

### **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.

Park M. Vaporie	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 Bc: 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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# 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:

Company	Activity or Products
Carlson McCain, Inc. (Carlson McCain)	Design, QA/QC
Veit & Company, Inc. (Veit)	Earthwork (Prime Contractor)
Global Containment Solutions, LLC. (GCS)	Geomembrane Installation (Subcontractor to Veit)
Skaps Industries, Inc. (Skaps)	Geomembrane Manufacturer
Soil Engineering Testing, Inc. (SET)	Soil Testing (Subcontractor to Carlson McCain)
Neaton Brothers Erosion, Inc. (Neaton Brothers)	Seeding and Turf Restoration (Subcontractor to 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

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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

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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

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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 Sieve	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 <sup>-2</sup>					
			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 <sup>-2</sup>					
Required	100	-	≤ 5.0	SP, SC, SM, SW-SM, SW-SC, SP-SM, SP-SC	≤ 6.0	≥ 1.0 x 10 <sup>-3</sup>					

### 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 Ottor Tail Power

Otter '	Tail	Power
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Sample No.	Percent Passing 2 inch Sieve	Percent Passing No. 4 Sieve	Percent Passing No. 10 Sieve	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
Guidance	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**





Photo 1 7/10/2023

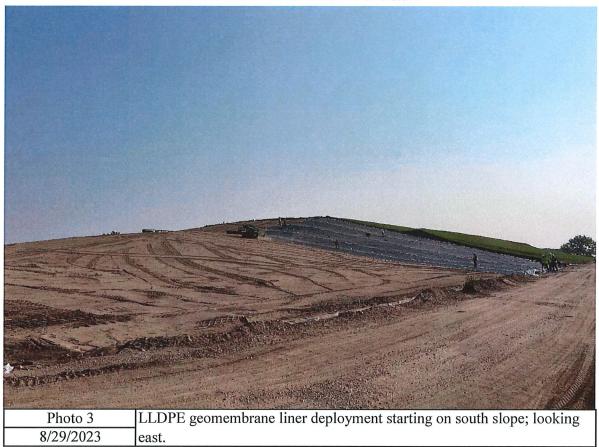
Subgrade grading, looking northeast at landfill.



7/10/2023

southwest.

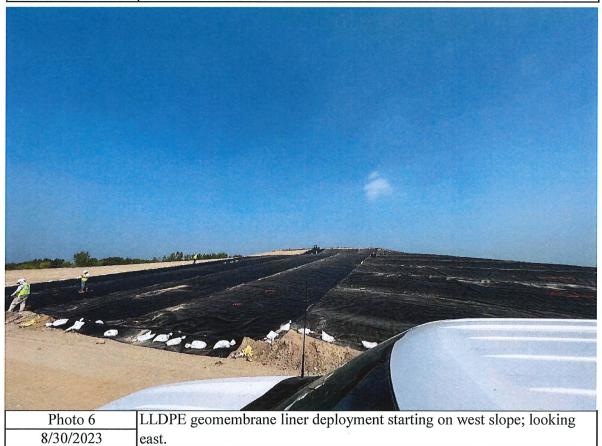
Hoot Lake Ash Landfill 2023 Final Closure



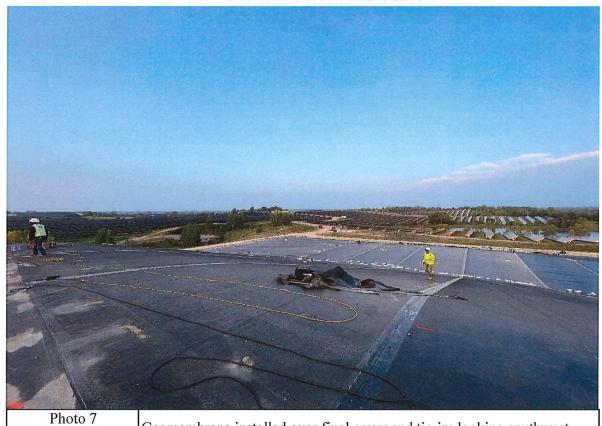


Hoot Lake Ash Landfill 2023 Final Closure





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.

### Construction Photographs Hoot Lake Ash Landfill 2023 Final Closure





Photo 12 Granular drainage material placement over geomembrane on south slope; 9/5/2023 looking northeast.

Hoot Lake Ash Landfill 2023 Final Closure



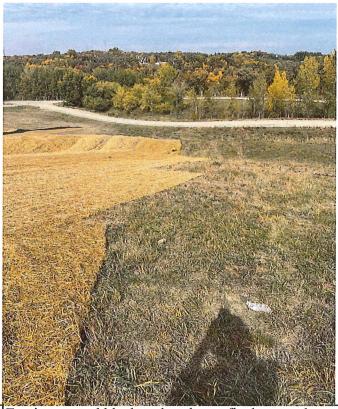


Photo 14 Erosion control blanket placed over final cover along north half of tie-in to existing liner; looking north.

