166132.97	419996.21	1333.85	ECB
5039	166133.77	420002.24	1334.06	ECB
5040	166146.60	420001.15	1334.12	ECB
5041	166144.00	419974.32	1334.30	ECB
5042	166139.64	419974.51	1334.41	ECB
5043	166131.35	419913.86	1334.96	ECB

Point No.	Northing	Easting	Elevation	Description
5044	166208.73	419913.26	1335.86	ECB
5045	166262.09	419914.78	1333.98	ЕСВ
5046	166273.13	419909,02	1331.55	ECB
5047	166296.91	419910.10	1325.61	ЕСВ
5048	166297.73	419902.93	1325.44	ECB
5049	166333.18	419904.77	1316.41	ECB
5050	166334.32	419896.99	1316.14	ECB
5051	166369.55	419893.71	1309.90	ECB
5052	166414.66	419891.64	1297.84	ECB
5053	166431.72	419907.71	1292.47	ЕСВ
5054	166437.25	419972.21	1290.91	ECB
5055	166439.54	420041.85	1292.42	ECB
5056	166384.07	420042.63	1303.79	ECB
5057	166370.02	420034.76	1307.63	ECB
5058	166370.24	419967.92	1308.26	ECB
5059	166383.12	419911.04	1304.61	ECB
5060	166406.92	419905.62	1299.16	ECB
5061	166441.69	419769.79	1291.91	Berm
5062	166441.73	419773.61	1291.86	Berm
5063	166441.27	419775.33	1291.24	Berm
5064	166458.11	419771.88	1289.50	Berm
5065	166457.70	419774.02	1289.38	Berm
5066	166457.02	419776.52	1288.61	Berm
5067	166473.91	419774.42	1287.72	Berm
5068	166473.55	419777.10	1287.48	Berm
5069	166473.16	419779.32	1287.00	Berm
5070	166484.36	419775.97	1286.43	Berm
5071	166484.38	419779.84	1286.02	Berm
5072	166485.07	419764.45	1286.35	Berm
5073	166485.58	419759.91	1285.74	Berm
5074	166469.87	419762,46	1287.83	Berm
5075	166470.11	419760.02	1287.64	Berm
5076	166470.52	419757.78	1287.25	Berm
5077	166459.08	419760.35	1288.96	Berm
5078	166459.00	419758.15	1288.77	Berm
5079	166459.14	419755.85	1288.28	Berm
5080	166493.31	419782.27	1284.73	ECB
5081	166492.06	419759.10	1285.03	ECB
5082	166441.38	419746.74	1292.86	Berm
5083	166438.51	419747.14	1291.67	Berm
5084	166443.67	419746.62	1292.79	Berm
5085	166453.45	419747.15	1289.09	Berm
5086	166452.20	419718.83	1289.01	Berm
5087	166441.83	419719.50	1292.91	Berm

Point No.	Northing	Easting	Elevation	Description
5088	166439.65	419719.93	1292.96	Berm
5089	166436.80	419720.42	1291.91	Berm
5090	166435.76	419696,74	1292.09	Berm
5091	166438,71	419696.68	1293.21	Berm
5092	166440.88	419696.56	1293.11	Berm
5093	166450.62	419695.88	1289.22	Berm
5094	166447.93	419661.11	1289.40	Berm
5095	166439.70	419660.88	1292.72	Berm
5096	166437.49		1292.72	
5097	166435.14	419660.63 419660.43		Berm
5098		-	1292.12	Berm
	166435.01	419636.30	1291.81	Berm
5099	166436.81	419636.11	1292,34	Berm
5100	166438.57	419636.19	1292.20	Berm
5101	166446.28	419636.07	1289.76	Berm
5102	166442.93	419604.62	1290.14	Berm
5103	166436.69	419604.25	1291,96	Berm
5104	166434.07	419604.22	1291.41	Berm
5105	166495.17	419777.99	1284.62	TurfMat
5106	166496.14	419772.22	1284.57	TurfMat
5107	166490.96	419770.68	1285.19	TurfMat
5108	166489.82	419776.91	1285.37	TurfMat
5109	166491.95	419765.37	1285.08	TurfMat
5110	166477.35	419763.93	1287.25	TurfMat
5111	166477.05	419768.67	1286.61	TurfMat
5112	166476.59	419774.75	1287.43	TurfMat
5113	166462,29	419772.34	1288.89	TurfMat
5114	166462,47	419766.70	1288.03	TurfMat
5115	166462.81	419761.48	1288.62	TurfMat
5116	166445.54	419759.12	1291.74	TurfMat
5117	166445.35	419764.49	1290.64	TurfMat
5118	166444.62	419770.23	1291.53	TurfMat
5119	166380.82	419767.41	1296.45	TurfMat
5120	166381.25	419767.18	1296,50	TurfMat
5121	166380,96	419759.22	1296.39	TurfMat
5122	166308.81	419761.92	1301.61	TurfMat
5123	166310.10	419774.33	1302.39	TurfMat
5124	166251.95	419781.92	1307،05	TurfMat
5125	166251.24	419775.97	1306.17	TurfMat
5126	166250.40	419770.57	1306.13	TurfMat
5127	166164.31	419794.02	1313.64	TurfMat
5128	166163.64	419788.33	1312.65	TurfMat
5129	166162.78	419782.20	1312.58	TurfMat
5130	166081.86	419793.05	1312.71	TurfMat
5131	166081.67	419804.65	1313.65	TurfMat

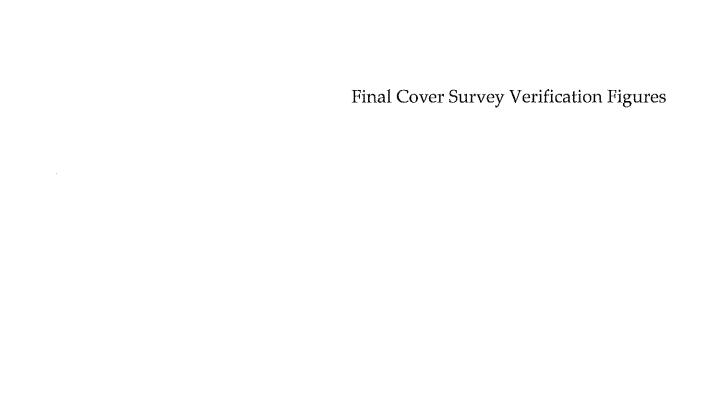
Point No.	Northing	Easting	Elevation	Description
5132	166014.57	419795.42	1303.32	TurfMat
5133	166016.36	419783.14	1302.96	TurfMat
5134	165954.58	419774.67	1293,69	TurfMat
5135	165953.96	419785.61	1293.95	TurfMat
5136	165899.31	419788.03	1288.03	TurfMat
5137	165899.02	419775.31	1287.54	TurfMat
5138	165878.15	419780.67	1285.79	TurfMat
5139	165878.56	419793.11	1286.13	TurfMat
5140	165858.19	419794.21	1279.16	TurfMat
5141	165857.70	419788.03	1278.28	Turf M at
5142	165857.03	419782.01	1278.48	TurfMat
5143	165821.07	419784.43	1266.39	TurfMat
5144	165821.18	419790.32	1265 <i>.</i> 77	TurfMat
5145	165821.58	419796.58	1266.93	TurfMat
5146	165779.18	419799.08	1253.71	TurfMat
5147	165778.40	419792.96	1252.83	TurfMat
5148	165777.81	419786.74	1253.41	TurfMat
5149	165776.53	419783.18	1253.32	ECB
5150	165777.88	419801.87	1254.04	ECB
5151	165822.68	419799.99	1266.69	ECB
5152	165822,56	419780.46	1266.87	ECB
5153	165858.02	419778.07	1278.87	ECB
5154	165879.04	419796.60	1286.04	ECB
5155	166120.63	419410.57	1280.24	Mulch
5156	166031.88	419409.59	1282.17	Mulch
5157	165928.24	419416.87	1283.99	Mulch
5158	165932.45	419483.79	1284.05	Mulch
5159	166026.55	419478.92	1280,59	Mulch
5160	166124.21	419462,81	1280.31	Mulch
5161	166111.38	419529.30	1280.92	ECB
5162	166089.48	419530.68	1281.24	ЕСВ
5163	166091.83	419548.01	1286.83	ECB
5164	166113.11	419548.07	1287.21	ECB
5165	166285.78	419543.05	1288.64	ECB
5166	166284.35	419517.30	1280.01	ECB
5167	166310.09	419509.63	1278.14	ECB
5168	166311.06	419541.51	1288.57	ECB
5169	166444.88	419510.63	1280.81	ECB
5170	166422.71	419506.30	1279.25	ECB
5171	166412.15	419540.90	1290.08	ECB
5172	166440.80	419542.71	1289.73	ECB
5173	165688.30	420811.05	1277.07	Mulch
5174	165689.41	420734.84	1275.94	Mulch
5175	165690.96	420666.16	1274.63	Mulch

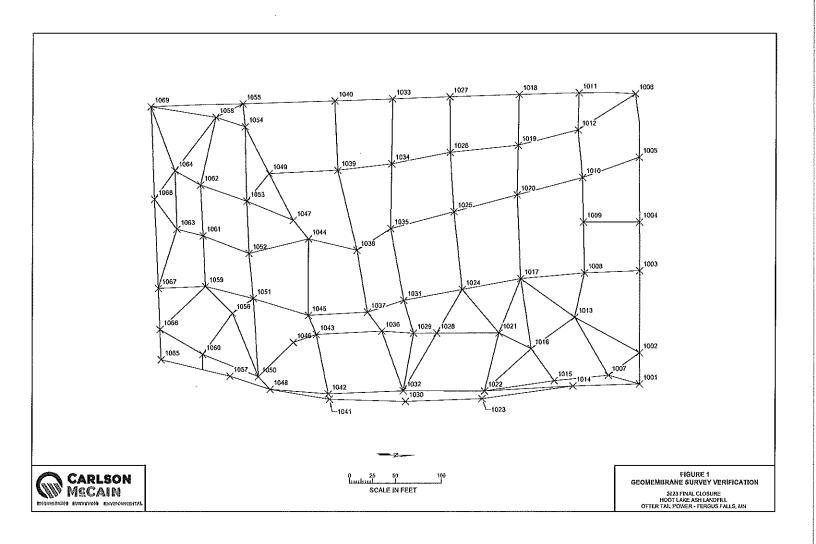
Point No.	Northing	Easting	Elevation	Description
5176	165691.48	420590.95	1275.92	Mulch
5177	165697.83	420514.66	1277.79	Mulch
5178	165692.25	420440.38	1279.75	Mulch
5179	165688.62	420364.83	1279.16	Mulch
5180	165688.03	420291.33	1282.91	Mulch
5181	165700.73	420220.51	1287.68	Mulch
5182	165751.23	420199.72	1283.40	Mulch
5183	165750.84	420238.77	1276.88	Mulch
5184	165748.40	420289.50	1276.01	Mulch
5185	165748.44	420364.74	1275.04	Mulch
5186	165753.56	420437.25	1275.51	Mulch
5187	165754.55	420514.78	1275.40	Mulch
5188	165751.95	420592,92	1273.76	Mulch
5189	165749.77	420666.79	1271.77	Mulch
5190	165748.84	420734.90	1271.20	Mulch
5191	165750.09	420820.03	1274.06	Mulch
5192	165792.07	420820.65	1272.31	Mulch
5193	165795.15	420736.21	1270.69	Mulch
5194	165795.04	420664.89	1270.76	Mulch
5195	165794.89	420593.16	1271.80	Mülch
5196	165795.91	420513.03	1273.58	Mulch
5197	165793.50	420435.57	1275.69	Mulch
5198	165793.25	420362.87	1276.05	Mulch
5199	165792.05	420288.49	1276,44	Mulch
5200	165792.49	420236.34	1276.67	Mulch
5201	165788.93	420195.61	1284.10	Mulch
5202	165850.20	420191.05	1287.57	Mulch
5203	165851.26	420239.66	1279.39	Mulch
5204	165854.00	420289.71	1277.47	Mulch
5205	165859.31	420360.38	1278.22	Mulch
5206	165863.44	420390.11	1285.58	Mulch
5207	165921.20	420381.25	1289.73	Mulch
5208	165904.25	420357.37	1284.15	Mulch
5209	165898.10	420290.23	1283.65	Mulch
5210	165896.94	420237.68	1284.50	Mulch
5211	165894.71	420191.68	1288.37	Mulch
5212	165819.73	420400.74	1284.14	Mulch
5213	165823.33	420428.92	1282.87	Mulch
5214	165864.51	420421.05	1284.94	Mulch
5215	165921.02	420418.14	1288.51	Mulch
5216	165865.71	420469.53	1275,32	Mulch
5217	165824.30	420467.65	1275.57	Mulch
5218	165869.72	420510.47	1273.74	Mulch
5219	165871.78	420589.82	1272.67	Mulch

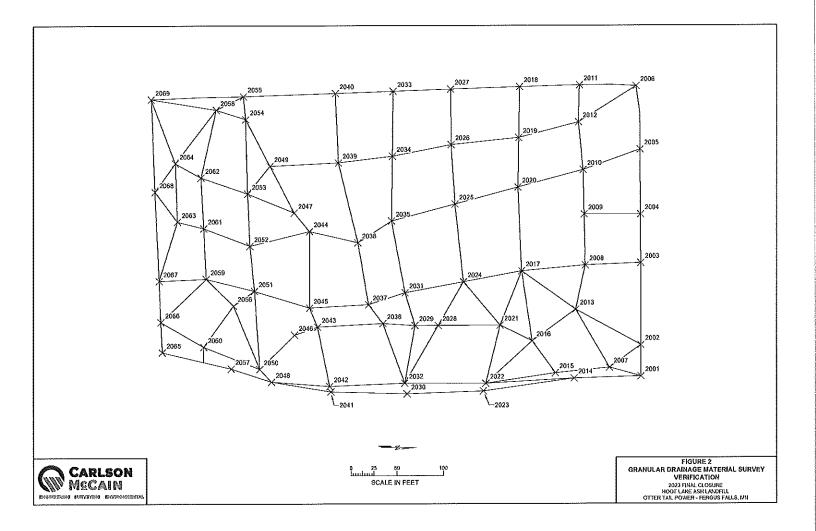
As-Built Survey Finish Grade Points Hoot Lake Ash Landfill 2023 Final Closure

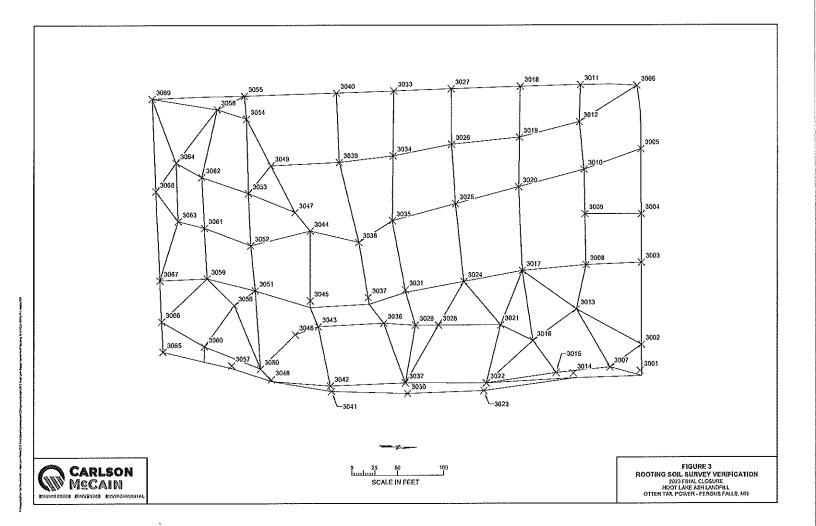
Otter Tail Power

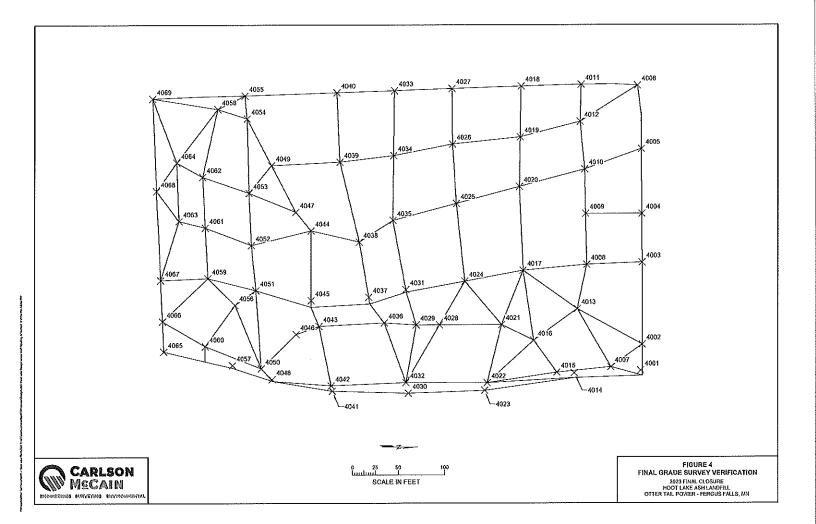
Point No.	Northing	Easting	Elevation	Description
5220	165869.23	420663.53	1271.69	Mulch
5221	165867.16	420735.44	1271.37	Mulch
5222	165866.70	420821.91	1272.08	Mulch
5223	165995.61	420820.11	1277.38	Mulch
5224	166013.86	420737.50	1284.05	Mulch
5225	165954.81	420733.83	1273.12	Mulch
5226	165958.32	420665.09	1273.47	Mulch
5227	166010.29	420662.47	1284.73	Mulch
5228	165964,83	420591.68	1283.70	Mulch
5229	165917.82	420590.31	1273.64	Mulch
5230	165918.97	420510.81	1283.72	Mulch
5231	165910.80	420466.23	1283.53	Mulch
10601	165769.94	419793.19	1252.60	TurfMat
10602	166441.81	419888.54	1291.57	ECB











Appendix C – Geomembrane Installation Data

Manufacturer Quality Control Documentation
Tensiometer Calibration Certificate
Final Cover As-Built Panel Layout Drawing
Final Cover Subgrade Acceptance Forms
Final Cover Trial Weld Forms
Final Cover Panel Seaming Forms
Final Cover Field Destructive Testing Forms
Final Cover Repair Forms





Product: 40-LLD-11-BLK-BLK-GRI-STD-24.00

Project: Hoot Lake Ash Landfill, MN

Customer:

Global Containment Solutions, LLC.

Cust PO: 23-03-1054-01

We hereby certify the following test results for the above referenced product/project :

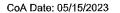
Count	Roll Number	Area	Thick ness MAV (mil)	Thick ness MIN (mil)	Asp He	erity ght nil)	Ten at B	isile reak pi)	Eld at B	ong reak %)	Te Resis	ear stance b)	Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views In Cat 1 or 2)	Resin OIT (Minute)	Resin Lot#
	Namber	(sq ft)	ASTM	STM ASTM ASTM	D 7466	ASTM	D 6693	ASTM	D 6693	ASTM	D 1004	ASTM	ASTM	ASTM	ASTM	ASTM	r.00.44	
			D 5994	D 5994	Side A	Side B	MD	TD	MD	ŒΤ	MD	TD	D 4833	D 1505	D 4218	D 5596	D 3895	
01	3101259001	16,920.00	39	35	24	24	147	132	597	550	37	36	97	0.933	2.6	10	143	DQE810370
02	3101259002	16,920.00	39	35	23	24	158	132	610	545	34	35	95	0.932	2.4	10	143	DQE810370
03	3101259003	16,920.00	39	36	23	25	158	132	610	545	34	35	95	0.932	2,4	10	143	DQE810370
04	3101259004	16,920.00	39	34	24	25	158	132	610	545	34	35	95	0.932	2.4	10	143	DQE810370
05	3101259005	16,920.00	41	37	23	23	158	132	610	545	34	35	95	0.932	2.4	10	143	DQE810370
06	3101259006	16,920.00	40	37	22	24	150	131	585	542	34	35	95	0.932	2.4	10	143	DQE810370
07	3101259007	16,920.00	41	38	21	24	150	131	585	542	34	35	95	0.932	2.4	10	143	DQE810370
08	3101259008	16,920.00	40	37	24	26	150	131	585	542	34	35	95	0.932	2.4	10	143	DQE810370
09	3101259009	16,800.00	39	34	24	25	150	131	585	542	34	35	95	0.932	2.4	10	143	DQE810370
10	3101259010	16,920.00	39	36	23	26	150	131	585	542	34	35	95	0.932	2.4	10	143	DQE810370
11	3101259011	16,920.00	40	36	22	24	155	132	622	560	35	36	96	0.932	2.5	10	143	DQE810370
12	3101259012	16,920.00	39	35	22	25	155	132	622	560	35	36	96	0.932	2.5	10	143	DQE810370

DCN: SKAPS LOG 014 Effective Date: January 07,2022 Rev 2

SKAPS Industries 571 Industrial Parkway Commerce, GA 30529

Phone: 706-336-7000 Fax: 706-336-7007 E-Mail:contact@skaps.com

QC'd By: Walkesh Patel
Date: August 8, 2023





Certificate of Analysis

Shipped To: SKAPS

571 Industrial Park Way COMMERCE GA 30529-1326

USA

Recipient: JETAL

Fax:

Delivery #: 80906566

PO #: 30131230075

Weight: 187400.000 LB Ship Date: 05/15/2023

Package: BULK

Hopper Car Mode:

GPLX076893 Car #: Seal No: 348946

Product:

MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: DQE810370

Property	Test Method	Value	Unit
Melt Index Density Production date	ASTM D1238 D1505	0.36 0.920 20230507	g/10min g/cm3

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

JIAHUI LI QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Leslie Dziamara at +1-832-813-4806

Tensiometer Calibration Certificate



Tensiometer Model CALIBRATION CERT	el establishment	
CALIDA	新闻 "他也是我们的"	
"""" TOURATION CEDT	STEEL STATE	_

^{evice} Calibrated Range: Model No.

Serial No:

A/D Module Model No: AVD Module Serial No. Channel No:

Indicator reading with no load.

Pro-Tester [T-0100/A or T-0100SE/A] S-Type load cell

0 - 750 lbs. Tension

X182.750 266627

	Cold to
T-02	
332226	
N/A	
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Colloration Apparatus:

Pro-Cal unit, model TC-0100/A

Dead Weight.

W1	2
W2	152
W3	302

Reference Cell.

Ri	2	
R2	152	
R3	302	

Offse

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3.327377

r	Pilica Force lbs.
L.	2
	52
<u> </u>	102
	162
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	252
	302

Cell Response:

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Deviation En	X
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Total Deviation Error (%):

0.00%

Temperature at time of calibration:

Exitation Voltage;

73 degrees F

5 VDC

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

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

Calibration Technician. Signature

Date:

08/24/23



TION CERTIFICATE

승규들은 살이 살아가 하는 것이 없는 것이 없는데 없는데 없었다.	
Tensiometer Model	CALIBRA
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Svice Calibrates	Pro-Tester [T-01
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A/D Module Model No: A/D Module Serial No. Channel No:

Indicator reading with no load:

Pro-Tes	ter [T-0	100/A	or T-O	1005	IA)	 	
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alibration Apparatus

152

302

Pro-Cal unit, model TC-0100/A

	Dead Weight
T-029	wı [
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N/A	wa T
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R1	152	ĺ
R2	302	Į
R3	302	1

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Service services and three discussions	

0.00%

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Total Deviation Error (%) Temperature at time of calibration.

Exitation Voltage:

73 degrees F 5

V DC

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

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

Calibration Technician:

Signature

Date:

08/24/23

Tensiometer Mode Davice Camprated Range Model No Serial No.

AD Module Model No. A/D Module Senal No. Channel No

Applied Force lbs.

Indicator reading with no load

CALIBRATION CERTIFICATE Pro-Tester (1.0109/A or T-0100SE/A) 0 - 760 Not Terracor 142405-757# 75541

T-026 2622275641 NIA

Calibration Apparatus

Pro-Cal unit, model TC-0100/A

Dead Weight WY1 2 152 W2 300

3.330406

Reference Cell 腕当 ñ.

2 152 3/17

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Total Deviation Error (%):

0.00%

Temperature at time of calibration:

Exitation Voltage:

73 degrees F

5 VDC

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

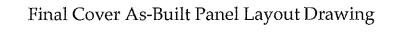
Note: AD Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable

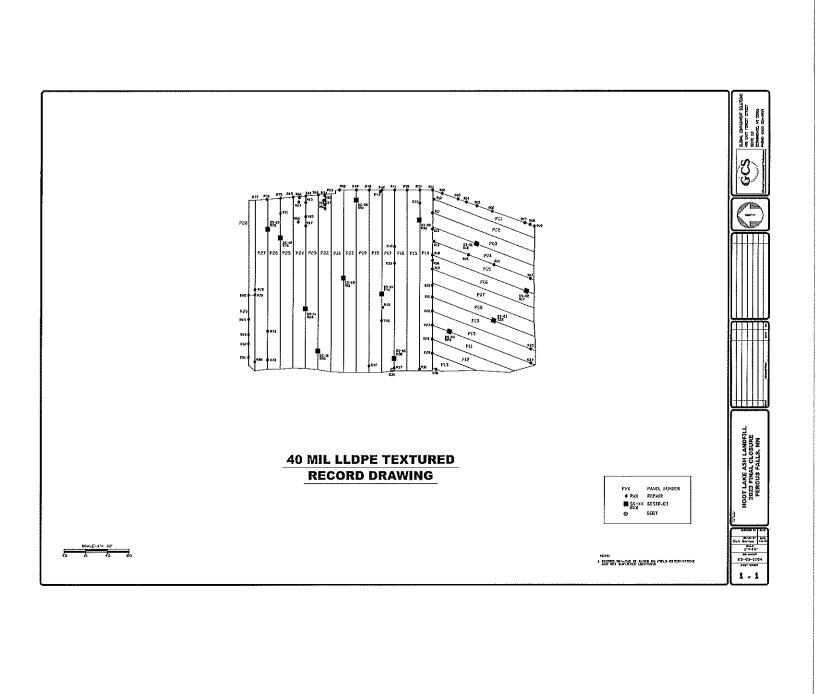
Calibration Technician:

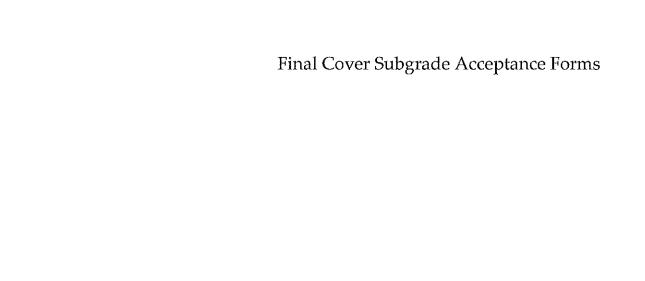
Signature:

Date

08/24/23







CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC PROJECT NAME: Hoot Lake Closure PROJECT NO: 23-03-1054 LOCATION: Fergus Falls, MN AREA ACGEPTED: 96,624 sq.ft. PANEL NUMBERS: GRADE ACCEPTANCE: INSPECTOR: GENERAL CONTRACTOR: OWNER: AUTHORIZED REPRESENTATIVE: The undersigned, ____ Thavone Daranikone ____, certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on ______ and found the surface to be acceptable for installation of the geomembrane. This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC Superintendent 8/29/2023 Title Signature DATE OWNER REPRESENTATIVE Signature

405 East Forest Street, Oconomowoc, WI 53066

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

CERTIFICATE OF SI	JBGRADE 60.	TILO
CERTIFICATE	JBGRADL OUT	CT NO:23-03-1054
INSTALLER: GLO	PROJE	CT NO
PROJECT NAME: Hoo	t Lake Closure Fergus Falls, MN	
ACCEPTED:	D18-29	
PANEL NUMBERS:	F 10 20	
GRADE ACCEPTANCE: INSPECTO	R:	
GENERAL CONTRACTOR:		
missis (ED)		
AUTHORIZED REPRESENTATIVE:	nikone ,certifles that he/she is a repre	
or installation of the geometristation his certification is based on observation	orized to execute this certificate, that here and found the sum of the surface of the subgrade only. No sum of the Specialties International, inc. making exist below the surface of the subgrade	ubsurface inspections es no representations or
AUTHORIZED REPRESEN	ITATIVE OF GLOBAL CONTAINMENT S	SOLUTIONS, LLC
n Ci	Superintendent	8/30/2023
Signeture	Title	DATE
INER REPRESENTATIVE		
		8/32/03
Signature	Tille	DATE
ANS Es	of Famal Otan	

405 East Forest Street, Oconomowoo, WI 53066

Final Cover Trial Weld Forms

Global Containment Solutions LLC Preweld Test Report

				Г	reweig	iest Ke	hoir							
Project	Name:	Hoot	Lake Closure		Job#	22-03	-1054	Superintendent:		ndent:	: Thavone Daranikone			
Material	Type:	40	mil f/2 LL		_	Primary		İF	ond	Peel	Test Extrusi	on Minimum	44	- PPI
Job Descri	iption:		Сар		- s	econdary			Celi	P.	eel Test Fusi	on Minlmum	50	PPI
Reporte	ed By:	Guada	alupe Estrada		-				Сар Х	İ	Shear Te	st Minimum	60	PPI
•	Other:	Juliu	arapo conada		-				7. A.	J.				
iner Types	S = Smooth	T = Textured	SG = Super Grip							•				
Weld Date	Time	Operator	Mach	Mach	Mach	Preheat	Ambient		Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Tes
Liner Type	AM PM	Name/ ID	No.	Speed	Temp	Temp	Temp		АВ	A B	AB	A B	A B	Resu
8.29.23	8:09	NM	4941	6	860		67	Peel	70 67	70 67	70 64	70 68	68 689	Pas
S to S	AM	LAIAI	4341	0	000		01	Shear	88	85	83	87	86	T as
8.29.23	9:15	NM	4941	6	860		67	Peel	77 75	76 77	78 76	69 70	76 76	Pas
T or T	AM	PARVI	4941		000		0,	Shear	87	88	91	85	82	1 43
8.29.23	9:12	NM	4941	6	860		67	Peel	66 70	68 68	68 70	68 72	71 ; 70	Pas
S TO T	AM	14141	1011				V1	Shear	87	87	84	86	86	,
8.29.23	9:00	MB	4940	6	800		67	Peel	67 68	65 68	63 63	67 68	63 65	Pas
S TO S	AM	MD	1010		000		VI	Shear	84	83	86	86	88	1
8.29.23	1:09	NM	4941	6	860		78	Peel	63 65	63 65	68 65	68 66	69 70	Pas
S TO T	PM	,4141	1011				, 0	Shear	89	86	82	86	89	1,45
8.29.23	1:10	MB	4940	6	800		78	Peel	70 64	68 70	73 70	64 75	69 71	Pas
S TO S	PM	1910	7070		400		,,,	Shear	86	84	82	83	85	1,00
8.29.23	4:01	NM	4941	6	860		77	Peel	63 65	63 68	71 65	73 73	66 66	Pas
Τ το Τ	AM	74191	7041		""		.,	Shear	86	84	93	93	87	1.00
8,30,23	8:00	NM	4941	6	860		61	Peel	66 68	67 67	63 66	69 67	63 64	Pas
S OT S	AM	£41A1	1071		000		01	Shear	85	87	87	83	87	1 43
8.30.23	8:00	МВ	4940	6	800		61	Peel	63 67	64 66	66 66	64 65	64 67	Pas
S TO S	PM	MID	VP64	Ü	000		0,	Shear	84	87	85	91	90	1 43
8.30.23	1:13	NM	4941	6	860		77	Peel	71 72	77 72	74 77	78 80	79 74	
0 70 0	DM	LAM	"""	Ü	1 000	i	11	Chase	90	O.E.	0.5	00	00	1

Shear

Peel

Shear

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Pass

Pass

Pass

Pass

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PM

1:00

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3:34

РМ

7:34

AM

7:00

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8:15

AM

1:30

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Global Containment Solutions LLC Preweld Test Report