### Construction Photographs Hoot Lake Ash Landfill 2023 Final Closure



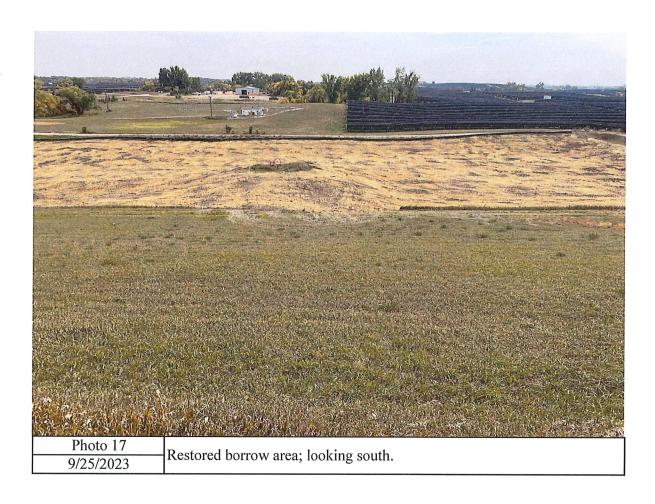
Photo 15 9/25/2023

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



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

	Libra Gr	ada Daviga				WF*	Liner Grade			1.5	D. Granda Dr	rices Low		r		L	Inches folks					Sell Topust 1	rm		B- I I	ida ra	
							Euration					T	Greeder Greinen					Rocky tob			1			Total	177		Comments
Point No.	Marting (TQ	Earth (PQ	Devation [N]	Karthig	East-(II)	Gratier (%)	Della attet fi tes Design	Cancounts	Polici Ro.	Rathby (h)	\$ making (14)	Caretina (1)	Material Shidorea (FC	Jobi No.	Fragrit (14	Farting (/d	Elevertion [14]	Pida as [0]	Comments	Point No.	Kording (15	Eastern (Pd		Tradata (%)	fen.	A Mh	
1301	TH'OLD TH'OLD	43 M/W	138772	144,0177	413,77,12 413,755,34	1,290,14	0.23		3301	Tre to it	411,632,54	179141	121	1001	184.431.44	4335301	127175	2 44	To in they	- E701 - F02	164 (2) 43	413 4 T 12 413 4 T 2 17	1,777.26	924	211	2.11	1e in
1203	EMI-CIFTA	625,781.23	1,350,42	144,0110	413,76133	1,210,14	0.12		2003	114,0114	47 F 76 F 44	1,771.13	131	101	186, 1150	13,71121	12010	0.4	GCM thick that	- AUG	101.01.14	432 7531	1277.81	453	211	2.17	
1204	\$26,41C.00	419,719.52	(13011)	196,41119	4115,702.32	1291.13	0.50		2324	154,431,64	411,720.14	L77144	5.51	3004	144,432.29	418,708.53	1,211.71	0.20	GDIP thick, thay	8004	116 71.16	413,7E.4	1.797.12	0.51	2./1	229	
1742	144,633,14	4:1,574 12	129130	134,430 84	474.924.82	1230.14	0 (2)		2005	164,437.27	a Ke, Cr	្រាវព្	1/4	303	166 028	42 EUL	1255	431		F023	fR UTT	CI BLU	178373.	476	144	2.09	
1006	265,538,21	419,549.85	Unn	164,414.29	313,56672	Linn	0.618		2004	MCIA	618,372.00 478.874.37	1,230.34	114	10%	<b>成位3</b> 2	4335534	1,2E.16	9.31	೯೭೬ ಕನ್ ಕನ್	40CA	155,424.27	423,563,23	1,191.54	675	244	211	
1007	164,177,24	413,81435	Thin to	166,26733 164,37133	\$18,874.26 \$18,782.64	L251.43	424		200	155,357.51	G175171	12954	115	1007	155,117 42	61.F47 63.73.64	77341	9.73 9.32		F27	150711	4:437443	1,197,57	163	111	24	
IXD	166.171.22	423,702.52	1.294.91	155,369,73	413,734.15	LZSLIT	944		233	15171	614.708.M	1,216,03	341	3334	164.163.61	673.72143	1,796.35	032		8000	10,161 51	617311		0.21	223	255	
\$23	HK,KEB	415,642.50	LBCH	TRY HITS	411,565.27	1254.77	411	Subgrade Long play	2213	MERC	£13,653.34	1,21573	107	3015	166 164 CS	478 645 42	12%0	019		A7:0	154,361.01	13,63.63	LISLER	031	261	225	
12 H	244.264.24	429,543.50	LZPLS4	\$46,M4.85	413/SEE 15	123.4	-013		2111	\$55.363.57	415,543.41	1,720 (1	245	1011	144,16411	41.0,56E PE	1,191.31	8.64		511	164,164.90	413,573.44	1,251.71	0.54	2.02	227	
157	1227470	43636	129170	148 75 125		123733	-0 63		3712	INT ME A CE	13 (3)	2,212.09	261	KH	144 14 3 59	E4 6 3 3 3	1,793-29	844		40	164,163.11	11 (31.5	1.25 ( ) 1	82.0	211	117	
1014	24.133.34	413,61133	F301.00	166,863.82	413.000 87	1,800.25 1,800.26	031	S. Sprack High at Fein	2214	166,36574	F3.163.17	132126	131	\$213 \$214	MANUTE IN COLUMN	CT BITT	Linia.	tn	Server Harris	42H	1M.RV.22	414,02.31	LIGHT	CTI CTI	22	1.32 5.76	Stom out at Barry
1513	254,374,64	42,000	13016	364,81070	411423	133123	6.69		221	194,334.74	F3,173.12	1,11127	106	30.5	154334.07	OUTED	13:135	137	Telaslay	CIS	IM.BLM	423,031.0	LISH	0.54	235	3.57	Tels
1215	325 3 ES E 6	directa	13:454	125,33354	inter	1,174,57	6.73		2514	JELLITHIC .	411145.50	1,115.63	773	\$235	224,313.74	negn	1,315.57	6.52		4016	184,513.64	4:11531	133137	613	3.11	2.35	
1217	1870177	422,792.64	1.3TD.CO	114,372.13	413,753-37	1,VE 24	4.26		2517	HARLE	415 TE3.55	1,33123	L14	1217	224 321 15	415,76156	LECLIS	4 57		4217	168 523.32	E 9 779.29	Day	6 532	211	2.75	
1211	FR 784 T2	414,573,42 419,623,43	LEGIN	155,305,25	411,223.EE	1,275.51	-0.23	Subgrade Low, other	2518	784 554 74 234 757 74	£3,179.28 £3,633.55	1,193.13 L335.24	1.45 L13	3774 1018	107 5 84 11 Fee 3 45 24	456,4569	1390 61	614		1010 1010	164,779.67	43,43,63	1,251.34	931		2.14	
2000	165 291 13	437.C334	1323	197,339.33	41174	3,291.30	-010	Andrew (Str. Str.)	15.73	1917411	131731	1,130,10	LOI	NES	166251.01	63.6713	1373	6.59		50	166,294.37	43,43 D	1,331.0	937	202	2.11	
1021	MA 214 27	4:5 2:4 52	1,111.71	155.378.79	£14,174.54	1,313.25	4.01		2021	164,279 64	418,878 12	131113	111	KIZI	164,27.01	(DEEL)	Live	0.50		C21	166,171.51	CAELT	177714	0.15	211	2.39	
1022	Per Service	4:1,851.95	1,111.00	184 26137	424 193 77	132181	-164	Subgrade Low, clay	2272	164,743 16	118 8871.04	1,132.17	124	1/72	124,261,14	#3,6144	1.EELEE	131	S. Sept to be stay	4222	IHU5139	CLISTO	1,334.21	1.54	211	3.23	Subgrada ko-, okra
177)	MA 263 #3	4;5,87033 613 7TL43	1303.00	18421115	4:1 (97.34 4:3 7T.36	LIMITE	0.29		2073	THY MOTO	413,672 64 414,771.57	\$33927 \$35426	174	14723	164,260.03	(3 ET E)	THE	0.51 0.50		1723	FN'187 G	C7 134 75	777172	0.54	211	227	
1573	IMAZILTI	43.014	136139	16122154	G3.237.15	1334.63	427		2021	161,229 (%	425.697.37	1339	174	3.034	1M2M7	425,731,71 425,517,43	1225	9.39		423 423	14671911	43,497.53	130/42	0.57 C43	231	214	
ICZ4	1M.271.47	6353337	120630	16(2)19	413 (111 2)	LUND	8.00	· ·	201	1552/535	C12.03.51	TILIT	111	3114	166 125.33	63 6134	1,311.34	139	COLD diek, skry	4226	146.225.43	4;1 (11.1)	1,294.27	833		236	
1527	151,221.81	(23,373.23	2,2FK 33	166,224.59	429,373.23	12033	4.52	1	स्टार	168,214 75	412,573.11	LZEI SE	173	120	1M 224.09	4:157316	129216	64	COU Cat stay	627	126 335 504	4:13:325	1,795.80	043	121	225	
1221	\$M \$1\$.45	425度1177	が加切	14421LG	tn'tria	17:14:11	-4.32		222	156,211.49	4:5 6:3 67	1,829 13	149	K-1	IMINI	61 1317	1,329.75	6.11		47.7	165,735.34	eis mis si	1,574	0.53	211	2.40	
120	\$56, L16,35 \$16,177.83	43,6344	131178 13310	144,114,23 144,177,64	411.02.65	(303)	0.01		2533	165 tag Cat 165 177.81	619 P12 40	LESS CA	121	3079	164,134,19	13 EEEE	11124	0.40	Carron	473	155,154.24	(1), C31.17	2322E#	0.56	111	2 29	
100	164 173 60	4:17/13/14	2,510.00	101.0141	413 753 25	L\$10.01	0.03		\$233	164.173.36	419.773 ST	1,1110	174	233	以177章 出1753	419,902,84 419,760.81	233533	10	Teir, day	1017 123	125 177 ES	611,FE2.65	130.45	057 . 0£7	ᄺ	2.40	Yeh
1033	364,173,15	53 631 59	137241	185,171.13	411 171 12	137114	-019	S. Sgrade Low, play	2712	166.17434		121477	177	3332	16130	GIBIS	233611	237	SAPE In dr	1732	265.173.56	411.091.11	1134.0	0.54	241	133	وداه بحاطمها
1233	164,141.71	£337335	£287.84	146,142 21	616,913.53	1,217.50	2.14		2011	166,152,75		1,269.27	174	£TU	18.C18	423,573,83	TTU 24	0.28	CV to the	4253	SEATURE .	411,175.41	1,293.11	C 24	767	ID	