Project i	Name:	Hoot	Lake Closure		Job#	22-03	-1054		Superinten	dent:	Thavone D	aranikone		
Material	Туре:	40	mil f/2 LL		-	Primary		F	ond	Peel	Test Extrusi	on Minimum	44	 PPI
Job Descri			Cap		S	econdary			Cell	Pe	eel Test Fusi	on Minimum	50	 PPI
Reporte	•	Guada	alupe Estrada		•			l	Сар Х		Shear Te	st Minimum	60	- PPI
	Other :				•					l		•		
Liner Types	S = Smooth	T = Textured	SG = Super Grip	1						•				
Weld Date						1 m. h	A()	1	0 1		10 0	10 4	0	T = .
	Time AM PM	Operator	Mach	Mach	Mach	Preheat	Ambient		Coupon 1	Coupon 2	Coupon 3	Coupon 4 A B	Coupon 5	1
Liner Type 8.31.23		Name/ ID	No.	Speed	Temp	Temp	Temp	Peel	A B	A B	A B	79 T	77 .	Results
7 TO T	1:40 PM	MB	813		550	550	78		93	92	79 r 86	85	- // t 86	- Pass
8.31.23	1:40							Shear Peel	80	77	78	77 :	80	+
7 TO T	PM	DB	77		550	500	78	Shear	85	87	85	87	85	Pass
1 10 1	; ;							Peel	ου •	0/	- 60	07	- 00	+
то								Shear		Ī				
10	:							Peel		1		 		1
то	 		i					Shear	t	I				-
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то								Shear	L		l			-
	:							Peel	Ī			ĭ	<u>-</u>	-
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то								Shear			 '			1
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	;							Peel	<u> </u>		!	<u> </u>	<u> </u>	
то						į		Shear			·	·······		1
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то								Shear						1
	:							Peel	•	i	i	•	· ·	
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	:							Peel		1	•		í	
то								Shear						
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Global Containment Solutions LLC Seam Control Form Job # 22-03-1054 SuperIntendent: Thavon

F	roject Name:				Hool Lake Closure		Job#	22-03	1-1054	Superinte	endent: Inavone	Daranikone)	_	
1	/lateria	I Туре:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Descr	iption:			Cap		Secondary		Cell		Air Pressu	re Hold Time	5	Minut	es
	Repor	rted By	•		Guadalupe Estrada		-		Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
		Other			•										
	8,838	Total I	_F of We	iding to	Date Combined	ł	Extrusion LF	Weld Tot	al To Date	1,078	Fusion l	F Weld Tot	al To Date:	7,	760
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date	N	o.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSIIN	PSLOUT	Loss	Result
8.29.23	1	2	203	9:25 AM	MB	4940	6	860		8.29.23	Air Pressure	4:39 30	4:44 30		Pass
Seam Notes															
8.29.23	2	3	202	9:19 AM	NM	4941	6	860		8.29.23	Air Pressure	4:37 30	4:42 30		Pass
Seam Notes															
8.29.23	3	4	202	9:42 AM	NM	4941	6	860		8.29.23	Air Pressure	4:43 30	4:48 30		Pass
Seam Notes															
8.29.23	4	5	71	9:50 AM	MB	4940	6	860		8.29.23	Air Pressure	4:44 30	4:49 30		Pass
Seam Notes	······································														
8.29.23	4	5	131	9:59 AM	мв	4940	6	860		8.29.23	Air Pressure	4:45 30	4:50 30		Pass
Seam Notes									-						
8.29.23	5	6	202	10:05 AM	NM	4941	6	860		8.29.23	Air Pressure	4:49 30	4:54 30		Pass
Seam Notes															
8,29,23	6	7	202	10:25 AM	МВ	4940	6	860		8.29.23	Air Pressure	4:50 30	4:55 29	1	Pass
Seam Notes															
8.29.23	7	8	202	10:25 AM	NM	4941	6	860		8.29.23	Air Pressure	4152 30	4:57 30		Pass
Seam Notes															

F	rojeci	name:			Hoot Lake Closure	Job#	22-03	3-1054	Superint	endent: Inavone	Daranikone	3			
٨	/lateria	І Туре:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Desc	ription:			Сар		Secondary		Celi		Air Pressu	re Hold Time	5	Minut	ies
	Repo	rted By			Guadalupe Estrada				Сар	X	Allowable Air Pr	essure Loss	3	PSI	
		Other					•						,	•	
	8,838	Total	LF of We	lding to	Date Combined	E	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	.F Weld Tot	ał To Date:	7,	760
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	1	Test
Date	١	lo. 1	Length	Welded 10:48	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSHN	PSI OUT	Loss	Result
8.29.23	8	9	204	AM	MB	4940	6	860		8.30.23	Air Pressure	1:30 30	1:35 29	1	Pass
Seam Votes															
8.29.23	9	10	10	10:19 AM	NM	4941	6	860		8,30,23	Air Pressure	1:50 30	1:55 30		Pass
Seam Votes							1		<u> </u>			I			
8.29.23	9	10	195	10:19 AM	NM	4941	6	860		8.30.23	Air Pressure	1 ¹ 35	1:40 30		Pass
Seam Notes			•						·						
8.29.23	10	11	9	11:15 AM	MB	4940	6	860		8.30.23	Air Pressure	1:51 30	1:56 30		Pass
eam lotes						•	· · · · · · · · · · · · · · · · · · ·		<u> </u>						
8.29.23	10	11	196	11:15 AM	МВ	4940	6	860		8.30.23	Air Pressure	1:45 30	1:50 30		Pass
Seam Notes							•		<u></u>						
8.29.23	11 /	12	163	11:15 AM	NM	4941	6	860		8.30.23	Air Pressure	1‡55 30	2:00 30		Pass
Seam Votes							•								
8.29.23	12	13	88	11:35 AM	MB	4940	6	860		8,30,23	Air Pressure	2:01 30	2:06 30		Pass
Seam Votes				1											
8.29.23	1 /	14	22	1:41 PM	NM	4941	6	860		8.29.23	Air Pressure	4:30 30	4:35 30		Pass
Seam Votes				•	 	•	•								

F	Project	Name:			Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone			
r	/lateria	l Type:			40 mll f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Joi	Desci	iption:			Сар		Secondary		Cell		Air Pressu	re Hold Time	5	Minul	les
	Repo	rted By			Guadalupe Estrada		:	<u> </u>	Cap	х	Allowable Air Pr	ressure Loss	3	PSi	
		Other					-		,					•	
	8,838	Total I	LF of We	elding to	Date Combined	ı	Extrusion LF	Weld To	al To Date	1,078	Fusion I	_F Weld Tot	al To Date:	7,	,760
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test		AT Time Out	PSI	Test
Date	N	lo.	Length	Welded	Name/ID	No.	Speed	Temp	Temp	Date	Турэ	PSI IN	PSLOUT	Loss	Result
8.29.23	2	14	26	1:44 PM	NM	4941	6	860		8.30.23	Air Pressure	1:05 30	1:10 30		Pass
Seam Notes									• • • • • • • • • • • • • • • • • • • •	•				•	
8.29.23	3	14	26	1:47 PM	NM	4941	6	860		8,30,23	Air Pressure	1:06	1:11 30		Pass
Seam Notes			•							****					
8.29.23	4	14	26	1:50 PM	NM .	4941	6	860		8.30.23	Air Pressure	1:07 30	1:12 30		Pass
Seam Notes															
8.29.23	5	14	10	1 ¹ 53 PM	NM	4941	6	860		8.30.23	Air Pressure	1108 30	1:13 30		Pass
Seam Notes	·														
8.29.23	5	14	16	1155 PM	NM	4941	6	860		8.30,23	Air Pressure	1:10 30	1:15 30		Pass
Seam Notes															
8.29.23	6	14	26	1:58 PM	NM	4941	6	880		8,30,23	Air Pressure	1:11 30	1:16 30		Pass
Seam Notes															
8.29.23	7 /	14	26	2:01 PM	NM	4941	6	860		8,30,23	Air Pressure	1:20 30	1:25 30		Pass
Seam Notes											-				
8.29.23	8 /	14	26	2:04 PM	NM	4941	6	860		8,30,23	Air Pressure	1:21 30	1:26 30		Pass
Seam Notes															

F	Project Name: Hoot Lake Closure			Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	!					
ħ	lateria	l Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Desci	iption:			Cap		Secondary		Cell		Air Pressu	e Hold Time	5	Minut	es
	Repor	ted By			Guadalupe Estrada		- '	F	Cap	X	Allowable Air Pr	essure Loss	3	PSI	
	•	Other				······································	-		•					•	
											•				
	8,838	Total l	.F of We	elding to	Date Combined	E	Extrusion LF	Weld Tot	tal To Date	1,078	Fusion L	F Weld Tot	al To Date:	7,	760
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date	N	o.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSI OUT	Loss	Results
8.29.23	9	14	26	2:07 PM	NM	4941	6	860		8.30.23	Air Pressure	1133 30	1:38 30		Pass
Seam Notes	*************														
8.29.23	10	14	26	2:10 PM	NM	4941	6	860		8.30.23	Air Pressure	1:42 30	1147 30		Pass
Seam Notes															
8.29.23	11	14	26	2 ¹ 13 PM	NM	4941	6	860		8.30.23	Air Pressure	1:43 30	1:48 30		Pass
Seam Notes															
8.29.23	12	14	26	2:16 PM	NM	4941	6	860		8.30.23	Air Pressure	2:10 30	2:15 30		Pass
Seam Notes												,			
8,29,23	13	14	26	2:19 PM	NM	4941	6	860		8.30.23	Air Pressure	2:16 30	2121 30		Pass
Seam Notes															
8.29.23	14	15	23	2:20 PM	МВ	4940	6	860		8.29.23	Air Pressure	4:23 30	4:28 30		Pass
Seam Notes															
8.29.23	14	15	311	2123 PM	WB	4940	6	860		8.29.23	Air Pressure	4:20 30	4:25 30		Pass
Seam Notes															
8.29.23	15	16	334	2:56 PM	NM	4941	6	860		8.30.23	Air Pressure	4:18 30	4:23 30		Pass
Seam Notes										•					

						S	eam Contr	ol For	m						
F	roject	Name:			Hoot Lake Closure		Job#	22-03	3-1054	Superinte	ndent: Thavone	Daranikone)	_	
ħ	laterla	Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Descr	iption:			Сар		- Secondary		Cell		Air Pressu	re Hold Time	5	Minut	es
	Repor	ted By			Guadalupe Estrada		- '		Cap	х	Allowable Air Pi	ressure Loss	3	PSI	
		Other					-		•					•	
	8,838	Total l	_F of We	iding to	Date Combined	i	Extrusion LF	Weld Tot	al To Date	1,078	Fusion I	"F Weld To	ial To Date:	7,	760
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test		AT Time Out		Test
Date	N	0.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Турө	PSHN	PSLOUT	Loss	Results
8.29.23	16	17	104	3:20 PM	MB	4940	6	860		8.29.23	Air Pressure	4:10 30	4:15 30		Pass
Seam Notes	1						1 1		1			1			
8.29.23	18	17	31	3:33 PM	MB	4940	6	860		8.29.23	Air Pressure	4:02 30	4:07 30		Pass
Seam Notes				\$. IA1						Į		1 00			
8.29.23	16	17	199	3:38 PM	МВ	4940	6	860		8,29,23	Air Pressure	4:00 30	4:05 30		Pass
Seam Notes															
8.29.23	14	EX	24	4:03 PM	NM	4941	6	860		8,29,23	Air Pressure	4:25 30	4:30 30		Pass
Seam Notes															
8,29,23	15	EX	24	4:06 PM	NM	4941	6	860		8.29.23	Air Pressure	4:19 30	4:24 30		Pass
Seam Noles															
8.29.23	16	EX	24	4:09 PM	NM	4941	6	860		8.29.23	Air Pressure	4:16 30	4:21 30		Pass
Seam Notes															
8.29.23	17	EX	21	4:12 PM	NM	4941	6	860		8.29.23	Air Pressure	4:15 30	4:20 30		Pass
Seam Notes															
8.29.23	1 /	EX	20	4:28 PM	NM	4941	6	860		8.30.23	Air Pressure	6112 30	6:17 30		Pass
Seam Notes															

Global Containment Solutions LLC Seam Control Form Job # 22-03-1054 Superintendent: That

F	Project Name: Hoot Lake Closure				Job#	22-03	-1054	Superinte	andent: Thavone	Daranikone	}				
ŧ	nateria	ıl Type:			40 mil f/2 LL		Primary		Pond		Air Pa	ressure Test	30	PSI	
Jot	Desc	ription:			Сар		Secondary		Cell		Air Pressu	re Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada		- '		Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
	•	Other					-		•					•	
		-													
	8,838	Total	LF of We	iding to	Date Combined	Ē	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	.F Weld Tot	lal To Date:	7,	760
Weid	Se	em	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date	١	No.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Type	PSHN	PSI OUT	Loss	Results
8.29.23	1	EX	65	4:31 PM	NM	4941	6	860		8.30.23	Air Pressure	6105 30	6:10 28	2	Pass
Seam Notes															
8.29.23	1	EX	31	4:39 PM	NM	4941	6	860		8,30,23	Air Pressure	5:46 30	5:51 30		Pass
Seam Notes			•												
8,29,23	1	EX	20	4:44 PM	ММ	4941	6	860		8.30.23	Air Pressure	5:45 30	5150 30		Pass
Seam Notes									1				•		
8,29,23	1	EX	17	4:47 PM	NM	4941	6	860		8.30.23	Air Pressure	5:44 30	5:49 30		Pass
Seam Notes			•						l						
8,29,23	1	EX	33	4:49 PM	NM	4941	6	860		8,30.23	Air Pressure	5:40 30	5145 30		Pass
Seam Notes			•		,				-1			····			
8.29.23	1	EX	17	4:55 PM	NM	4941	6	860		8.30.23	Air Pressure	5138 30	5143 30		Pass
Seam Notes			•							'					
8.30.23	17	18	96	8:10 AM	МВ	4940	6	860		8,30,23	Air Pressure	2:20 30	2:25 30		Pass
Seam Notes	•			·								· · · · · · · · · · · · · · · · · · ·	<u></u>		
8.30.23	17	18	241	8:22 AM	МВ	4940	6	860		8,30,23	Air Pressure	2:18 30	2:23 30		Pass
Seam Notes								.1							

F	roject	Name:			Hoot Lake Closure	Job#	22-03	1-1054	Superint	endent: Thavone	Daranikone)	_		
1	/lateria	ıl Type:			40 mil f/2 LL		Primary		Pond	П	Air P	ressure Test	30	PSI	
Jol	Desc	ription:			Сар		- Secondary		Cell		Air Pressui	e Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada		. '		Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
		Other	•				-							•	
•	8,838	Total	LF of We	olding to	Date Combined	E	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	.F Weld To	al To Date:	7,	,760
Weld	ł	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	.////^-/	AT Time Out	1 :	Test
Date	١	√o.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSUN	PSLOUT	Loss	Results
8.30.23	18	19	17	8:18 AM	NM	4941	6	860		8.30.23	Air Pressure	2:21 30	2:26 30		Pass
Seam Notes															
8.30.23	18	19	320	8:21 AM	ММ	4941	6	860		8,30.23	Air Pressure	2:22 30	2:27 30		Pass
Seam Notes									·						
8.30.23	19	20	337	8:55 AM	MB	4940	6	860		8.30.23	Air Pressure	2:23 30	2:28 30		Pass
Seam Notes													•		
8,30,23	20	21	337	9:03 AM	ММ	4941	6	860		8.30.23	Air Pressure	2124 30	2:29 30		Pass
Seam Notes			k		,	<u> </u>									
8.30.23	21	22	329	9135 AM	M8	4940	6	860		8.30.23	Air Pressure	2:55 30	3:00		Pass
Seam Notes			<u></u>	•											
8.30.23	22	23	323	9:44 AM	МИ	4941	6	860		8.30.23	Air Pressure	3110 30	3:15 30		Pass
Seam Notes															
8.30.23	23	24	264	9:15 AM	МВ	4940	6	860		8,30,23	Air Pressure	3125 30	3:30 30		Pass
Seam Notes													•		
8.30.23	23	24	17	9:49 AM	МВ	4940	6	860		8,30,23	Air Pressure	3:40 30	3°45 30		Pass
Seam Notes															

Project Name:					Hool Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone)	_	
ħ	Materia	І Туре:			40 mli f/2 LL		Primary		Pond	П	Air P	ressure Test	30	PSI	
Job	Desci	ription:			Сар		Secondary		Cell		Air Pressur	e Hoid Time	5	Minut	es
	Repoi	rted By			Guadalupe Estrada		•		Сар	X	Allowable Air Pr	essure Loss	3	PSI	
		Other					•							•	
	8,838	Total I	LF of We	elding to	Date Combined	E	extrusion LF	Weld Tot	al To Date	1,078	Fusion L	F Weld To	ial To Date:	7,	760
Weld		eem	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out		Test
Date	N	10.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSI OUT	Loss	Results
8,30,23	23	24	26	9152 AM	МВ	4940	6	860		8.30.23	Air Pressure	3:42 30	3:47 30		Pass
Seam Noles															
B.30.23	23	24	12	9:55	MB	4940	6	860		8.30.23	Air Pressure	3143	3:48		Pass
Seam	!			AM			1 1		L L			30	30		
Notes		7	I	10:30			T		Г	I		3:55	4:00		
8,30.23	24	25	316	AM	NM	4941	6	860		8.30.23	Air Pressure	30	30		Pass
Seam Notes															
8.30.23	25	26	291	10:55 AM	МВ	4940	6	860		8.30.23	Air Pressure	4:05 30	4:10 30		Pass
Seam Notes	<u> </u>						•		······································	······································					
8.30.23	25	26	28	11:32 AM	МВ	4940	6	860		8.30.23	Air Pressure	4103 30	4:08 30		Pass
Seam Notes	•														
8,30.23	26	27	17	11:00	NM	4941	6	860		8.30.23	Air Pressure	4:15	4:20		Pass
Seam Notes				AM							,	30	30		
		7		11:03			I 1	····	T			4:16	4:21		
8,30.23	26	27	54	AM	NM	4941	6	860		8,30.23	Air Pressure	30	30		Pass
Seam Notes															
8.30,23	26	27	243	11:09 AM	NM	4941	6	860		8.30,23	Air Pressure	4128 30	4:33 30		Pass
Seam Notes															
A			***************************************											_	_

Material Type: 40 mll f/2 LL	-	Primary								
				Pond		Air Pi	ressure Test	30	PSI	
Job Description: Cap		Secondary		Cell		Air Pressur	e Hold Time	5	Minut	es
Reported By Guadalupe Estra	ada	-		Сар	X	Allowable Air Pr	essure Loss	3	PSI	
Other		-			النب				•	
- Callet										
8,838 Total LF of Welding to Date Combined	E	xtrusion LF	Weld Tot	al To Date	1,078	Fusion L	F Weld To	al To Date:	7,	760
Weid Seam Seam Time Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date No. Length Welded Name/ID	No.	Speed	Temp	Temp	Dale	Туре	PSI IN	PSI OUT	Loss	Results
8,30.23 27 28 175 11:59 NM	4941	6	860		8.30.23	Air Pressure	4:50 30	4:55 30		Pass
Seam Notes										
8.30.23 27 / 29 17 11:40 NM	4941	6	860		8.30.23	Air Pressure	4:30 30	4:35 30		Pass
Seam Notes										
8.30.23 27 / 29 123 11:43 NM	4941	6	860		8,30,23	Air Pressure	4:31 30	4:36 30		Pass
Seam Notes										
8.30.23 28 29 12 11:65 AM MB	4940	6	860		8,30.23	Air Pressure	4:00 30	4:05 30		Pass
Seam Notes				,						
8.30.23 17 EX 3 2:00 NM	4941	6	860		8.30.23	Air Pressure	5:30 30	5°35 30		Pass
Seam Notes				•			\		•	
8,30.23 18 EX 24 2:00 PM NM	4941	6	860		8.30.23	Air Pressure	5:30 30	5:35 30		Pass
Seam Notes				•						
8.30.23 19 EX 24 2:03 PM NM	4941	6	860		8.30.23	Air Pressure	5:26 30	5:31 30		Pass
Seam Notes										
8.30.23 20 EX 24 2:06 PM NM	4941	6	860		8.30.23	Air Pressure	5:25 30	5:30 30		Pass
Seam Notes		1								

\$	roject	Name:			Hoot Lake Closure		Job#	22-N3	3-1054	Superint	endent: Thavone	Daranikone	.		
	-						- ,			52,50,110	•				
		l Type:			40 mil f/2 LL		Primary		Pond	\vdash		ressure Test		PSI	
Joh		ription:			Сар		_Secondary		Cell	\sqcup	Air Pressu	re Hold Time		Minut	es
	Repo	rted By			Guadalupe Estrada				Cap	X	Allowable Air Pr	essure Loss	3	PSI	
		Olher													
	8,838	Total l	_F of We	olding to	Date Combined	E	extrusion LF	Weld Tot	al To Date	1,078	Fusion L	F Weld Tol	al To Date:	7,	760
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date	٨	lo.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSHN	PSI OUT	Loss	Results
8.30.23	21	EX	15	2:09 PM	МИ	4941	6	860		8.31.23	Vacuum	:	:	i	Pass
Seam Notes															
8,30,23	21	EX	7	2:11 PM	NM	4941	6	860		8.30.23	Air Pressure	5115 30	5120 30		Pass
Seam Notes															
8.30.23	21	EX	10	2:12 PM	NM	4941	6	860		8,30,23	Air Pressure	5:15 30	5°20 30		Pass
Seam Notes									<u></u>						
8.30.23	22	EX	25	2:14 PM	NM	4941	6	860		8.30,23	Air Pressure	5114 30	5:19 30		Pass
Seam Notes															
8.30.23	23	EX	25	2:17 PM	NM	4941	6	860		8.30.23	Air Pressure	5:11 30	5:16 30		Pass
Seam Notes															
8.30.23	24	EX	24	2:20 PM	NM	4941	6	860		8,30,23	Air Pressure	510 30	5115 30		Pass
Seam Votes															
8.30.23	25	£X	24	2122 PM	NM	4941	6	860		8.30.23	Air Pressure	5:03 30	5:08 30		Pass
Seam Notes										· · · · · · · · · · · · · · · · · · ·			<u> </u>		
8.30.23	26	EX	24	2:25 PM	NM	4941	6	860		8.30.23	Air Pressure	5:02 30	5107 30		Pass
Seam Votes		•													

F	Project Name:				Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	1		
ħ	/lateria	l Type:			40 mil f/2 LL		Primary		Pond		Air Pi	ressure Test	30	PSI	
Job	Desci	iption:			Сар		Secondary		Cell		Air Pressur	e Hold Time	5	Minul	es
	Repor	ted By			Guadalupe Estrada		- '		Сар	X	Allowable Air Pr	essure Loss	3	PSI	
		Other					-		•					•	
	8,838	Total L	.F of We	lding to i	Date Combined	E	Extrusion LF	Weld Tol	al To Date	1,078	Fusion L	F Weld Tot	al To Date:	7,	760
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date	N	o.	Length	Weided	Name/ 1D	No.	Speed	Temp	Temp	Date	Туре	PSI IN	PSI OUT	Loss	Results
8.30.23	27	EX	24	2:28 PM	NM	4941	6	860		8.30.23	Air Pressure	5:00 30	5:05 30		Pass
Seam Notes															
8.30.23	28	EX	12	1:30 PM	DB	77		550	500	8,31,23	Vacuum		+		Pass
Seam Notes									·						
8,30,23	28	£Χ	175	1:32 PM	DB	77		550	500	8.31.23	Vacuum	:	:		Pass
Seam Notes	•					1	····			<u> </u>					
8.30.23	29	EX	45	4:00 PM	DB	77		550	500	8.31.23	Vacuum	:	:		Pass
Seam Notes	<u>.</u>			····					<u> </u>						
8,30.23	29	EX	16	4:44 PM	DB	77		550	500	8.31.23	Vacuum	***************************************	:	***************************************	Pass
Seam Notes						·····									
8,30,23	29	EX	12	4:55 PM	DB	77		550	500	8.31.23	Vacuum		:		Pass
Seam Votes							'								
8,30,23	29	EX	17	5135 PM	DB	77		550	500	8,31,23	Vacuum	:			Pass
Seam Votes				<u></u> 1.			<u> </u>				I	-			
8,30,23	29	EX	3	6:00 PM	DB	77		550	500	8,31.23	Vacuum	:	;		Pass
Seam Notes															

Project Name:			Hoot Lake Closure				Job# 22-03-1054 SuperInte			endent: Thavone Daranikone						
Material Type:			40 mil f/2 LL			Primary		Pond		Air P	ressure Test	30	PSI			
Job	Desc	ription:		Сар					Cell		Air Pressu	re Hold Time		Minut	es	
Reported By					Guadalupe Estrada		- 'I		Сар	х	Allowable Air Pr	essure Loss	3	PSI		
	•	Other					-			النب				•		
		1												,		
8,838 Total L			F of Welding to Date Combined E				Extrusion LF Weld Total To Date			1,078 Fusion LF Weld Total To Date					7,760	
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test	
Date		ło.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSI OUT	Loss	Results	
8.30.23	29	EX	37	3:34 PM	NM	422		550	500	8.31.23	Vacuum	<u>.</u>	:		Pass	
Seam Notes		,														
8.30.23	29	EX	16	3150 PM	NM	422		550	550	8.31.23	Vacuum	1	*		Pass	
Seam Notes																
8.30.23	27	EX	24	4:01 PM	NM	422		550	550	8.31.23	Vacuum	;	:		Pass	
Seam Notes																
8.30.23	26	EX	24	4:19 PM	NM	422		550	550	8.31.23	Vacuum	:	i .		Pass	
Seam Notes																
8.30.23	25	EX	24	4:28 PM	NM	422		550	550	8.31.23	Vacuum	ŧ			Pass	
Seam Notes																
8.30.23	24	EX	24	4151 PM	NM	422		550	550	8.31.23	Vacuum	†			Pass	
Seam Votes																
8.30.23	23	EX	24	4:54 PM	NM	422		550	550	8.31.23	Vacuum	:			Pass	
Seam Votes							I.									
8.30.23	22	EX	24	4:57 PM	NM	422		550	550	8.31.23	Vacuum	:			Pass	
Seam Votes	•						-									

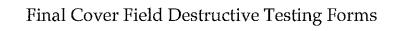
Project Name:			Hoot Lake Closure				Job#_	22-03-1054		Superintendent: Thavone Daranikone					
ľ	Vlateria	al Type:			40 mil f/2 LL	Primary	Pond			Air P	Air Pressure Test		PSI		
Jot	Desc	ription:	Свр				Secondary		Cell		Air Pressu	Air Pressure Hold Time		Minutes PSI	
Reported By					Guadalupe Estrada			Сар	х	Allowable Air Pressure Loss		3			
		Other											•	•	
	8,838	Total I	∟F of We	elding to	Date Combined	Extrusion LF Weld Total To Date			1,078	Fusion LF Weld Total To Date:				7,760	
Weid	J	eam	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Tes!	Test		AT Time Out	•	Test
Date		10. 1	Length	Welded 5115	, Name/ ID	No.	Speed	Temp	Temp	Date	Турө	PSIIN	PSI OUT	Loss	Results
8,30,23	21	EX	24	PM	NM	422		550	550	8,31,23	Vacuum				Pass
Seam Notes															
8,30.23	20	EX	24	5:40 PM	NM	422		550	550	8.31.23	Vacuum	***************************************	:		Pass
Seam Notes						-									
8,30,23	19	EX	24	5:57 PM	NM	422		550	550	8,31,23	Vacuum	:			Pass
Seam Notes															
8,31,23	18	EX	24	8:03 AM	NM	422		550	550	8.31.23	Vacuum	1			Pass
Seam Notes	**********														
8,31,23	17	EX	24	8:20 AM	NM	422		550	550	8,31,23	Vacuum				Pass
Seam Notes															
8.31.23	16	EX	24	9:11 AM	ММ	422		550	550	8,31.23	Vacuum	:	:		Pass
Seam Notes															
8,31,23	15	EX	24	9:20 AM	ММ	422		550	550	8.31.23	Vacuum		:		Pass
Seam Notes													·		
8.31.23	14	EX	24	9:36 AM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes				·											

Global Containment Solutions LLC Seam Control Form

1	roject	Name:			Hool Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	9	_	
1	Materia	d Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Jol	Desc	ription:			Сар		– Secondary		Celi		Air Pressu	re Hold Time	5	Minet	es
	Repo	rted By			Guadalupe Estrada				Сар	х	Allowable Air Pr	essure Loss	3	PSI	
		Other													
•	8,838	Total I	LF of We	lding to	Date Combined		Extrusion LF	Weld To	ial To Date	1,078	Fusion I	_F Weld To	al To Date:	7,	760
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	<u> </u>	AT Time Out		Test
Date		10.	Length	Welded 10:05	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSI IN	PSI OUT	Loss	Results
8.31.23	R30	EX	16	AM	NM	422		550	550	8.31.23	Vacuum	<u> </u>	· ·		Pass
Seam Notes									***************************************						
8.31.23	13	EX	66	10:08 AM	NM	422		550	550	8.31.23	Vacuum	•	•		Pass
Seam Notes															
8.31.23	12	EX	73	10:36 AM	NM	422		550	550	8,31,23	Vacuum	:	;		Pass
Seam Notes															
8.31.23	11	EX	38	11:25 AM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes															
8.31.23	11	EX	8	11:51 AM	MM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes															
8.31.23	10	EX	26	11:55 AM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes															
8.31.23	9	EX	26	1:00 PM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes				1											
8.31.23	8	ĒΧ	26	1:30 PM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Votes				1											

Global Containment Solutions LLC Seam Control Form

ı	Project	Name:			Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thav	one Daranikone)		
1	Materia	І Туре:			40 mil f/2 LL		Primary		Pond			ir Pressure Test	30	PSI	
Joi	Desci	ription:			Сар		Secondary		Cell		Alr Pre	ssure Hold Time	5	Minut	tes
	Repo	rted By			Guadalupe Estrada				Cap	X	Allowable A	ir Pressure Loss	3	PSI	
		Other					-							•	
	8,838	Total	LF of We	lding to	Date Combined	E	Extrusion LF	Weld To	tal To Date	1,078	Fusi	on LF Weld To	al To Date:	7,	,760
Weld	1	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Date		lo.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSLOUT	Loss	Result
8.31.23	7	EX	26	1:57 PM	NM	422		550	550	8.31.23	Vacuum	:	;		Pass
Seam Notes												•			
8.31.23	6	EX	26	2:27 PM	NM	422		550	550	8.31.23	Vacuum	-	: -		Pass
Seam Notes									<u> </u>						
8,31.23	5	EX	26	3100 PM	NM	422		550	550	8,31,23	Vacuum	<u> </u>	:		Pass
Seam Notes						•								•	l
8,31,23	4	EX	26	3:14 PM	NM	422		550	550	8.31.23	Vacuum		:		Pass
Seam Notes									•						
8.31.23	3	£Χ	26	3132 PM	NM	422		550	550	8.31.23	Vacuum		:		Pass
Seam Notes												•			
8.31.23	2	EX	26	3:42 PM	NM	422		550	550	8,31,23	Vacuum	:	:		Pass
Seam Notes				······································		•	•		<u> </u>						
8.31.23	1 /	EX	18	4:00 PM	NM	422		550	550	8.31.23	Vacuum	:	i		Pass
Seam Notes							1								