1234	\$54.163.87	4314314	1,298.97	105,111.31	11111111	1,259.59	0.00		2714	166,111.03	E31577	1,500,00	10	<b>1</b> 34	145,161.54	41354154	735.23	4.65	وداه ياده ۱۱۵۵	6254	\$63,1EL17	61,657)	130106	0.54	5.01	1.67	
1213 1216	366,153,55 366,153,55	438.438	T)12W	TECH MI	614/03/17 612/42/451	1317.66	6.19		253	\$55.551.23 \$56.551.23	CAPAC	13152)	3.15 3.15	\$215 \$5M	おおけま	4,37,171	1,313.53	0.05	CONTENT ORI	4015 4016	364,111,24 364,311,76	61 6641	1311.0	038 079	752	-114	
2737	24 13 13	43,64.27	2 112 M	HE LIGHT	618,E33.43	133757	£17		2537	155 (34.7)	43,0516	11014	325	\$510	\$55,134.77	41.0 714.00	1304	0.55			364,536.73	51.74.11	Dist	9 63	233	141	
1230	234.124.43	43(732.23	3,312.00	TRYCOLUM	611, 73Z.11	time	41.0-	Subgrada Long chay	1533	144,121423	43 PALD	11030	121	1221	165 171 40	4;8,731.24	3,513.55	941		4234	264,536.82	659,735.22	3,31611	432	2.02	14	
2:010	M25 103 33	C.111.72	1,2771-35	144,127.17	615 637 47	1,719.33	8.30		2711	164 154 51	413,653.01	1 \$30 20	106	3779	164 131 M	429 612.43	1,330.00	6.50		<b>579</b>	154 172 19	C3.132.71	Line	0.57	2.02	1.11	
1041	145 135 H	419.000.35	1,217 (L	165 (95.15	£18,577.84 £18,000.31	1,217 13	611		2340	154,120 11	419377 77	1,791 10	145	N-40	\$54,137.57	13,577.73	2,225.12	624	काम रुद्धा कर	44	18472554	F3,577.78	1,217:75	EST	200	1,11	
1541	MA.05545	4,91,137	135176	100 to 3 1 1	415 174 12	13137	471	Subgrade Love, skey	154	364,761,39	476 975 44	1,333.24	103	200	164,594.03 164,698.01	413,900.11 413 E6430	£33376 £37375	124	Subgrada Source play	44	MATERIAL SEE	43,331 <i>D</i>	TRITE	0.57 0.53	211	1.15	Subgrade low, okay
150	MACES IN	atmus.	13:334	164,637,57	#13.£10.£1	13114	100	S. toprada Low, play	2543	151 05.33	416 E11111	1215	111	350	IM SE JI	4n tri c	131714	(4)	and an outless	60	IM CESTI	63 23 53	3,53741	265	211	2.00	A25-84 1-, 071
1544	LAM STILES	£13,723.10	1,3:0 00 .	164,072.47	413,727.13	SHILL	651		2044	124,072.07	415,727.26	3,33163	1.54	3:44	344,677.26	411,736.23	2,111.52	0.53		434	124,579.95	E177674	131747	0.33	2.02	1/4	
1545	IN LINE	C1.E3.E3	13:329	SELATION .	C1,E70	ijija	4.33		2543	TREATER	415,829.67	135127	111	33:45	\$14,179.26	खळप	1,4171	9.53		8,45	172 7.4 3.7	£76.82237	110.4	1	577	2.16	
1048 1047	184,033.81	G1,D131 G3,736,14	13(47) 13(6.5)	184,635.77 186,635.86	423,531.33 423,736.31	LIMB	-0.57		25AE	144,755.65	425 726 20	132766	133	1346	1412171	C17623	1110	0.53		6544	101.C1137	E4284	1,317.51	047 033	215	2.41	
2540	IN COTA	47,001	1840	1M.02437	10 10 10	UMI	429		24	150 524 61	412 625 26	132727	1.15	3.4	164 029.67	2:3.217.27	Dir	034		6.0	LI6,023.13	CAN'S	1,11,15	833	111	221	
1049	100 52434	42143634	1262.00	164.E18.16	413,456.01	132121	-0.27	S. Sgrade Live; play	2049	148 529 16	410 (34.30	1795 85	121	\$2.49	£54.029.34	419 434 31	1,33631	041		60-49	164,12111	115,636.37	EXC1.12	0.56	161	241	$\overline{}$
1250	101,51,101	4:537517	11016	uscan	¢13 173.55	LIILEZ	-012 110	S. tyrada Lov, play	2030	356 625 84	63 F7 F8	13:42	121	\$233	terito a	43 (7.3	TTIEL	E 45	GDW exk, elay	KCZQ -	RESIDE	122.1.335	151533	₹45	ш	2,30	
1041	144,003.11	425,793.34	1,400.00	194,014.01	415 791 43	130131	-622	S. Syrada Lov, of my	2032	198,517.64	13:1015	1303	107	375t 3232	\$14,027.17	423,791.89	1,101£1	12.3		421	LAK STELL	#14 7E1.30	120211	671	241	2.5	
124	164.00473	425,743,77 425,486,75	1,799.3 L	166,007.38 166,004.80	413 (45.11	1,329.21 1,329.44	413	Subgrade tow, play	201	196,007,64	419,515.25	12917	121	1733	155,024.36	43524 G	LYEG	135		4514	150,3010	414 142 PA	13014	951 951	101	2.22	
1234	16.0241	42342344	1271.00	164 001 43	415 625.52	1.293.74	427	5. byrada toor, play	2054	155 OC 1-51	415,67.15	121144	111	1014	14,00.44	41140113	1.77242	076		4054	155,924 65	111 (213)	1 252.57	036	202	- 14	
1233	166.070.16	4:3531.12	136612	166 000.33	419.583.95	L2R.71	5.28		2355	ter ses ut	415.573.75	1,217.57	121	3013	125,309 18	459,541.33	1,777.14	0.41	Gribat day	4233	121 200 11	til III)M	1,724 07	0.59	200	176	
LINA	nr.m.a	415,717.55	E370.00	145 677.75	41525741	1222.73	-6.13	Scherody Less place	2256		4;4,8;4 45	3.500 99	130	3014	133,387.49	425 11739	330153	0.53		4234	\$45 \$49.51	451,80735	1,30215	0.58	211	1.38	
E37	10.8612	63333 63333 63333 63333 63333 63333 63333 63333 63333 63333 633 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 6333 633	1375.05	121 (2013) 145 (73.76	431724	DHS	411	Subgrada High et Tay in colory Subgrada Love at Taylor plany	2257	145.928.43	43 F2.11	1.3/3 L7 1.2/3.54	361	jeşi Arra	REPART	42 172.50	133355	136	Scornete Serve	4757 4738	10.2014	41,1733	UU	0.57	211	641	Accrete Levi
1 111	325 175 67	4:1771 45	3283.00	U5.11.76	418 776 40	1304	6.53	Programme Block Colly	229	10,5551		1,251.14	16	1251 1251	165,973.02	43534343	1270 97	0.5E		429 429	165,575 76	01,171.0	135107 13554L	6.53	227	122	
1543	\$65.857.05	43444	3.398.14	162 17.12	418 83 275	12947	629		200	185,956.60		1.229.30	10	2262	163,637.64	40.012	1277 #2	12.6		100	355,537,15	(11,611)	L105 47	6.53	- <del>- 23</del>	- 135	
130	\$15 \$57.CL	£15,731.53	3 78 1.50	N2 27, TJ	415,773.54	1,211.43	-017		2003	145,554.29		125173	S.TZ	1301	143,937.00	413,713.17	1257334			4364	355.537.06	CO YOU	1.253.21	6.1.2	222	1.2	
1002	165.15413	4386472	5.2F1 00	159 554.31	att seem	1,275.76	-0.24		5563		43 917	120210	146	KH	H23,454.D	COETT	1,142.65	10	COM the play	4021	15153434	C1 H275	135516	418	202	721	
1001	163.373 E3	41971447	1,2109 00	169,91745	413 713 43	Litti	-0.13	f de data also	2569	143,123,12	4257A.M	1,790,12	111	324	165.124.53	437149	3,750 ft	- 10	COFF mad, calley	121	161 174 23	C3.733M	LINIA	419	2.02	111	
1014	KITLU	(337)	1.2159.00 5.2164.91	155,526.31 155,512.49	11/11/11	1777.53	111	Scharude Love, play Scharude Nighter Levin, plays	2743	165912.14	43,630	1251.13	113	373	563313.1F	43 810	120M	64	State of the	633	163 81235	C4 L5743	136571	113	222	211	
1:46	WE 1754E	4:5211.07	1.783.24	145.915.37	C3 E3 11	5 215 52	-6.13		2014		13,5111	1.239.03	1.15	3714	145.513.80	63 6311	1257 44	445	67V that they	C04	163 010 63	415 F15 CO	£279.18	0.74	577	114	$\overline{}$
1247	\$45 \$08.77	412 752 413	138373	155 # 2 D	C3 78351	11110	-524		231		23,760.02	1,727 63	1 to	3.7rf	ESTATS.	£3,77133	128 Q	474		(E)	241,072.72	613 787 EF	1.235 (N	0.13	2.02	1.0	
334	[65,8043E	130.34	130.53	155 9:4 D	928 EJ 4 15	SZELM	12	Subgrada Love, ping	2002		419,024.29	1,22753	121	200	15.474.51	423,614.13	5,220.26	671		421		419 (9A24	L21274	6.59	3.02	238	
1369	151 200 20	42937429	LIBIT	155.501 E7	412 22 6 16	LIMI	916	L	EED	167 555 73	*******	6.287 41		3/43	SET PATER	4:T21TD	\$25°7E	6.51		123	144 144 144	4/3 M415	1.724.11	0.46	162	_366	