Global Containment Solutions LLC Destructive Sample Information

P	roject Nan	ne: _		Hoot Lake Closur	e	Job#	22-03	3-1054	Superi	ntendent:	Thavone D	aranikone			_
A	/laterial Ty	pe:		40 mii f/2 LL			Primary		P	ond	Peel	Test Extrusi	on Minimum	44	PPI
Job	Description	on:		Сар		Se	condary			Cell	Pe	el Test Fusi	on Minimum	50	PPI
	Reported E	зу:		Guadalupe Estrac	a	-				Cap X		Shear Te	st Minimum	60	PPI
	Oth	er:_													
D.S.	Seam		Weld	Operator	Mach	Mach	Mach	Preheat		Соирол 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
No.	No.		Date	Name/ ID	No.	Speed	Temp	Temp		A B	AB	A B	A B	A B	Results
1	3 / 4	·	8,29.23	NM	4941	6	860		Peel Shear	77 j 76 85	80 8 0	79 79 97	78 i 78 98	79 76 90	Pass
·	DS Locat and No														***
2	5 6 DS Location		8.29.23	NM	4941	6	860		Peel Shear	79 j 72 82	75 j 77 82	76 78 80	75 7 3	77 J 74	Pass
2	DS Locat and No														
3	8 / 9	,	8.29.23	MB	4940	6	860		Peel Shear	81 77 81	87 78 82	78 79 81	82 8 0	79 79 81	Pass
3	DS Locat and No														
4	10 / 1		8.29.23	МВ	4940	6	860		Peel Shear	82 73 83	77 1 73	79 77 89	79 1 73 85	78 1 74 89	Pass
4	DS Locat and No														
5	14 / 18	5	8,29.23	МВ	4940	6	860		Peel Shear	77 ! 80 81	77 ! 81 85	79 78 81	79 . 78 85	87 87 86	Pass
บ	DS Locat and No											,			
	16 / 17	7	8.29.23	МВ	4940	6	860		Peel Shear	80 ¦ 77 82	80 ; 78	82 79 83	84 8 2 85	82 80 86	Pass
6	DS Locat														
	17 / 18	В	8.30.21	MB	4940	6	860		Peel Shear	83 • 77	79 i 82 80	82 78 82	78 7 9 83	77 7 7 85	Pass
7	DS Locati and No														
	19 / 20	0	8.30.21	MB	4940	6	860		Peel Shear	77 : 74 82	81 <u>1</u> 77 82	79 75 80	82 . 76 82	78 ! 75 83	Pass
8	DS Locati and No														
0	20 / 2	1	8.30.21	NM	4941	6	860		Peel Shear	86 : 82 87	83 ; 78 83	83 80 86	85 7 0	84 ¦ 80 83	Pass
9	DS Locati and No														

Global Containment Solutions LLC Destructive Sample Information

þ	roject	Name:		Hoot Lake Closur	e	Job#	22-03	3-1054	Superi	ntendent:	Thavone D	aranikone			
N	lateria	l Type:		40 mil f/2 LL			Primary		P	ond	Peel	Test Extrusi	on Minimum	44	PPI
Job	Descr	iption:		Сар		Se	condary			Celi	Pe	el Test Fusi	on Minimum	50	PPI
	Report	ted By:		Guadalupe Estrac	la	•				Сар Х		Shear Te	st Minimum	60	PPI
		Other:				-									•
D.S.	Se	am	Weld	Operator	Mach	Mach	Mach	Preheat	ſ	Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
No.		lo.	Date	Name/ ID	No.	Speed	Temp	Temp		A B	A B	A B	A B	A B	Results
10	22	23	8.30.21	NM	4941	6	860		Peet Shear	76 7 6	77 7 77	79 74 81	81 77 84	77 i 75 87	Pass
10		ocation d Notes													
11	23	24	8.30.21	MB	4940	6	860		Peel Shear	82 79 84	68 80 83	78 80 81	74 78 80	77 j 79 82	Pass
' '		ocation d Notes													
12	25	26	8.30.21	MB	4940	6	860		Peel Shear	81 77 88	81 7 9 83	80 7 8	82 80 83	81 [78	Pass
12		ocation d Notes													
13	26	27	8,30,21	NM	4940	6	860		Peel Shear	81 78 87	80 78 82	83 78 83	80 J 76 82	82 78 85	Pass
10		ocation d Notes													
	, i	/							Peel Shear		į	-			
	DS L	ocation				L			Silear				·		
	ลก	d Notes						·				· · · · · · · · · · · · · · · · · · ·			
	,	/							Peel Shear	i	i		i	i	!
		ocation				L		l			lI				
	ลภเ	d Notes		-					Peel	· · · · · ·	i		•		
									Shear		······································			***************************************	
		ocation d Notes													
i		/							Peel						
	ne i	ocation							Shear						
		d Notes													
		I = I							Peel Shear				_:		
ŀ		ocation				·			Oriodif		i		1		
	and	d Notes			·								W		

Final Cover Repair Forms

Pro]	ect Name			Hoot Lake (Closure		Job	#:		- :	22-03-10	54	Superintendent	Thavone Darani	kone		
Mate	rial Type:			40 mil f/2	2 LL		Prim	ary			Pond]			,	
Job De	scription:			Сар			Secon	dary			Cell]				
Rep	orted by :			Guadalupe I	Estrada						Cap	Х]				
	Other:												•				
					Damage Codes								SF Patch Material	Test Type	Abbry,		r Types
	:Crease :Destruct	Sample		Failed Seam Wrinkle	MatDMaterial Defect WSWelder Restart		Lost La		amac	ne		Custom Fit Pipe Boot	872	Vacuum Air Pressure	*S=South *N≃North		unp
		e Irregularity		Alrvent	RWRoller Wrinkle		Damag					Burn Out	LF Welded	Spark	*W≃West		lon Bead
S.	Seam Jo	int	ΑO	Add On	CSConcrete Structure	0					AT -A	lr Test	1098,00	Air Lance	*E=East		
•	Damage	•	Panel				Repair		atch		Bead	Date		Machine	Test	Test	Date
Number	;	Number	Number		Location		Туре		Feet	-	(Inches)		Operator Name	Number	Type	Results	Complete
1	SJ				1/14/EX		P	3	×	12		8.31.23	МВ	813	Vacuum	Pass	8.31.23
2	ВО	1/EX					Р	2	х	5		8.31.23	MB	813	Vacuum	Pass	8.31.23
3	SJ .	1/EX			50' SONEOS		Р	2	x	3		8,31,23	МВ	813	Vacuum	Pass	8.31.23
4	во	1/EX			67' SONEOS		P	2	х	4		8.31.23	МВ	813	Vacuum	Pass	8.31.23
5	SJ	1/EX			87' SONEOS		Р	2	х	2		8.31,23	MB	813	Vacuum	Pass	8.31.23
6	SJ	1/EX			118' SONEOS		Р	2	х	5		8,31.23	МВ	813	Vacuum	Pass	8.31.23
7	SJ	1/EX		•	182' SONEOS		Р	2	x	4		8,31,23	МВ	813	Vacuum	Pass	8.31.23
8	во	1/EX			192' SONEOS		Р	2	х	5		8.31.23	MB	813	Vacuum	Pass	8.31.23
9	SI	1/EX			204' SONEOS		Р	2	х	3		8,31,23	NM	422	Vacuum	Pass	8.31.23
10	BO		1/2/14				Р	2	х	7		8,31.23	MB	813	Vacuum	Pass	8.31.23
11	S		2/3/14				Р	2	х	3		8.31.23	MB	813	Vacuum	Pass	8.31.23
12	DS-1	3/4			88' SONEOS		Р	2	х	6		8,31,23	MB	813	Vacuum	Pass	8.31.23
13	SJ	4/14			4' WOEEOS		Р	3	х	7		8.31.23	MB	813	Vacuum	Pass	8.31.23
14	SJ	415			3' SONEOS		Р	3	х	6		8.31.23	MB	813	Vacuum	Pass	8.31.23
15	во	4/5			72' SONEOS		Р	4	х	5		8,31.23	MB	813	Vacuum	Pass	8.31.23
16	WR	4/5			195' SONEOS		Ь	2	х	14		8.31,23	NM	422	Vacuum	Pass	8.31.23
17	DS-2	5/6		•	187' SONEOS		Р	2	x	6		8.31,23	NM	422	Vacuum	Pass	8.31.23
18	SJ		5/6/14				Р	2	х	3		8,31.23	MB	813	Vacuum	Pass	8.31.23
19	SJ		6/7/14				Р	2	х	2		8,31.23	MB	813	Vacuum	Pass	8.31.23
20	SJ	8/14			4'WOEEOS		Р	4	х	7		8,31,23	DB	77	Vacuum	Pass	8.31.23

Proj	ect Name			Hoot Lake (Closure	 Job	#;			22-03-10	54	Superintendent	Thavone Darani	kone		
Mate	ial Type:			40 mil f/:	2 LL	Prlm	ary			Pond						
Job Des	cription:			Сар	ì	Secon	dary	Г		Ceil						
Repo	orted by ;			Guadalupe	Estrada					Сар	Х					
	Other:					 						•				
CD	Crease		FO	Falled Seam	Damage Codes MalDMaterial Defect	 ⊷Lost L	30			OF.	Custom Fil	SF Patch Material	Test Type Vacuum	Abbrv. *S=South	Repal C-Cap S	r Types
	-Destruct	Sample		Wrinkle	WSWelder Reslart	Mechai	•	amag] e		Pipe Boot	872	Air Pressure	*N=North	PPaich	•
_	_	s fregularity		Airvent	RWRoller Wrinkle	Damag	e By C	then	5		Burn Out	LF Welded	Spark	4	BExtrus	ion Bead
	Seam Jo			Add On	CSConcrete Structure	Dannie		20101			rTest	1098.00	Air Lance	*E=East Test	Test	Date
Repair Number	Damage Code	Seam Number	Panel Number		Location	Repair Type		Patch Feet		Bead (Inches)	Date Welded	Operator Name	Machine Number	Type	Results	Complete
21	SJ		8/9/14			Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
22	DS-3	8/9			122' SONEOS	 P	2	x	6		8,31,23	МВ	813	Vacuum	Pass	8.31.23
23	WR	9/10			196' SONEOS	Р	2	х	3		8.31.23	NM	422	Vacuum	Pass	8,31.23
24	WR	10/11			196' SONEOS	Р	2	х	2		8.31.23	NM	422	Vacuum	Pass	8,31,23
25	DS-4	10/11			34' SONEOS	Р	2	x	6		8,31,23	DB	77	Vacuum	Pass	8.31.23
26	SJ		9/10/14			Р	2	х	3		8,31,23	DB	77	Vacuum	Pass	8.31.23
27	SJ		10/11/14			ρ.	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
28	SJ		11/12/14			α.	2	х	2		8,31.23	DB	77	Vacuum	Pass	8.31.23
29	SJ		12/13/14			Р	2	х	3		8.31.23	DB	77	Vacuum	Pass	8,31.23
30	AO	13/EX			8' SONEOS	Р	8	х	16		8,31,23	NM	422	Vacuum	Pass	8,31,23
31	WR	14/15			331' WOEEOS	Ρ	2	х	5		8,31.23	NM	422	Vacuum	Pass	8.31.23
32	DS-5	14/15			56' WOEEOS	Р	2	х	6		8,31,23	DB	77	Vacuum	Pass	8.31.23
33	во	14/15			24' WOEEOS	Р	2	х	4		8,31,23	MB	813	Vacuum	Pass	8,31.23
34	SJ				14/15/EX	P.	2	х	3		8.31.23	MB	813	Vacuum	Pass	8.31.23
35	SJ				15/16/EX	P	2	х	2		8,31,23	DB	77	Vacuum	Pass	8.31.23
36	PB	16/17		333'	WOEEOS, 4' NOS	Р	3	х	3		8,31,23	NM	422	Vacuum	Pass	8.31.23
37	во	16/17		:	329' WOEEOS	۵.	2	х	6		8.31.23	NM	422	Vacuum	Pass	8,31,23
38	DS-6	16/17			312' WOEEOS	Р	2	х	5		8,31,23	NM	422	Vacuum	Pass	8.31.23
39	во	16/17		4	135' WOEEOS	₽	2	х	2		8.31,23	DB	77	Vacuum	Pass	8.31.23
40	во	16/17			104' WOEEOS	₽	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23

Proje	ect Name			Hoot Lake (Closure		Job	#:			22-03-10	54	Superintendent:	Thavone Darani	kone	_	
Mater	rial Type:			40 mil f/:	2 LL		Prim	ary			Pond						
Job Des	scription:			Сар			Secon	dary			Cell]				
Repo	orted by :			Guadalupe	Estrada						Сар	Х					
	Other:												- -				
					Damage Codes								SF Patch Material	Test Type	Abbry.		r Types
	Crease Destruct	Comple		Failed Seam Wrinkle	MatDMaterial Defect WSWelder Restart		Lost L	•				Custom Fit Pipe Bool	872	Vacuum Air Pressure	*S=South *N=North	CCap S PPatch	•
		e luednjauja e mbie		Airvent	RWRoller Wrinkle		Damag					Bum Out	LF Welded	Spark	¹W≃West		
ຣັງ	Seam Jo	int	AO	Add On	CSConcrete Structure	3					AT -A	ir Test	1098.00	Air Lance	*E=East		
Repair	Damage	Seam	Panel				Repair	F	atch	1	Bead	Date		Machine	Test	Test	Date
Number	Code	Number	Number		Location		Туре		Feel	-	(Inches)	Welded	Operator Name	Number	Туре	Results	Complete
41	SJ				16/17/EX		P	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
42	SJ				17/18/EX		Р	3	х	4		8.31.23	DB	77	Vacuum	Pass	8,31,23
43	MĐ	18/EX		13'	NOSEOS, 3' WOS		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
44	DS-7	17/18			192' WOEEOS		P	2	х	5		8.31.23	DB	77	Vacuum	Pass	8.31.23
45	MD	17/18		217'	WOEEOS, 2' SOS		P	2	×	4		8.31.23	DB	77	Vacuum	Pass	8,31,23
46	во	17/18		;	241' WOEEOS		70	2	x	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
47	во	18/19			325' WOEEOS		P	3	x	11		8.31.23	NM	422	Vacuum	Pass	8,31,23
48	SJ				18/19/EX		Р	2	x	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
49	SJ				19/20/EX		œ.	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
50	DS-8	19/20			19' WOEEOS		Ρ	2	х	6		8.31.23	DB	77	Vacuum	Pass	8,31,23
51	DS-9	20/21			163' WOEEOS		Р	2	х	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
52	AO	21/EX			8' NOSEOS		Р	3	х	14		8.31.23	DB	77	Vacuum	Pass	8,31.23
53	SJ				21/22/EX		Ρ	3	х	4		8.31.23	DB	77	Vacuum	Pass	8,31,23
54	MD	22/EX		12'	NOSEOS, 2' WOS		P	2	х	3		8,31,23	DB	77	Vacuum	Pass	8.31.23
55	MD	21/22		12' V	VOEEOS, 11' NOS		Р	2	х	2		8,31,23	DB	77	Vacuum	Pass	8,31,23
56	MD	21/22		12' V	VOEEOS, 14' NOS		Р	2	х	2		8,31,23	DВ	77	Vacuum	Pass	8,31,23
57	MD	21/22		20' V	VOEEOS, 11' NOS		Р	2	x	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
58	MD	21/22		27' V	VOEEOS, 11' NOS		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
59	DS-10	22/23		:	289' WOEEOS		P	2	x	6		8.31.23	NM	422	Vacuum	Pass	8.31.23
					00/00/EV					_		0.04.00	6.6			_	0.04.00