NOTE follows Grades shown from Surveys or Percent Gravings

Cordon Military Int.
P Viroland State Tell Report (SAS Front Lists Ford 2018 Front Constitutionary) Set Report Approximate 3 - Section (American) Anti-Section (SAS Front Constitutional Section Sec

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	ЕСВ
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	ЕСВ
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	ECB
5046	166273.13	419909.02	1331.55	ECB
5047	166296.91	419910.10	1325.61	ECB
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	ECB
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	419660.63	1292.86	Berm
5097	166435,14	419660,43	1292,12	Berm
5098	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 <sub>,</sub> 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	TurfMat
5142	165857.03	419782.01	1278.48	TurfMat
5143	165821.07	419784.43	1266.39	TurfMat
5144	165821.18	419790.32	1265.77	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	ECB
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	ЕСВ
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

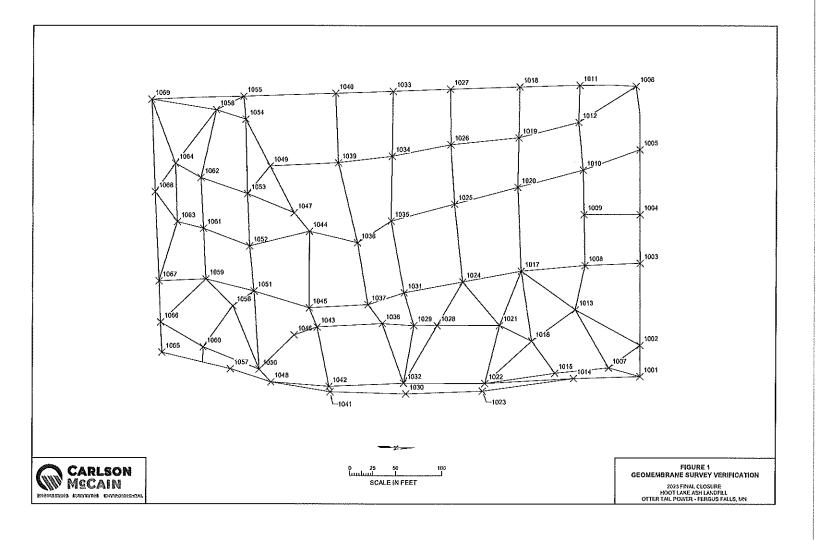
Point No.	Northing	Easting	Elevation	Description
5176	165691.48	420590.95	1275.92	Mulch
5177	165697.83	420514.66	1277.79	Mulch
5178	165692,25	420440.38	1279,75	Mulch
5179	165688.62	420364.83	1279.16	Mulch
5180	165688.03	420291.33	1282.91	Mulch
5181	165700.73	420220.51	1287.68	Mulch
5182	165751.23	420199.72	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	Mulch
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

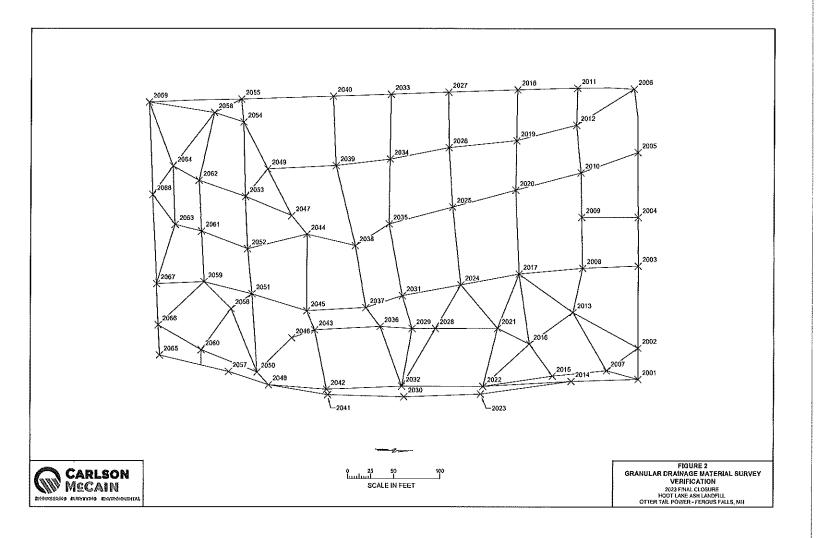
## **As-Built Survey Finish Grade Points Hoot Lake Ash Landfill 2023 Final Closure**

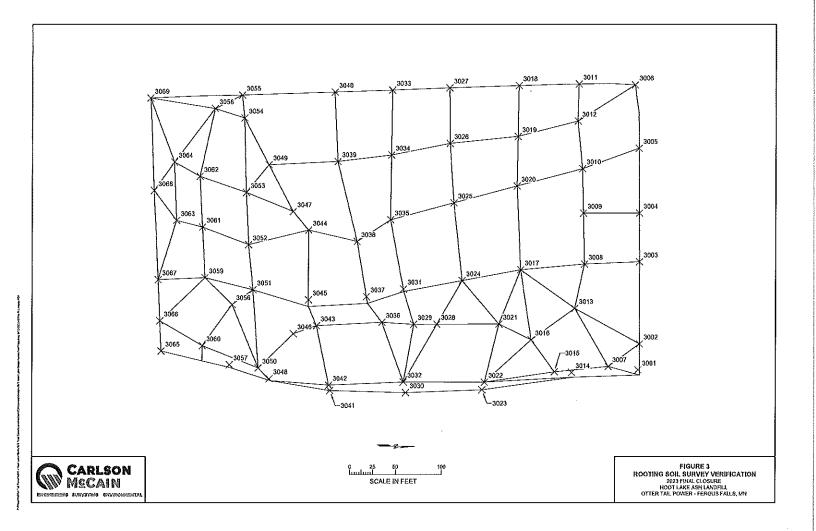
**Otter Tail Power** 

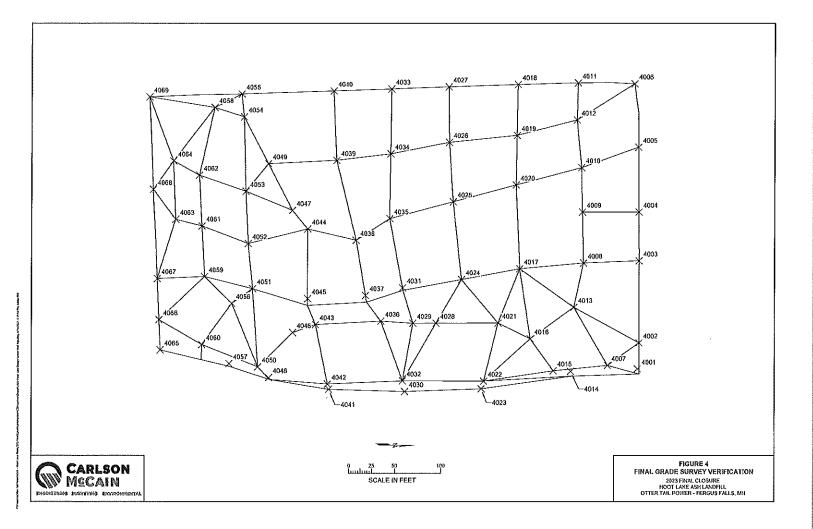
Point No.	Northing	Easting	Elevation	Description
5220	165869.23	420663.53	1271.69	Mulch
5221	165867.16	420735.44	1271.37	Mulch
5222	165866.70	420821.91	1272.08	Mulch
5223	165995.61	420820.11	1277.38	Mulch
5224	166013.86	420737.50	1284.05	Mulch
5225	165954.81	420733.83	1273.12	Mulch
5226	165958.32	420665.09	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

### Manufacturer Quality Control Documentation



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	Count Roll Area Number (sq ft)		Thick ness MAV (mil)	Thick ness MIN (mil)	Asp He	erity ight nii)	Ter at B	isile reak pl)	Ek at B	ong reak %)	To 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#
	Namper	(3411)	ASTM	ASTM	ASTM	D 746\$	ASTM	D 6693	ASTM	ASTM D 6693		D 1004	ASTM	ASTM	ASTM	ASTM	ASTM	LOCH
			D 5994	D 5994	Side A	Side B	MD	TD	MD	TD	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: Malkesh 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 Mode: Hopper Car

Car #: GPLX076893 Seal No: 348946

Product:

MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: DQE810370

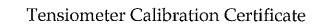
Property	Test Method	Value	Unit
Melt Index Density Production date	ASTM D1238 D1505	0.36 0.920 20230507	g/10min g/cm3

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.

Fr V

JIAHUI LI QUALITY ASSURANCE SUPERINTENDENT

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





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Device Calibrated eler Model 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 - 760 lbs. Tension

X182-750 266627

1-029 3322266627 N/A

Calibration Apparatus:

Pro-Cal unit, model TC-0100/A

Dead Weight: W1

2 W2 152 W3 302 Reference Cell.

131 R2 152 133 302

Offse -6.332791

Scale: 3.327377

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Cell Response

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0.00%

Total Deviation Error (%)

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



### CALIBRATION CERTIFICATE

Tensiomeler Model Device Calibrated: Range, Model No. Senal No.

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

Indicator reading with no load:

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

5-Type load cell 0 - 750 ibs Tension

M2405-750# 78956

T-029 119078956 N/A

ø

Cambration Apparatus

Pro-Cal unit, model TC-0100/A

Dead Weight. WI 152 W2 302 W3

3.326045

Deviation Error 0.00 0.00

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Scale.

Reference Cell 171 R2 133

152 302

-4.668729

	Apr	lled	For	e Ib	5.
			2		
1			52		
1			102		
ľ		1	52		
	60.0	22,	02		
		25	72		
		30	2		

Temperature at time of calibration:

Total Deviation Error (%)

73 degrees F

Exitation Voltage:

V DC

0.00%

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

# DEM ÉCH

Tensiometer Model Device Calibrated	CALIBRATION CERTIFICATE									
Range State Sales	S. S. A. Markette and S.									
Model No	and Type I <sub>DBM Coll</sub>	SE/Aj								
Serial No.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Calibration	Apparatus						
	T~~			Section 2	as mores.					
A/D Module Model No.	<b>1—36641</b>		Pro-Cal un	L model TC-(	J TENNAM					
A/O Module Senal No	7 026	Dead Weigh			* 28					
Chappel No.	26222755A1	Wadu stelly	2	Reference	2					
2 2 2 7 19 14 U	NA T	- W2	152	RO F	161					
		W.	300	l no l	30					
Indicator reading with no load					An and An					
Applied Force lbs.	Cell Response	Deviation	Error							
		0.00								
52 g 300 g 300 g		0.00								
102	102	0.00								
152	152	0.00	8 8 8							
<u>202</u>	202	0.00								
252		0.00								
302	252	0.00								
	302	[ <u>v vv</u>	۔ لــ							
		-	•							
	Total Deviation Error (%):	0.009	6							
mperature at time of calibration:	73 degrees F									
lation Voltage:	TETTI WALL									

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

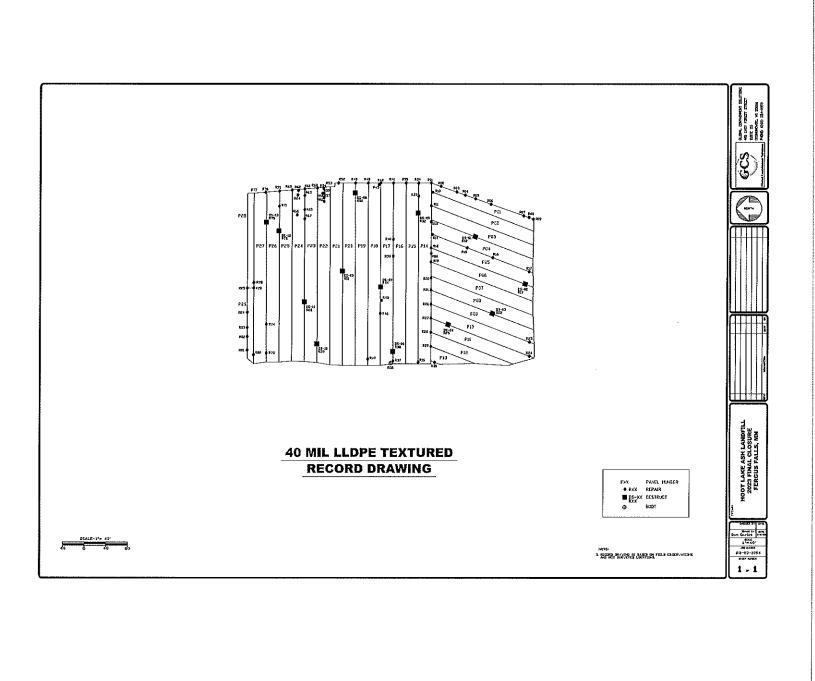
This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

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 ACCEPTED: 96,624 sq.ft. PANEL NUMBERS: P1-17 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 2 Superintendent 8/29/2023 Signature Title DATE OWNER REPRESENTATIVE

405 East Forest Street, Oconomowoc, WI 53066

### CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC PROJECT NO: \_\_\_23-03-1054\_\_\_ PROJECT NAME: Hoot Lake Closure LOCATION: \_\_\_\_\_\_ AREA ACCEPTED: 83,304 sq.ft. PANEL NUMBERS: GRADE ACCEPTANCE: INSPECTOR: GENERAL CONTRACTOR: AUTHORIZED REPRESENTATIVE: 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 8/30/2023 Title **Signature** DATE OWNER REPRESENTATIVE

405 East Forest Street, Oconomowoo, WI 53066

Signature

Final Cover Trial Weld Forms

#### Global Containment Solutions LLC Preweld Test Report

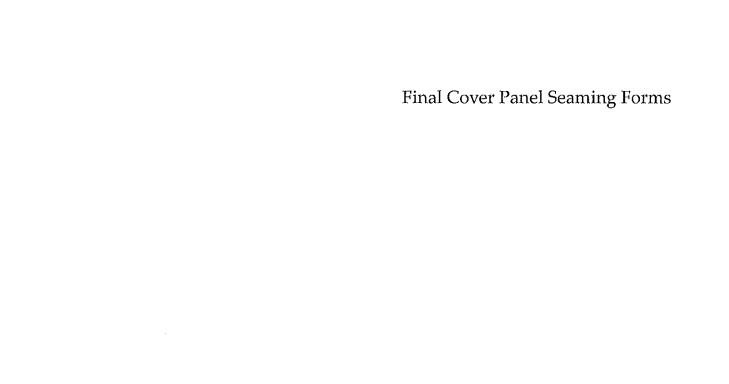
	•			Poit															
Project Name: Hoot Lake Closure					Job#	22-03	3-1054		Supe	rinter	ident:		Thav	one D	aranik	one			
Materia	l Type:	40	mil f/2 LL		_	Primary		P	ond		1	Peel	Test E	xtrusi	on Min	imum	4	14	Pl
Job Descr	iption:		Сар		s	econdary			Cell			Pe	el Tes	t Fusi	on Min	lmum	- 5	50	PF
Reported By: Guadalupe Estrada					_				Cap	Х	1		Sh	ear Te	st Min	imum	6	30	PF
(	Other:				•				,										
Liner Types	S = Smooth	T = Textured	SG ≃ Super Grip								•								
Weld Date	Time	Operator	Mach	Mach	Mach	Preheat	Ambient		Cour	on 1	Coup	on 2	Cou	oon 3	Coup	oon 4	Cou	pon 5	Г
Liner Type	AM PM	Name/ ID	No.	Speed	Temp	Temp	Temp		A	В	A	В	Α	B	Α	В	A	В	R
8.29.23	9:09	NM	4941	6	880		67	Peel	70	67	70	67	70	64	70	68	68	689	П