Proj	ect Name			Hoot Lake	Closure		Job	#:			22-03-10	154	Superintendent	: Thavone Daran	lkone	_	
Mate	rial Type:			40 mll f/	72 LL		Prim	ary			Pond						
Job Des	scription:			Сар)		Secon	dary			Cell		Ī				
Repe	orted by :			Guadalupe	Estrada						Cap	Х	1				
	Other:												- -				
	Crease		ro.	Failed Seam	Damage Codes MalDMalerial Defect	•	Lost L				0.5	Custom Fit	SF Patch Material	Test Type	Abbrv.		r Types
	Destruct	Sample		Wrinkle	WSWelder Restart		Mecha	•	amag	je		Custom Fit Pipe Boot	872	Vacuum Air Pressure	*S=South *N=North	PPatch	
		e Isregulasity		Airvent	RWRoller Wrinkle		Damag	ө Ву С	ther	;		Burn Out	LF Welded	Spark	*W=West	BExtrus	ion Bead
	Seam Jo			Add On	CSConcrete Structure	9					AT -A	r Test	1098.00	Air Lance	*E=East		
Repair Number	Damage Code		Panel		Lacation		Repair	l	atci		Bead	Date	0	Machine	Test	Test	Date
61	SJ	Number	Number		Location 23/24/EX		Type P	2	Fee	2	(inches)	Welded 8.31.23	Operator Name DB	Number	Туре	Results	Complete
		0457		401					х					77	Vacuum	Pass	8.31.23
62	MD	24/EX		12	NOSEOS, 2' WOS		Р	3	х	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
63	BO	23/24			12' WOEEOS		Р	2	x	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
64	MD	23/24		11'\	WOEEOS, 13' NOS		P	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
65	ВО	23/24			38' WOEEOS		þ	2	х	3		8,31,23	DB	77	Vacuum	Pass	8.31.23
66	MD	23/24		48'\	WOEEOS, 14' NOS		٩	2	x	2		8,31,23	DB	77	Vacuum	Pass	8.31.23
67	во	23/24			55' WOEEOS		P	2	х	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
68	DS-11	23/24			209' WOEEOS		Р	2	х	6		8,31,23	DB	77	Vacuum	Pass	8.31.23
69	SJ				24/25/EX		Р	2	x	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
70	SJ				25/26/EX		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
71	BO	25/26			28' WOEEOS		þ	2	x	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
72	DS-12	25/26			74' WOEEOS		Ρ	2	x	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
73	во	26/27			297' WOEEOS		Р	2	x	5		8,30,23	,DB	77	Vacuum	Pass	8.31.23
74	во	26/27			244' WOEEOS		Р	2	х	3		8.30.23	DB	77	Vacuum	Pass	8.31.23
75	DS-13	26/27			55' WOEEOS		Р	2	x	6		8,31,23	DB	77	Vacuum	Pass	8.31.23
76	SJ	27/EX			2' NOSEOS		Р	2	x	5		8.31.23	DB	77	Vacuum	Pass	8.31.23
77	SJ				27/28/EX		Р	2	x	2		8,31,23	DB	77	Vacuum	Pass	8.31.23
78	BO	27/28			165' WOEEOS		Р	2	x	4		8,30.23	DB	77	Vacuum	Pass	8.31.23
79	SJ				27/28/29		Р	2	x	3		8,30.23	DB	77	Vacuum	Pass	8.31.23
80	во	27/29			123' WOEEOS		Р	2	x	3		8,30,23	DB	77	Vacuum	Pass	8.31.23

Proje	ect Name			Hoot Lake	Closure		. Job	#:		- :	22-03-10	54	Superintendent:	Thavone Darani	kone	_	
Mater	ial Type:			40 mil f/.	2 LL		Prim	ary			Pond						
Job Des	cription:			Сар			Secon	dary			Cell]				
Repo	orted by :			Guadalupe	Estrada						Cap	Х]				
	Other:												•				
					Damage Codes								SF Patch Material	Test Type	Abbrv.		r Types
	Crease Destruct	Sample		Failed Seam Wrinkle	MatDMaterial Defect WSWelder Restart		Lost L		amad	10		Custom Fit Pipe Boot	872	Vacuum Air Pressure		CCap S PPatch	
Sį	Subgrade	a Irregularity		Airvent	RWRoller Wrinkle		Damag				BOE	lum Out	LF Welded	Spark	*W≃West	BExtrus	
	Seam Jo	int	AO	Add On	CSConcrete Structure	e					A∙ TA	ir Test	1098.00	Air Lance	*E=East	<u> </u>	
•	Damage	Seam	Panel				Repair	1	atch		Bead	Date		Machine	Test	Test	Date
Number	Code	Number	Number		Location		Туре		Fee		(Inches)		Operator Name	Number	Type	Results	Complete
81	SJ	29/EX			115' WOEEOS		Р	2	Х	2		8.30.23	DB	77	Vacuom	Pass	8.31.23
82	SJ	29/EX			90' WOEEOS		Р	2	х	2		8.30.23	DB	77	Vacuum	Pass	8.31.23
83	WR	29/EX			73' WOEEOS		Р	2	х	3		8.30.23	DB	77	Vacuum	Pass	8.31.23
84	SI	29/EX			45' WOEEOS		Р	2	х	2		8.30.23	DB	77	Vacuum	Pass	8.31.23
85	SJ				28/29/EX		P	2	x	4		8.30.23	DB	77	Vacuum	Pass	8.31.23
86	BO	5/14			10' WOEEOS		Р	2	х	2		8.31.23	MB	813	Vacuum	Pass	8.31.23
87									х								
88									x								
89									х								
90									x								
91									x								
92									х								
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94									х								
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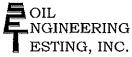
Appendix D - Soil Testing Data

Granular Drainage Material Source Particle Size Test Reports
Granular Drainage Material Source Hydraulic Conductivity Test Reports
Granular Drainage Material In-Place Particle Size Test Reports
Granular Drainage Material In-Place Hydraulic Conductivity Test Reports
Topsoil Source Particle Size Test Reports
Topsoil Source Nutrient Test Reports

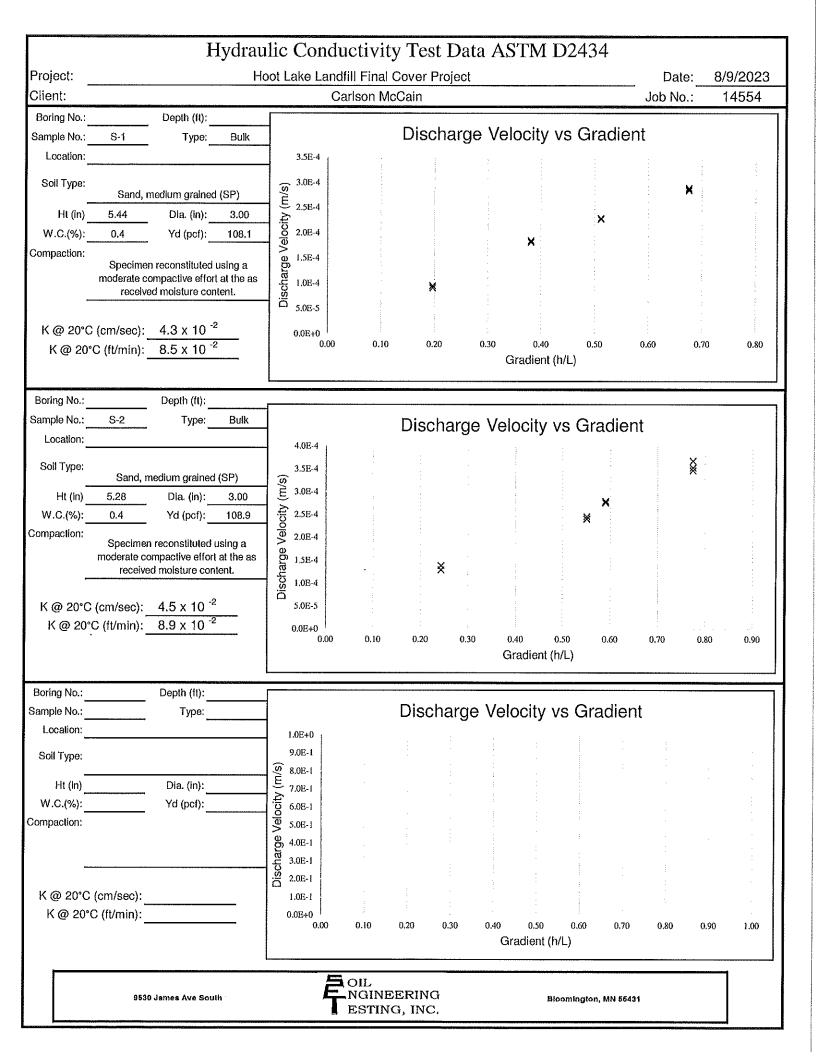
Granular Drainage Material Source Particle Size Test Reports

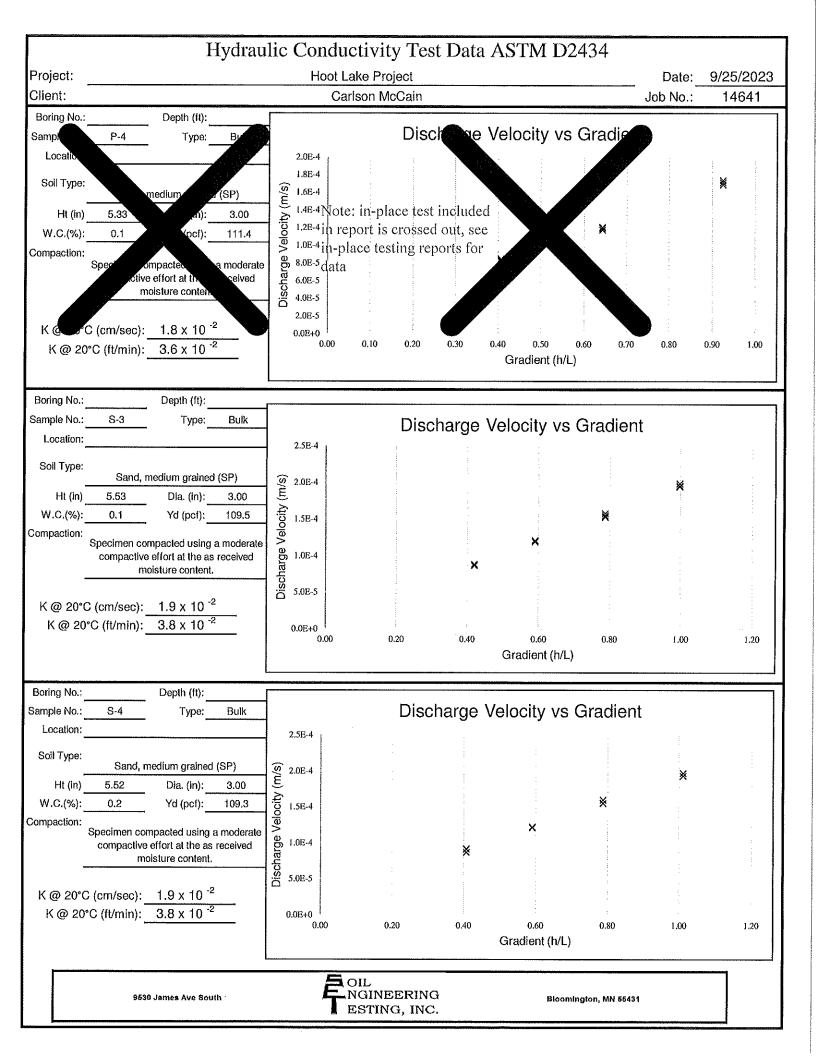
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	Project: H				al Cov	er Pro	oject																		st D			/4/23	
Repor	ted To: C	arlson N	/icCain	<u> </u>				Samp	10													<u> </u>	Re		rt D			/9/23	
_	Location /	Boring I	No	Sam	ple No.	_E	Depth (ft)	Samp										Soil C	lassifi	cation				to	lote ops:	: sou oil te	urce est		
* [-			5-1	T		Bulk	i							s	and,	med	ium g	grained	(SP)			ir	าดใน	ded	in re	port	
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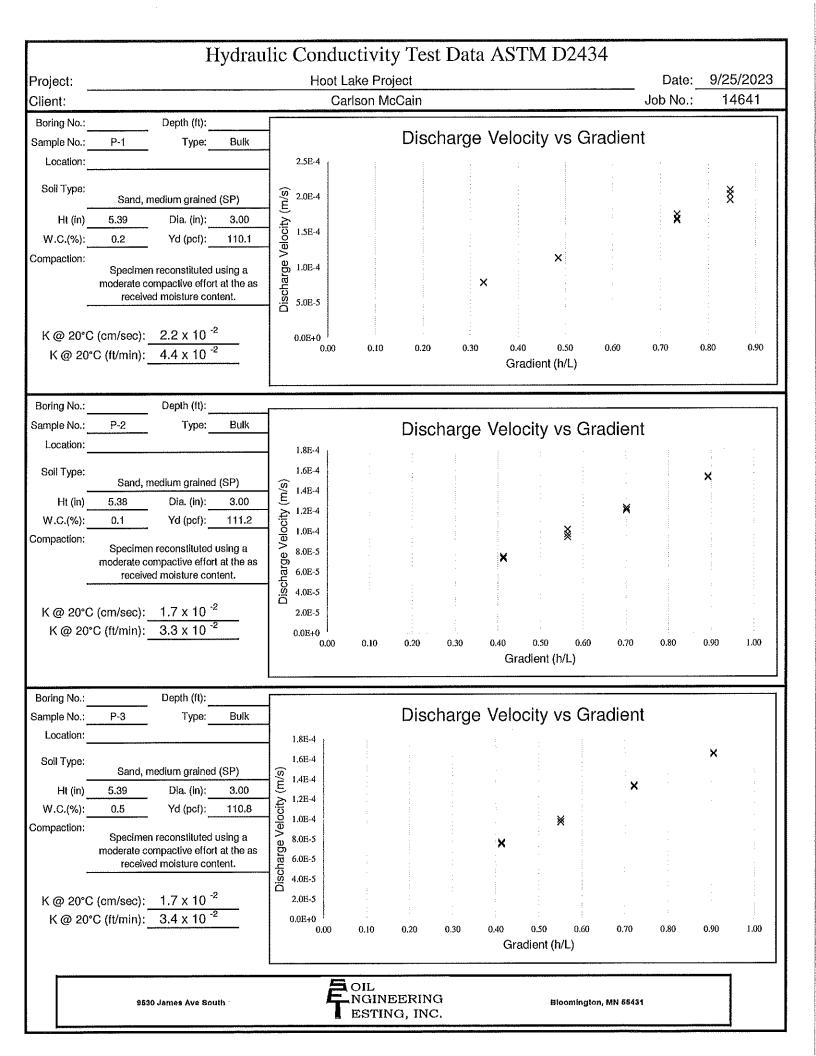


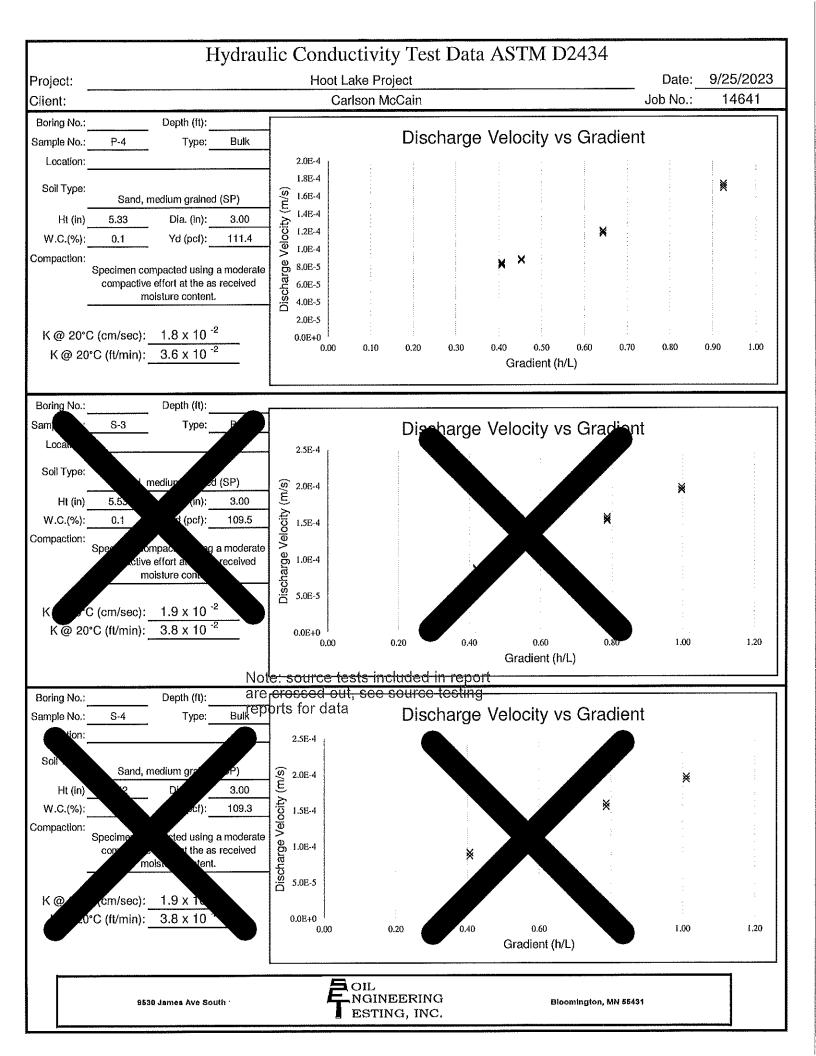
Granular Drainage Material In-Place Particle Size Test Reports

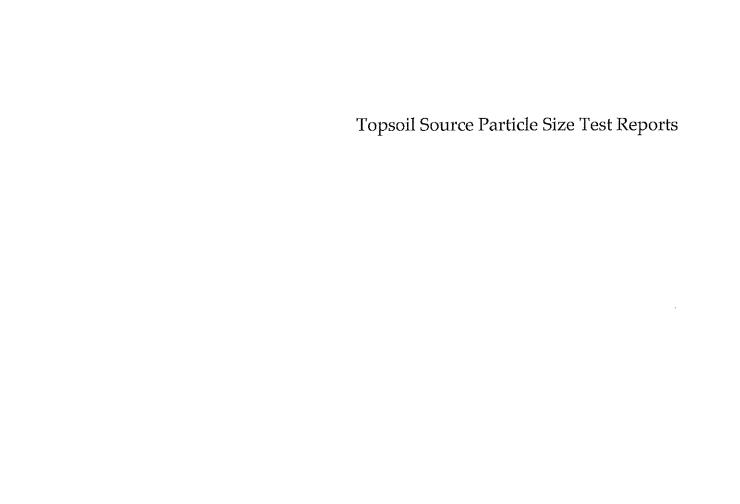
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Granular Drainage Material In-Place Hydraulic Conductivity Test Reports







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Topsoil Source Nutrient Test Reports

University of Minnesota Soil Testing Laboratory

SOIL TEST REPORT Farm and Field

Client Copy

Department of Soil, Water, and Climate Minnesota Extension Service Agricultural Experiment Station

CARLSON MCCAIN **BRANNON PETERSON**

15650 36TH AVE N

STE 110

PLYMOUTH MN 55446

Page Report No.