Weld Date	Time	Operator	Mach	Mach	Mach	Preheat	Ambient	1	Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
Liner Type	AM PM	Name/ ID	No.	Speed	Temp	Temp	Temp		A B	АВ	AB	A   B	A B	Results
8.29.23	9:09	NM	4941	6	860		67	Pee	70 67	70 67	70 64	70 68	68 689	Pass
S TO S	ΑM	LAIAI	1 1 1 1	1 "	000		%	Shear	88	85	83	87	86	Pass
8.29.23	9:15	NM	4941	6	860		67	Peel	77 75	76 77	78 76	69 70	76 76	Pass
Ттот	AM	IAIAt	4541	ľ	000		07	Shear	87	88	91	85	82	Pass
8.29.23	9:12	NM	4941	6	860		67	Peel	66 . 70	68 68	68 70	68 72	71 : 70	Pass
S TO T	AM	(Alas	4041	Ů	000		01	Shear	87	87	84	86	86	rass
8.29.23	9:00	МВ	4940	6	800		67	Peel	67 68	65 68	63 63	67 68	63 65	Pass
S TO S	AM	10112	7070	<u> </u>				Shear	84	83	86	86	88	газэ
8.29.23	1:09	NM	4941	6	860		78	Peel	63 65	63 65	68 65	68 66	69 70	Pass
S TO T	PM		1011	<u> </u>	400			Shear		86	82	86	89	1 433
8.29.23	1:10	MB	4940	6	800		78	Peel	70 64	68 70	73 70	64 75	69 71	Pass
S to S	PM	,	17.1-					Shear	86	84	82	83	85	, 4,00
8.29,23	4:01	NM	4941	6	860		77	Peel	63 65	63 68	71 65	73 73	66 66	Pass
T to T	AM			_				Shear	86	84	93	93	87	1 400
8,30,23	8:00	NM	4941	6	860		61	Peel	66 68	67 67	63 66	69 67	63 64	Pass
S to S	AM							Shear	85	87	87	83	87	1 400
8,30,23	8:00	MB	4940	6	800		61	Peel	63 67	64 66	66 66	64 65	64 67	Pass
S TO S	PM							Shear	84	87	85	91	90	1 400
8.30.23	1:13	NM	4941	6	860		77	Peel	71 72	77 72	74 77	78 80	79 74	
S TO S	PM	` · · · ·					11	Shear	89	85	85	90	86	
8.30.23	1:00	DB	77		550	400	77	Peel	81	72	73	76	74	Pass
ТотТ	PM		• •			, , ,		Shear	89	86	90	93	89	1 400
8.30.23	3:34	NM	422		550	550	77	Peel	90	81	73	83	92	Pass
T OF T	PM		,==			444		Shear	94	98	94	102	93	1 400
8.31.23	7:34	NM	422		550	550	67	Peel	73 :	91	73	83	90 •	Pass
ТотТ	AM							Shear	88	93	94	95	89	, 000
8.31.23	7:00	DB	77		550	550	67	Peel	89	89	86	85 🖁	88	Pass
<b>T</b> TO <b>T</b>	AM		• • • • • • • • • • • • • • • • • • • •				<b>"</b>	Shear	88	87	93	90	88	1 400
8,31,23	8:15	мв	813		550	550	67	Peel	82	86	82	87	88	Pass
Ттот	AM		*				-,	Shear	88	87	89	90	86	
8.31.23	1:30	NM	422		550	550	78	Peel	78	81	70	80	79	Pass
T 10 T	PM	1 4191	164		""		, ,	Shear	87	87	87	86	87	' 433

### Global Containment Solutions LLC Preweld Test Report

Project Name:	Hoot Lake Closure	Job# 22-03-1054		Super	intendent:	Thavone Daranikone		
Material Type:	40 mil f/2 LL	_	Primary	Pond		Peel Test Extrusion Minimum	44	PP
Job Description:	Сар	_ s	econdary	Cell		Peel Test Fusion Minimum	50	 PP
Reported By:	Guadalupe Estrada			Cap	Х	Shear Test Minimum	60	PPI
Other:								
ner Types S = S	mooth T = Textured SG = Super Grip				······································			

Wold Date   Time   Name   Description   Name   Na	Liner Types	S = Smooth	T = Textured	SG = Super Grip	1										
Line Type   AM   PM   Name   D   No.   Speed   Temp   Temp   Temp   Temp   Pee   Temp   Tem	Weld Date		Operator	Mach	Mach	Mach	Preheat	Ambient	1	Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
8.31.23 1:40 MB 813 550 550 78 Pec 77 77 79 79 77 77 Pas 85 Pas 8.31.23 1:40 DB 77 550 550 78 Pec 8.31.23 1:40 DB 77 550 550 78 Pec 8.31.23 1:40 DB 77 550 550 500 78 Pec 8.31.23 1:40 Pec 8.31.2	Liner Type	AM PM	Name/ ID	No.	Speed	Temp	Temp	Temp		АВВ	АВ	АВ	A   B		Results
T TO T PM			MD	943		550	660	70	Peel	77		79	79	77	
T TO T PM		PM	CINI			300	000	70	Shear	93	92	86	85		Pass
TO T PM	8.31.23		n.p.	77		550	500	70	Peel	80	77	78	77	80	D
TO	Ттот	PM		11		550	300	70	Shear	85	87	85	87	85	Pass
TO   Shear		;							Peel			:	:	j	
TO	то								Shear						
Ped		:							Peel						
TO	то								Shear						
Pee		;							Peel			i	i	<u> </u>	
TO   Shear	то								Shear						
Pet		:							Peel		ĺ	i	i	i	
TO   Shear   Peel   Shear	то														
Pee		:							Peel						
Shear   Shea	то														
Pee		:							Peel		<u> </u>				
TO   Shear	то														
Peal		ì					ĺ		Peel	!	!			l	
TO   Shear	то														
Pee		:		İ											
TO Shear Peel	то														
Peel									Peel	;					
TO Shear She	то														
Peal		:										i			
TO Shear Peel Shear TO Shear S	70														
Pet		:											,		
TO Shear Peel Shear TO Shear Peel Shear Sh	то														
Pet		:										;			
TO Shear Peal I	то														
Peel Peel I		:							Peel	í	1	1			
	то								Shear						
TO Shear		;							Peel	Ĭl	i	i			
	TO								Shear						



F	roject	ect Name:			Hoot Lake Closure		Job#	22-03	3-1054	Superinte	endent: Thavone	Daranikone	1		
N	/lateria	al Type:			40 mil f/2 LL		Primary		Pond		Air Pi	ressure Test	30	PSI	
Job	Desc	ription:			Сар		Secondary		Cell		Air Pressus	e Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada				Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
		Other				· · · · · · · · · · · · · · · · · · ·	-								
	8,838	Total I	.F of We	lding to l	Date Combined	Ĕ	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	F Weld Tot	al To Date:	7,	760
Weld		eam	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time In	AT Time Out	PSI	Test
Dale	1	No.	Lengih	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSI IN	PSI OUT	Loss	Results
8.29.23	1	2	203	9125 AM	MB	4940	6	860	****	8,29,23	Alr Pressure	4:39 30	4:44 30		Pass
Seam Notes				***************************************		•									
8.29.23	2	3	202	9:19 AM	MM	4941	6	860		8,29,23	Air Pressure	4:37 30	4:42 30		Pass
Seam Notes	<u> </u>	<u></u>		7 1171	<u></u> :							.00	00		
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	МВ	4940	6	860		8.29.23	Air Pressure	4:44 30	4:49 30		Pass
Seam Notes						VIII.									~~~
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	4:52 30	4:57 30		Pass
Seam Noles				•											

F	roject	Name:		Hoot Lake Closure			Job#	22-03	3-1054	Superint	endent: Thavon	e Daranikone	<b>a</b>	_	
!	/lateria	ıl Type:			40 mil f/2 LL		Primary		Pond		Airi	Pressure Test	30	PSI	
Job	Desc	ription:			Сар		- Secondary		Cell		Air Press	ire Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada		-	·	Сар	X	Allowable Air F	ressure Loss	3	PSI	
		Other					-		,						
		1	-								1				
	8,838	Total i	LF of We	iding to	Date Combined	E	Extrusion LF	Weld Tot	al To Date	1,078	Fusion	LF Weld To	ial 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	١	ło.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSHN	PSI OUT	Loss	Results
8.29.23	8	9	204	10:48 AM	МВ	4940	6	860		8,30,23	Air Pressure	1:30	1:35 29	1	Pass
Seam Notes															
8.29.23	9	10	10	10:19 AM	NM	4941	6	860		8,30.23	Air Pressure	1:50 30	1:65 30		Pass
Seam Votes							•								
8.29.23	9	10	195	10:19 AM	NM	4941	6	860		8,30,23	Air Pressure	1135 30	1:40 30		Pass
Seam Notes													<u> </u>		,
8.29.23	10	11	9	11:15 AM	M8	4940	6	860		8.30.23	Air Pressure	1151 30	1:56 30		Pass
Seam Votes							•		L				<u> </u>		
8.29.23	10	11	196	11:15 AM	МВ	4940	6	860		8,30,23	Air Pressure	1:45 30	1150 30		Pass
Seam Votes														1	
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	МВ	4940	6	860		8.30.23	Air Pressure	2:01 30	2:06 30		Pass
eam Votes										· · · · · · · · · · · · · · · · · · ·			I		
8.29.23	1 /	14	22	1:41 PM	ММ	4941	6	860		8.29.23	Air Pressure	4:30 30	4:35 30		Pass
eam lotes	·····•														