87109 Laboratory No.

171144 08/09/23

Date Received

Very High

Date Reported

08/11/23

								IN	TERPRE	TATION C	F SOIL TES	T RESULTS
Soil Texture Code: C (coarse):	X _ G:		PRO	E X	9		۸ د ۲	N				
sand, loamy sand, sandy loam	н	0	E M	8 8	8	н	I L V	N N			к	
M (medium): loam, slit loam	M É D	0		Ę	7	H	E	N N			K K	
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SOIL TEST RESULTS

Sample/	Estimated	Organic	Soluble			Nitrate	Olsen	Bray 1		Sulfur							
Field	Sell	Matter	Salfs		Buffer	NO3-N	Phosphorus	Phosphorus	Polassium	SO4-S	Zíne	fron	Manganese	Соррег	Boron	Calcium	Magnesium
Number	Texture	%	mmhos/cm	pН	Index	Ib/A	ppm P	ppm P	ppm K	ppm	ppm	ppm	ppm	ppm	pom		[•
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RECOMMENDATIONS Crop Before Last: CROP NOT SPECIFIED; Last Crop: Fallow

Grop and Yield Goal	Method	Lime #ENP/A	N Ib/A	P2O5 lb/A	K2O Ib/A	S Ib/A	Zn lb/A	Fe lb/A	Mn lb/A	Cu lb/A	B lb/A	Ca lb/A	Mg Ib/A
Native Grasses	Broadcast	0	0	40	40								
3 tons/acre	Row/Drill												

Comments: 4,5,18

County: OTTER TAIL (WEST). For additional information, contact the soil extension specialist: DANIEL KAISER 612-624-3482 Website: http://soiltest.cfans.umn.edu

Comments

- The recommended rates of P2O5 and/or K2O are to be broadcast and incorporated beforet3, seeding and top-dressed after the 1st cutting of the 1st year in production. Re-test field before the 2nd production year. If oats are seeded as a nurse crop, apply 30 lb. N/acre.
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- If only phosphorus is recommended for any agronomic crop and the recommendation is 30 lb./A or less, it may not be practical to broadcast this low rate. An alternative would be to double this suggested rate and broadcast on alternate years.
- 6. If only potash is recommended for any agronomic crop and the recommendation is 40lb./A¹⁷· or less, it may not be practical to broadcast this low rate. An alternative would be to double this suggested rate and broadcast on alternate years.
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- 8. This P level is very low. Use a combination of starter (drill applied for small grain) and broadcast applications. Subfract the rate for starter (drill) from the suggested broadcast rate. Use the starter (drill) rate and broadcast the remainder.
- This K level is low. Use a combination of starter (drill applied for small grain) and broadcast applications. Subtract the rate for starter (drill) from the suggested broadcast rate. Use the starter (drill) rate and broadcast the remainder.
- No broadcast potash is recommended. Suggested rate is 10-15 lb. K2O/acre in a starter 23, fertilizer.
- 11. Use of a starter fertilizer (fertilize with the drill for small grains) is a good way to apply fertilizer at soil test levels where phosphate and/or potash are needed. Do no apply urea, thiosulfate, or boron in contact with the seed. Do not use more than 10-15 lb./acre of N + K2O in contact with the seed for small grain, or 8 lb./acre of N + K2O in contact with the seed for corn production.
- 12. The soil test for sulfur is appropriate only for coarse textured (sands, loamy sand, sandy loams) soils. Sulfur recommendations are made for sandy soils only. Use an annual application of 25 lb. S/acre for alfalfa and red clover. For corn and small grains use either a broadcast application of 25 lb. S/acre or a band application of 10-15 lb. S/acre. Use this recommendation if there was no soil test for S.

- In Minnesota, research with agronomic crops has shown that boron (B) use has only been beneficial for alfalfa production on limited soils. Therefore, B is not recommended for other agronomic crops.
- 14. In Minnesota, use of iron (Fe), manganese (Mn), and copper (Cu) has not increased yield of this crop. Therefore, none is recommended. Use of zinc (Zn), where needed, may increase yield at the recommended rate listed.
 - Although no fertilizer N is recommended on this field, as based on the test result for nitrogen, a small amount of N applied in a starter fertilizer at planting is encouraged.
 - Research trials in Minnesota show that this crop will not respond to the use of micronutrients (Zn, Fe, Mn, Cu, B). Therefore, none are recommended.
 - If the small grain crop follows soybeans, subtact 20 lb. N/acre from the N recommendation listed.
- 18. Manure applications result in nutrient credits that should be subtracted from fertilizer needs. Proper nutrient crediting is discussed in bulletins: AG-FO-5879C, 5880C, 5881C, 5882C and 5883C available at your County Extension Office.
- 19. Do not place any fertilizer in contact with the soybean seed.
- 20. Do not apply more than 5.5 lb./acre of N + K20 in direct contact with the seed.
- 21. Subtract the NO3-N test result for the top 2 feet from the recommendation value to determine the amount of fertilizer N (ib./acre) to apply.
- 22. The soil ntitrate test can be used to predict fertilizer N needs in your area if samples are taken before planting in the spring. If the sample was collected at another time, the N recommendation listed is based on yield goal, previous crop, and organic matter content. See Bulletin 3790 B (revised) for more details.
 - The recommended N rate shown should be used if barley is grown for malting purposes. If barley is used for feed, increase rate by 10 percent (multiply by 1.1).
- 4. Lime recommendations are reported as lbs. of ENP per acre (Effective Neutralizing Power). To determine the tons of lime needed to be applied per acre, divide the ENP recommendation by the "ENP PER TON" value provided by your liming material dealer.
 - No nitrogen is recommended because of NO3-N carryover.

University of Minnesota Soil Testing Laboratory

SOIL TEST REPORT Farm and Field

Client Copy

Department of Soil, Water, and Climate Minnesota Extension Service Agricultural Experiment Station

CARLSON MCCAIN BRANNON PETERSON 15650 36TH AVE N

Report No.

Page

2

STE 110

Laboratory No.

87109

171145

PLYMOUTH MN 55446

Date Received Date Reported 08/09/23 08/11/23

									INTER	PRET	TATION (OF SOIL	TEST RESU	JLTS
Soil Texture Code: C (coarse): sand, loamy sand,	H I G H	0	P R O B L	E X C E S	8		A K A							
sandy loam M (medium): foam, sill loam	M E D	0	H	8 V E	7	H H	E N	N N N				K K K		
F (fine): clay loam, sity clay loam, sity clay	D L O W	0000	o K		6	H H H	A C I D	N N N	F F F P	• •	P P	К К К		

SOIL TEST RESULTS

Sample <i>i</i> Field Number	Soil	Organic Matter %	Soluble Salts mmhos/cm	ρН	Bulfer Index	Nitrate NO3-N Ib/A	Olsen Phosphorus ppm P	Bray 1 Phosphorus ppm P	Potassium ppm K	Sulfur SO4 -S ppm	Zinc ppm	lron ppm	Manganese ppm	Copper ppm	Boron Boron	Calclum	Magneslum
HLP2	Medium			8.0		154.4	7	3	101				·			ppm	ppm

RECOMMENDATIONS Crop Before Last: CROP NOT SPECIFIED; Last Crop: Fallow

Crop and Yield Goal	Melhod	Lime #ENP/A	Ib/A	P2O5 Ib/A	K2O Ib/A	S lb/A	Zn Ib/A	Fe lb/A	Mn lb/A	Cu Ib/A	B lb/A	Ca lb/A	Mg lb/A
Native Grasses	Broadcast	0	0	40	40								
3 tons/acre	Row/Drill		·										

Comments: 4,5,18

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University of Minnesota Soil Testing Laboratory

SOIL TEST REPORT Farm and Field

Zn lb/A

Client Copy

Department of Soll, Water, and Climate Minnesota Extension Service Agricultural Experiment Station

CARLSON MCCAIN **BRANNON PETERSON** 15650 36TH AVE N

STE 110

PLYMOUTH MN 55446

Report No.

Page

Laboratory No.

87109

171146

Date Received Date Reported 08/09/23 08/11/23

INTERPRET	ation	OF	SOIL	TEST	RESU	ILTS
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Very High

Soli Texture Code: C (coarse):	Н В Н	0	P R O B	E X G E	9		A L K A	N N N			ĸ
sand, loamy sand, sandy loam		ŏ	E	\$ 5 1	8	Н		N	P	Р	ĸ
M (medium); loam, silt loam	ME	0	"	V E	7	H	Ë	N N	P P	P P	K
F (fine):	ľ	0			a	H		N	P	P	K
clay loam, slity clay loam,	r	0	,		Ť	Н	ĉ	N N	P	P	K
silty clay	W	0	Į ķ		5	Н	P]	N	P	Р	K

SOIL TEST RESULTS

Sample/	Estimated	Organic	Soluble		5)eeaa	Nitrate NO3-N	Oisen	Bray 1	Potassium	Solfur SO4 -S	Zinc	Iron	Manganese	Copper	Boron	Calcium	Magnesium
Field	Soil	Matter	Salts	1	Buffer		Phosphorus	1				Iron		• • •		Calcium	Magnesium
Number	Texture	%	mmhos/cm	рΗ	Index	lb/A	ppm P	ppm P	ppm K	ppm	ppm	ppm	ppm	ppm	bbw	1	1
 				 	<u> </u>								1			ppm	- ppm
HLP3	Medium	4.6		7.8		348	14	14	134				1			ļ	
DECON	ANACNIDAT	TONO	Crop Befo		L CDO	NOTE	COLUED	Loof	Crop: Fal	low							
RECON	<i>I</i> MENDAT	HONS -	CLOB Reig	ne Las	i. ukui	- 1401 91	「こうげにし	, Last	orup. Fai	IUW							

Lime #ENP/A N lb/A P2O5 lb/A Crop and Yield Goal Melhod

0

0

20

K2O lb/A S Ib/A

10

Mn Ib/A Сu lb/A Mg Ib/A

Native Grasses 3 tons/acre

Broadcast Row/Drill

Comments: 4,5,18

County: OTTER TAIL (WEST). For additional information, contact the soil extension specialist: DANIEL KAISER 612-624-3482 Website: http://soiltest.cfans.umn.edu

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- 9. This K level is low. Use a combination of starter (drill applied for small grain) and broadcast applications. Subtract the rate for starter (drill) from the suggested broadcast rate. Use the starter (drill) rate and broadcast the remainder.
- No broadcast potash is recommended. Suggested rate is 10-15 lb. K2O/acre in a starter 23. fertilizer.
- 11. Use of a starter fertilizer (fertilize with the drill for small grains) is a good way to apply fertilizer at soil test levels where phosphate and/or potash are needed. Do no apply urea, thiosulfate, or boron in contact with the seed. Do not use more than 10-15 lb./acre of N + K2O in contact with the seed for small grain, or 8 lb./acre of N + K2O in contact with the seed for corn production.
- 12. The soil test for sulfur is appropriate only for coarse textured (sands, loamy sand, sandy loams) soils. Sulfur recommendations are made for sandy soils only. Use an annual application of 25 lb. S/acre for alfalfa and red clover. For corn and small grains use either a broadcast application of 25 lb. S/acre or a band application of 10-15 lb. S/acre. Use this recommendation if fiere was no soil test for S.

- In Minnesota, research with agronomic crops has shown that boron (B) use has only been beneficial for alfalfa production on limited soils. Therefore, B is not recommended for other agronomic crops.
- 4. In Minnesota, use of Iron (Fe), manganese (Mn), and copper (Cu) has not increased yield of this crop. Therefore, none is recommended. Use of zinc (Zn), where needed, may increase yield at the recommended rate listed.
 - Although no fertilizer N is recommended on this field, as based on the test result for nitrogen, a small amount of N applied in a starter fertilizer at planting is encouraged.
 - Research trials in Minnesota show that this crop will not respond to the use of micronutrients (Zn, Fe, Mn, Cu, B). Therefore, none are recommended.
 - If the small grain crop follows soybeans, subtact 20 lb. N/acre from the N recommendation listed
- 18. Manure applications result in nutrient credits that should be subtracted from fertilizer needs. Proper nutrient crediting is discussed in bulletins: AG-FO-5879C, 5880C, 5881C, 5882C and 5883C available at your County Extension Office.
- 19. Do not place any fertilizer in contact with the soybean seed.
- 20. Do not apply more than 5.5 lb./acre of N + K20 in direct contact with the seed.
- Subtract the NO3-N test result for the top 2 feet from the recommendation value to determine the amount of fertilizer N (ib./acre) to apply.
- 22. The soil ntitrate test can be used to predict fertilizer N needs in your area if samples are taken before planting in the spring. If the sample was collected at another time, the N recommendation listed is based on yield goal, previous crop, and organic matter content. See Bulletin 3790 B (revised) for more details.
 - The recommended N rate shown should be used if barley is grown for mailing purposes. If barley is used for feed, increase rate by 10 percent (multiply by 1.1).
- 4. Lime recommendations are reported as lbs, of ENP per acre (Effective Neutralizing Power). To determine the tons of lime needed to be applied per acre, divide the ENP recommendation by the "ENP PER TON" value provided by your liming material dealer.
 - No nitrogen is recommended because of NO3-N carryover.

Appendix E - Turf Establishment Information

Seed Mix Erosion Control Blanket Data Turf Mat Data

Seed Mix

25-121

Sandy General Roadside

	Danuy General Roadside				
Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
Smooth Brome	Bromus inermis	8.97	8.00	-	
slender wheatgrass	Elymus trachycaulus	2.24	2.00	13.12%	26.25
Hard fescue	Festuca trachyphylla	4.76		3.29%	5.08
Perennial Ryegrass	Lolium perenne		4.25	6.96%	55.10
Park Kentucky bluegrass	Poa pratensis Park	15.13	13.50	22.13%	67.25
Canada bluegrass		17.93	16.00	26.23%	510.50
switchgrass	Poa compressa	8,69	7.75	12.70%	425.50
little bluestem	Panicum virgatum	1.68	1.50	2.46%	7.73
sand dropseed	Schizachyrium scoparium	1,68	1.50	2.46%	8.28
sand dropseed	Sporobolus cryptandrus	1.68	1.50	2,45%	110.00
numba pratria alaura	Total Grasses	62.77	56.00	91.80%	1215.69
purple prairie clover	Dalea purpurea	0.56	0.50	0.82%	2.75
Red Clover	Trifolium pratense	5,04	4.50	7.38%	28.13
	Total Forbs	5.60	5.00	8.20%	30.88
Purpose:	Totals:	68.37	61.00	100.00%	1246.57
	General non-native roadside for dry or sandy soils.				
Planting Area:	Statewide. Well suited for Pine Mo Uplands, and Anoka Sand Plain su 3B	oraines & C	Juhuach Di	ains, Mille La Distrot 3A an	ics d eastern



Erosion Control Blanket Data



MATERIALS DATA SHEET:

Product Name: EG-2sRD Manufacturer: Ero-Guard, Inc.

Contact: Brian F Dingels (612) 382-2783

Physical Description:

Size: Available in 16' and 8' widths and 112.5' and 562.5' lengths (Custom cuts are available upon

request).

Plastic: 2 layers (Top and Bottom) of .5" x .5" opening, lightweight photodegradable polypropylene

plastic. EG-2sRD also has a UV degrader added to it to break down the plastic at a more rapid

rate.

Thread: 420 denier degradable split yarn, with a UV degrader added to it to match its longevity with that

of the plastic.

Matrix: 100% weed free agricultural straw, .50 lbs/yd²

Packaging: All rolls are wrapped tightly with stretch wrap to protect the rolled erosion control product

from the weather and elements.

<u>Longevity</u>: The Functional Longevity is approximately 60-90 days depending on sunlight, moisture and environmental conditions.

Recommended Applications: EG-2sRD is recommended for use on slopes up to 3:1 and in low flow channels.

Recommended Installation pattern: The leading edge is to be trenched into a 6" deep trench and the blanket is to be placed parallel to the anticipated water flow. When more than 1 blanket is required, they are to be overlapped 6" on all overlapping sides and tiled in a shingle type pattern as to not let the water underneath the blanket.



.7 staplas∕yd .4.1 SLOPES



1 2 staples/yd - 3:1 SLOPES



1.75 staples/yd 2·1 SEOPES



35 staple: Дф - м.н. тын сы - ном сымучы



3 8 stophisAyd
FIGHTLOW
CHANNEL

Your Leader In Erosion Control Blankets

412 Hwy 22 South · Mapleton, MN · 56065 Phone: (612) 382-2783 · Fax: (507) 524-3859

Turf Mat Data









PRODUCT DATA SHEET TRINET® RECYCLEX®

DESCRIPTION

TriNet Recyclex, a three dimensional permanent non-degradable Turf Reinforcement Mat (TRM), consists of 100% post-consumer recycled polyester (green bottles) with 80% five-inch fibers or greater fiber length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the TRM. The top, middle, and bottom of each TRM is stitched together with ultra heavy duty UV stabilized polypropylene nets. Fibers are tightly crimped and curled to allow fiber interlock, and to retain 95% memory of the original shape after loading by hydraulic events. Fibers have a specific gravity greater than 1.0; therefore, the blanket will not float during hydraulic events. TriNet Recyclex TRM meets Federal Government Executive Order initiatives for use of products made from, or incorporating, recycled materials. TriNet Recyclex TRM shall be manufactured in the U.S.A. and the fibers shall be made from 100% recycled post-consumer goods.

TriNet Recyclex TRM has a design soil loss ratio (event-based RUSLE C factor) of .015 and is typically suitable for slopes up to .5H:1V. TriNet Recyclex TRM is rated for channel flows up to 25.0 ft/s (7.62 m/s) and 14 lb/ft² (670 Pa) shear stress.

PHYSICAL PROPERTIES

TriNet Recyclex TRM measurements at time of manufacturing:

Width		8.0 ft (2.4 m)	16 ft (4.9 m)
Length		67.5 ft (20.6 m)	67.5 ft (20.6 m)
Area		60.0 yd² (50.2 m²)	120 yd² (100,34 m²)
Weight		68.9 lb (31.25 kg)	137.8 lb (62,5 kg)
Fiber Length (80% min.)		≥ 5.0 in (≥ 12.7 cm)	≥ 5.0 in (≥ 12.7 cm)
]	Recyclex Matrix (± 10%)	0.500 lb/yd² (0.271 kg/m²)	0.500 lb/yd² (0.271 kg/m²)
,	Product Weight (± 10%)	1,148 lb/yd² (0.623 kg/m²)	1.148 lb/yd² (0.623 kg/m²)
Net Openings	Top - Ultra Heavy Duty Polypropylene (UV-Stabilized)	0,45 in x 0,58 in (11,43 mm x 14,73 mm)	0.45 in x 0.58 in (11.43 mm x 14.73 mm)
	Middle - Ultra Heavy Duty Polypropylene (UV-Stabilized)	0,45 in x 0.58 in (11,43 mm x 14,73 mm)	0.45 in x 0.58 in (11.43 mm x 14.73 mm)
	Bottom - Ultra Heavy Duty Polypropylene (UV-Stabilized)	0.45 in x 0.58 in (11.43 mm x 14.73 mm)	0.45 in x 0.58 in (11.43 mm x 14.73 mm)

TYPICAL INDEX VALUES

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.529 in (13.44 mm)
Light Penetration	ASTM D 6567	26.7%
Resiliency	ASTM D 6524	83%
Mass per Unit Area	ASTM D 6566	1,204 lb/yd ² (0,653 kg/m ²)
MD-Tensile Strength Max.	ASTM D 6818	1000,0 lb/ft (14,59 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	900.0 lb/ft (13.13 kN/m)
MD-Elongation	ASTM D 6818	20.0%
TD-Elengation	ASTM D 6818	19.5%
UV Stability	ASTM D 4355 (1,000 hr)	90% minimum
Porosity	Calculated	96.63%
Stiffness	ASTM D6575	2.62 oz-in
Bench-Scale Rain Splash	ASTM D 7101	SLR = 45.66 @ 2 in/hr *,b
Bench-Scale Rain Splash	ASTM D 7101	$SLR = 16.45 @ 4 in/hr^{a,b}$
Bench-Scale Rain Splash	ASTM D 7101	SLR = 12.12 @ 6 in/hr *,b
Bench-Scale Shear	ASTM D 7207	4.3 lb/ft2 @ 0.5 in soil loss b
Germination Improvement	ASTM D 7322	311%

^{*} SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. * Bench-scale index values should not be used for design purposes.





Proud Participant in NTPEP and Proud Member of:







TriNet[®] Recyclex[®] TURF REINFORCEMENT MAT SPECIFICATION

PART I - GENERAL

1.01 Summary

- A. The Turf Reinforcement Mat (TRM) contains post-consumer recycled polyester fiber for the purpose of erosion control and revegetation as described herein.
- B. This work shall consist of furnishing and installing the TRM; including fine grading, installing TRM, stapling, and miscellaneous related work, in accordance with these standard specifications and at the locations identified on drawings or designated by the owner's representative. This work shall include all necessary materials, labor, supervision, and equipment for installation of a complete system.
- C. All work of this section shall be performed in accordance with the conditions and requirements of the contract documents.
- D. The TRM shall be used to prevent surface erosion and enhance revegetation. Based on a project-by-project engineering analysis, the TRM shall be suitable for the following applications:
 - 1. Slope protection
 - 2. Channel and ditch linings
 - 3. Reservoir embankments and spillways
 - 4. Culvert inlets and outfalls
 - 5. Dikes, levees, and riverbanks

1.02 Performance Requirements

- A. TRM shall provide a permanent cover material to reduce slope and/or channel erosion and enhance revegetation.
- B. TRM performance requirements:

Slopes^a:

≤ .5H:1V (ASTM D6459)

C factor^a:

.015 (ASTM D6459)

Shear Stressa:

14.0 lb/ft² (670 Pa) (ASTM D6460)

Velocity^a:

25.0 ft/sec (7.62 m/sec) (ASTM D6460)

Functional Longevity:

Permanent

Slope and channel performance ratings are based on typical industry values.



1.03 Submittals

A. Submittals shall include complete design data, Product Data Sheets, Product Netting Information, SDS, Staple Pattern Guides, Installation Guidelines, Manufacturing Material Specifications, Manufacturing Certifications, CAD details, and a Manufacturing Quality Control Program. In addition, the Manufacturer shall provide a test report providing data showing the performance capabilities of the TRM along with reference installations similar in size and scope to that specified for the project.

1.04 Delivery, Storage, and Handling

- A. TRM shall be furnished in rolls and wrapped with suitable material to protect against moisture intrusion and extended ultraviolet exposure prior to placement.
- B. TRM shall be of consistent thickness with fibers distributed evenly over the entire area of the TRM.
- C. TRM shall be free of defects and voids that would interfere with proper installation or impair performance.
- D. TRM shall be stored by the Contractor in a manner that protects them from damage by construction activities.

PART II - PRODUCTS

2.01 Turf Reinforcement Mat

- A. TRM shall be TriNet Recyclex, as manufactured by American Excelsior Company, Arlington, TX (1-866-9FIBERS).
- B. TriNet Recyclex, a three dimensional non-degradable Turf Reinforcement Mat, consists of 100% post-consumer recycled polyester (green bottles) with 80% of fibers ≥ 5 inches in length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the TRM. The top, middle, and bottom of each TRM shall be covered with ultra-heavy duty polypropylene UV stabilized black netting. Fibers shall be tightly crimped and curled to allow fiber interlock and to retain 95% memory of the original shape after loading by hydraulic events. Fibers shall have a specific gravity of greater than 1.0; therefore, the TRM will not float during hydraulic events. TriNet Recyclex shall meet Federal Government Executive Order initiatives for use of products made from, or incorporating, recycled goods. TriNet Recyclex shall be manufactured in the U.S.A. and the fibers shall be made from 100% recycled post-consumer goods.



C. TRM shall have the following material characteristics:

Width		8.0 ft (2.4 m)	16 ft (4.9 m)
Length		67.5 ft (20.6 m)	67.5 ft (20.6 m)
Area		60.0 yd ² (50.2 m ²)	120.0 yd ² (100.34 m ²)
Weight		68.9 lb (31.25 kg)	137.8 lb (62.5 kg)
Fiber Length (80% min.)		≥ 5.0 in (≥ 12.7 cm)	\geq 5.0 in (\geq 12.7 cm)
Recyclex Matrix (± 10%)		0,500 lb/yd² (0.271 kg/m²)	0.500 lb/yd ² (0.271 kg/m ²)
Product Weight (± 10%)		1.148 lb/yd² (0.623 kg/m²)	1.148 lb/yd ² (0.623 kg/m ²)
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TD-Elongation	ASTM D 6818	19.5%
UV Stability	ASTM D 4355 (1,000 hr)	90% minimum
Porosity	Calculated	96.63%
Stiffness	ASTM D6575	2.62 oz-in
Bench-Scale Rain Splash	ASTM D 7101	$SLR = 45.66 @ 2 in/hr^{b,c}$
Bench-Scale Rain Splash	ASTM D 7101 ,	$SLR = 16.45 @ 4 in/hr^{b,c}$
Bench-Scale Rain Splash	ASTM D 7101	$SLR = 12.12 @ 6 in/hr^{b,c}$
Bench-Scale Shear	ASTM D 7207	4.3 lb/ft2 @ 0.5 in soil loss ^c
Germination Improvement	ASTM D 7322	311%

^b SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. ^c Bench-scale index values should not be used for design purposes.

2.02 Staples

A. Staples shall be U-shaped, 11 gauge steel wire and shall be 1 inch wide by 6 inches long, or 2 inches wide by 8 inches long.



PART III - EXECUTION

3.01 TRM Supplier Representation

A. Contractor shall coordinate with the TRM supplier for a qualified representative to be present at the job site on the start of installation to provide technical assistance as needed. Contractor shall remain solely responsible for the quality of installation.

3.02 Site Preparation

- A. Before placing TRM, the Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications. The Contractor shall not proceed until all unsatisfactory conditions have been remedied. By beginning construction, Contractor signifies that the preceding work is in conformance with this specification.
- B. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.
- C. No vehicular traffic shall be permitted directly on the TRM.

NOTE: Topsoiling, seeding, and fertilizing is not included in this specification.

3.03 Slope Installation

- A. TRM shall be installed as directed by the owner's representative in accordance with manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of TRM shall be as shown on the project drawings.
- B. TRM shall be orientated in vertical strips and anchored with staples, as identified in the Staple Pattern Guide. Adjacent strips shall be overlapped to allow for installation of a common row of staples that anchor through the nettings of both TRMs. Horizontal joints between TRMs shall be sufficiently overlapped with the uphill end on top for a common row of staples so that the staples anchor through the nettings of both TRMs.
- C. Where exposed to overland sheet flow, a trench shall be located at the uphill termination. TRM shall be stapled to the bottom of the trench. The trench shall be backfilled and compacted. Where feasible, the uphill end of the TRM shall be extended three feet over the crest of the slope.
- D. Slope TRM shall be overlapped by the channel TRM sufficiently for a common row of staples to anchor through the nettings of both products when terminating into a channel.

3.04 Channel Installation

A. TRM shall be installed as directed by the owner's representative in accordance to manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of TRM shall be as shown on the project drawings.



- B. TRM shall be installed parallel to the flow of water. The first roll shall be centered longitudinally in mid-channel and anchored with staples as identified in the Staple Pattern Guide. Subsequent rolls shall follow from channel center outward and be overlapped to allow installation of a common row of staples so that the staples anchor through the nettings of both TRMs.
- C. Successive lengths of TRM shall be overlapped sufficiently for a common row of staples with the upstream end on top. Staple the overlap across the end of each of the overlapping lengths so that staples anchor through the nettings of both TRMs.
- D. A termination trench shall be located at the upstream termination. TRM shall be stapled to the bottom of the trench. The trench shall be backfilled and compacted.

3.05 Quality Assurance

- A. TRM shall not be defective or damaged. Damaged or defective materials shall be replaced at no additional cost to the owner.
- B. Product shall be manufactured in accordance to a documented Quality Control Program. At a minimum, the following procedures and documentation shall be provided upon request:
 - 1. Manufacturing Quality Control Program Manual
 - 2. First piece inspection of products produced to assure component materials and finished product tolerances are within manufacturer specifications.
 - 3. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
 - 4. Every roll shall be visually inspected.
 - 5. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
 - 6. At a minimum, every third roll shall be weighed to insure conformance of manufacturers specifications.
 - 7. Each individual erosion control blanket shall be inspected prior to packaging for conformance to manufacturing specifications.

3.06 Clean-up

A. At the completion of this scope of work, Contractor shall remove from the job site and properly dispose of all remaining debris, waste materials, excess materials, and equipment required of or created by Contractor. Disposal of waste materials shall be solely the responsibility of Contractor and shall be done in accordance with applicable waste disposal regulations.

3.07 Method of Measurement

A. The TRM shall be measured by the square yard of surface area covered. No measurement for payment shall be made for overlaps, fine grading, trenching, staples, or other miscellaneous materials necessary for placement of the erosion control TRM.



3.08 Basis of Payment

A. The accepted quantities of TRM shall be paid for at the contract unit price per square yard, complete in place.

Payment shall be made under:

Pay Item

Turf Reinforcement Mat

Pay Unit Square Yards

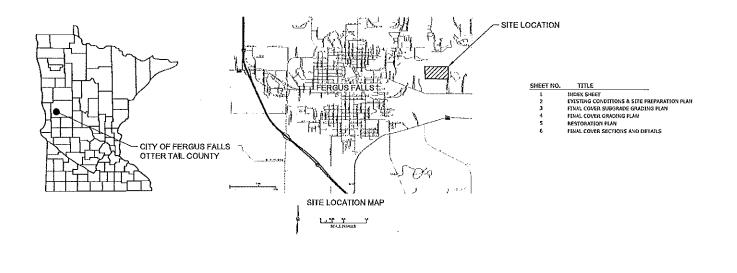
Disclaimer: TriNet Recyclex is a system for erosion control and revegetation on slopes and channels. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in erosion control and re-vegetation applications. However, since physical conditions vary from job site to job site and even within a given job site, AEC makes no performance guarantees and assumes no obligation or liability for the reliability or accuracy of information contained herein for the results, safety, or suitability of using TriNet Recyclex, or for damages occurring in connection with the installation of any erosion control product whether or not made by AEC or its affiliates, except as separately and specifically made in writing. These specifications are subject to change without notice.



Appendix F – Record Drawings



OTTER TAIL POWER COMPANY HOOT LAKE ASH LANDFILL MPCA PERMIT No. SW-211 FERGUS FALLS, MINNESOTA



OTTER TAIL POWER COMPANY 1012 Water Plant Rd, Fergus Falls, MN 56537 HOOT LAKE ASH LANDFILL FERGUS FALLS, MI INDEX SHEET
2023 FINAL CLOSURE RECORD DRAWINGS

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