Project Name:				Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	<b>&gt;</b>	_		
1	Viateria	al Type:			40 mil f/2 LL		Primary		Pond		Air Pi	ressure Test	30	PSI	
Joh	Desc	ription:			Сар		Secondary		Cell		Air Pressu	re Hold Time	- 5	Minut	es
	Repo	rted By			Guadalupe Estrada		٠ ,		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	tai To Date	1,078	Fusion L	.F Weld To	al To Date:	7,	760
Weld	1	eam	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test		1——	PSI	Test
Date	1	<u>vo.</u>	Length	Weided	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSIIN	PSLOUT	Loss	Results
8.29,23	2	14	26	1:44 PM	МИ	4941	6	860	1 1	8.30.23	Air Pressure	1105 30	1:10 30		Pass
Seam Notes							1		I						
8.29.23	3	14	26	1:47 PM	NM	4941	6	860		8.30,23	Air Pressure	1:06 30	1111 30		Pass
Seam Notes															
8.29.23	4	14	26	1:50 PM	ММ	4941	6	860		8.30.23	Air Pressure	1:07 30	1:12 30		Pass
Seam Votes	4														
8.29.23	5	14	10	1:53 PM	ММ	4941	6	860		8.30.23	Air Pressure	1:08 30	1113 30		Pass
Seam Votes								~~~~							***************************************
8.29.23	5	14	16	1:55 PM	МИ	4941	6	860		8.30,23	Air Pressure	1:10 30	1115 30		Pass
Seam Votes															
8.29.23	6	14	26	1:58 PM	NM	4941	6	860		8.30.23	Air Pressure	1:11 30	1:16 30		Pass
Seam Votes		,													
8.29.23	7	14	26	2:01 PM	ММ	4941	6	860		8,30,23	Air Pressure	1:20 30	1:25 30		Pass
Seam Voles															
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 Votes															

ř	rojeci	Name:			Hool Lake Closure		_ Job#	22-03	3-1054	Superint	endent: Thavone	Daranikon	<del>)</del>		
ā	Materia	l Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Desc	ription:			Сар		_ Secondary		Cell	П	Air Pressui	re Hold Time	5	Minut	tes
	Repo	rted By			Guadalupe Estrada		- '		Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
		Other					<del>-</del>		'				•	•	
	8,838	Total	LF of We	elding to	Date Combined	ı	Extrusion LF	Weld Tol	tal To Date	1,078	Fusion L	.F Weld To	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	. 1	√o.	Length		Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSIIN	PSI OUT	Loss	Results
8.29.23	9	14	26	2:07 PM	NM	4941	6	860		8.30.23	Air Pressure	1:33 30	1138 30		Pass
Seam Notes															•
8,29,23	10	14	26	2:10 PM	NM	4941	6	860		8.30.23	Air Pressure	1142 30	1:47 30		Pass
eam lotes															
8.29.23	11	14	26	2:13 PM	NM	4941	6	860		8,30,23	Air Pressure	1:43 30	1:48 30		Pass
eam lotes															
8.29.23	12	14	26	2:16 PM	NM	4941	6	860		8.30,23	Air Pressure	2110 30	2; 15 30		Pass
eam lotes													L		
8,29,23	13	14	26	2:19 PM	NM	4941	6	860		8.30.23	Air Pressure	2;16 30	2121 30		Pass
ieam lotes															
8.29.23	14	15	23	2:20 PM	MB	4940	6	860		8,29,23	Air Pressure	4:23 30	4:28 30		Pass
eam lotes															
8.29.23	14	15	311	2:23 PM	МВ	4940	6	860		8.29.23	Air Pressure	4:20 30	4:25 30		Pass
eam lotes									11						
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
eam oles															

,	Project Name:				Hoot Lake Closure		Job#	22-0	3-1054	Superint	endent: Thavone	Daranikone	3	_	
,	Materia	al Type:			40 mil f/2 LL		Primary		Pond		Air Pi	ressure Test	30	PSI	
Job	Desc	ription:			Сар		 Secondary		Cell		Air Pressur	re Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada		<del></del>		Сар	х	Allowable Air Pr	essure Loss	3	PSI	
		Other							'					-	
	8,838	Total	LF of We	alding to I	Date Combined	!	Extrusion LF	Weld To	tal To Date	1,078	Fusion L	.F Weld Tol	tal To Date:	7,	760
Weld		eam	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time in	AT Time Out	PSI	Test
Dale		ło.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSI OUT	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															<u> </u>
8.29.23	16	17	31	3133 PM	МВ	4940	6	860		8.29.23	Air Pressure	4:02 30	4:07 30		Pass
Seam Viotes															
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 Votes								, , , , , , , , , , , , , , , , , , , ,							
8.29,23	14	EX	24	4:03 PM	ММ	4941	6	860		8,29,23	Air Pressure	4:25 30	4:30 30		Pass
Seam Votes															
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 Notes															
8.29.23	16	EX	24	4:09 PM	NM	4941	6	B60		8,29,23	Air Pressure	4:16 30	4:21 30		Pass
Seam Votes											,				
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
eam Votes													<u> </u>		
8.29.23	1 /	EX	20	4:28 PM	NM	4941	6	860		8.30.23	Air Pressure	6:12 30	6:17 30		Pass
Seam Votes									•					•	

I	Project Name:				Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikon	e		
1	Materia	ıl Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PS!	
Jol	b Desc	ription:	:		Сар		– Secondary		Cell	П	Air Pressu	re Hold Time	5	Minu	tes
	Repo	rted By			Guadalupe Estrada		<del></del>		Cap	х	Aliowable Air Pr	essure Loss	3	PSI	
		Other				***************************************								-	
	8,838	Total	LF of We	lding to	Date Combined	í	Extrusion LF	Weld To	tal To Date	1,078	Fusion L	.F Weld To	taí To Date:	7	,760
Weld	•	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time in	AT Time Out	PSI	Test
Dale	٨	ło.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSI IN	PSI OUT	Loss	Result
8.29.23	1	EX	65	4:31 PM	NM	4941	6	860		8.30.23	Air Pressure	6:05 30	6; 10 28	2	Pass
Seam Notes							·					<u> </u>			
8.29.23	1	EX	31	4:39 PM	NM	4941	6	860		8.30.23	Air Pressure	5:46 30	5¹51 30		Pass
Seam Notes			•	•		•					<u> </u>	<u></u>			
8.29.23	1	EX	20	4:44 PM	NM	4941	6	860		8.30.23	Air Pressure	5:45 30	5:50 30	1	Pass
Seam Notes			į				•		!L					L	L
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									<u> </u>		<u></u>				<u> </u>
8.29.23	1	EX	33	4:49 PM	NM	4941	6	860		8.30.23	Air Pressure	5 <sup>‡</sup> 40 30	5:45 30		Pass
Seam Notes															
8.29.23	1 /	EX	17	4:55 PM	NM	4941	б	860		8,30,23	Air Pressure	5138 30	5:43 30	***************************************	Pass
Seam Notes															
8.30.23	17	18	96	8: 10 AM	MB	4940	6	860		8.30.23	Air Pressure	2:20 30	2125 30		Pass
Seam Notes															
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															

F	Project Name: Hoot Lake Closure				Job#	22-03	3-1054	Superinte	endent: Thavone	Daranikone	)				
ē	/lateria	і Туре:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Desc	ription:			Сар		Secondary		Cell		Air Pressu	re Hold Time	- 5	Minut	es
	Repo	rted By			Guadalupe Estrada				Cap	X	Allowable Air Pr	essure Loss	3	PSI	
	•	Other					<del></del>							• -	
	8,838	Total L	.F of We	iding to I	Date Combined	E	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	.F Weld Tot	al To Date:	7,	760
Weid	Se	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	PSI IN	PSI OUT	Loss	Results
8.30.23	18	19	17	8: 18 AM	NM	4941	6	860		8.30.23	Air Pressure	2121 30	2:26 30		Pass
Seam Notes															
8.30.23	18	19	320	8:21 AM	NM	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	МВ	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	NM	4941	6	860		8.30.23	Air Pressure	2:24 30	2:29 30		Pass
Seam Notes															
8,30,23	21	22	329	9:35 AM	МВ	4940	6	860		8.30.23	Air Pressure	2:55 30	3:00 30		Pass
Seam Notes															
8.30.23	22	23	323	9:44 AM	NM	4941	6	860		8.30.23	Air Pressure	3:10 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	3:25 30	3:30 30		Pass
Seam Notes															
8.30.23	23 /	24	17	9:49 AM	MB	4940	6	860		8.30,23	Air Pressure	3140 30	3:45 30		Pass
Seam Notes															
										-					

F	roject	Name: Hoot Lake Closure			Job#	22-03	3-1054	Superinte	endent: Thavone	Daranikone					
ň	Aateria	l Type:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Job	Desci	ription:			Сар		Secondary		Cell		Air Pressu	e Hold Time	5	Minute	es
	Repor	rted By			Guadalupe Estrada		- '		Cap	X	Allowable Air Pr	essure Loss	3	PSI	
	•	Other					-		• 1						
		1									•				
	8,838	Total l	.F of We	iding to I	Date Combined	E	xtrusion LF	Weld Tot	al To Date	1,078	Fusion I	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	4	lo.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Dale	Туре	PSI IN	PSI OUT	Loss	Results
8.30.23	23	24	26	9:52 AM	МВ	4940	6	860		8.30.23	Air Pressure	3:42 30	3147 30		Pass
Seam Notes															
8.30.23	23	24	12	9155 AM	МВ	4940	6	860		8,30.23	Air Pressure	3143 30	3:48 30		Pass
Seam Notes															
8,30,23	24	25	316	10:30 AM	NM	4941	6	860		8.30.23	Air Pressure	3:55 30	4:00 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									************						
8,30,23	25	26	28	11132 AM	МВ	4940	6	860		8.30.23	Air Pressure	4:03 30	4:08 30		Pass
Seam Notes															
8.30.23	26	27	17	11:00 AM	NM	4941	6	860		8.30.23	Air Pressure	4:15 30	4:20 30		Pass
Seam Notes															
8.30.23	26	27	54	11:03 AM	NM	4941	6	860		8,30.23	Air Pressure	4:16 30	4:21 30		Pass
Seam Notes				•									<u>'</u>		
8.30.23	<sup>26</sup> /	27	243	11:09 AM	NM	4941	6	860		8,30.23	Air Pressure	4:28 30	4:33 30		Pass
Seam Notes													,		

F	Project Name:				Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	)		
N	lateria	I Туре:			40 mil f/2 LL		Primary		Pond		Alr Pi	ressure Test	30	PSI	
Job	Desc	iption:			Сар		– Secondary		Cell		Air Pressur	e Hold Time	5	Minut	es
	Repo	rted By			Guadalupe Estrada		<del></del> 1		Сар	х	Allowable Air Pr	essure Loss	3	PSI	
		Other					<del></del>		1					•	
	8,838	Total I	.F of We	lding to i	Date Combined	ļ	Extrusion LF	Weld Tot	al To Date	1,078	Fusion L	F Weld Tot	al To Date:	7,	760
Weld		am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	AT Time to	AT Time Out		Test
Date		o.	Length	Welded 11:59	Name/ ID	No.	Speed	Temp	Temp	Date	Турө	PSI IN 4:50	PSI OUT 4:55	Loss	Results
8.30.23	27	28	175	AM	NM	4941	6	860		8.30,23	Air Pressure	30	30		Pass
Seam Notes															
8.30.23	27	29	17	11:40 AM	NM	4941	6	860		8.30.23	Air Pressure	4:30 30	4135 30		Pass
Seam Notes												,			
8.30.23	27	29	123	11:43 AM	NM	4941	6	860		8,30,23	Air Pressure	4:31 30	4:36 30		Pass
Seam Notes															
8,30,23	28	29	12	11:55 AM	МВ	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 PM	ММ	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	5131 30		Pass
Seam Notes				•											
8.30.23	20	EX	24	2:06 PM	NM	4941	6	860		8.30.23	Air Pressure	5125 30	5:30 30		Pass
Seam Notes				•						<u>'</u>					

## Global Containment Solutions LLC - Seam Control Form Job # 22-03-1054 8

1	Lolect	name:			Hoot Lake Closure		_ Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	<del>}</del>	_	
ħ	/ateria	І Туре:			40 mii 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	rted By			Guadalupe Estrada		- 1	-	Сар	X	Allowable Air Pr	essure Loss	3	PSI	
		Other					-							•	
	8,838	Total i	_F of We	iding to	Date Combined	i	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	0.	Length		Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSLIN	PSI OUT	Loss	Results
8.30.23	21	EX	15	2109 PM	NM	4941	6	860		8.31.23	Vacuum	1	:		Pass
Seam Votes															
8.30.23	21	EX	7	2:11 PM	NM	4941	6	860		8.30,23	Air Pressure	5:15 30	5120 30		Pass
Seam Notes							1		<u> </u>		<u> </u>	· · · · · · · · · · · · · · · · · · ·			
8.30.23	21	ΕX	10	2:12 PM	NM	4941	6	860		8.30,23	Air Pressure	5115 30	5; 20 30		Pass
Seam Votes							•								
8.30.23	22	EX	25	2:14 PM	ИМ	4941	6	860		8.30.23	Air Pressure	5114 30	5119 30		Pass
Seam Notes															
8.30.23	23	ĒΧ	25	2:17 PM	им	4941	6	860		8,30,23	Air Pressure	5:11 30	5:16 30		Pass
Seam Votes				•		*····									
8.30.23	24	ΕX	24	2:20 PM	MM	4941	6	860		8.30,23	Air Pressure	5:10 30	5115 30		Pass
Seam Votes				•											
8.30.23	25	ĒΧ	24	2:22 PM	NM	4941	6	860		8,30.23	Air Pressure	5:03 30	5:08 30		Pass
Seam Votes	· · · · ·						·			· · · · · · · · · · · · · · · · · · ·					
8.30.23	26	EX	24	2:25 PM	NM	4941	6	860		8,30,23	Air Pressure	5:02 30	5:07 30		Pass
Seam Votes															

F	Project Name:				Hoot Lake Closure		Job#	22-03	3-1054	Superint	endent: Thavone	Daranikone	3		
ľ	Vlateria	І Туре:			40 mil f/2 LL		Primary		Pond		Air P	ressure Test	30	PSI	
Joh	Desc	ription:			Сар		Secondary		Cell		Air Pressu	e Hold Time	- 5	Minut	es
	Repo	rted By			Guadalupe Estrada		<del>-</del>		Сар	Х	Allowable Air Pr	essure Loss	3	PSI	
		Other					_								
	8,838	Total I	F of We	lding to	Date Combined	i	Extrusion LF	Weld To	ial To Date	1,078	Fusion L	.F Weld Tol	al To Date:	7,	760
Weld	į	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test		AT Time Out		Test
Dale	···	io. T	Length.	Welded 2:28	Name/ ID	No.	Speed	Temp	Temp	Date	Турө	PSI IN 5100	PSI OUT 5:05	Loss	Results
8.30.23	27	EX	24	PM	МИ	4941	6	860		8.30.23	Air Pressure	30	30		Pass
Seam Notes															
8.30.23	28	EX	12	1130 PM	D8	77		550	500	8,31.23	Vacuum		•		Pass
Seam Votes															
8.30.23	28	EX	175	1132 PM	DB	77		550	500	8.31.23	Vacuum	:	:		Pass
Seam Votes															
8,30,23	29	EX	45	4:00 PM	DB	77		550	500	8.31.23	Vacuum	:			Pass
Seam Votes															
8,30,23	29	EX	16	4:44 PM	D8	77		550	500	8.31.23	Vacuum		•		Pass
Seam Votes				•											
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	5:35 PM	DB	77		550	500	8,31,23	Vacuum	:	:		Pass
eam Votes							1								
8.30.23	29	EX	3	6:00 PM	DB	77		550	500	8,31,23	Vacuum	:	:		Pass
Seam Notes				•			- 1								

Project Name:			Hoot Lake Closure				Job#	22-03	-1054	Superinte	endent: Thavone	Daranikone			
Material Type:			40 mil f/2 LL			Primary		Pond		Air Pr	essure Test	30	PSI		
Job Description:			Сар			Secondary		Cell		Alr Pressur	e Hold Time	5	Minut	es	
Reported By			Guadalupe Estrada				•		Сар	Х	Allowable Air Pro	essure Loss	3	PSI	
		Other				11.1	•		•			,		,	
8,838 Total i			LF of Welding to Date Combined				Extrusion LF Weld Total To Date			1,078	1,078 Fusion LF Weld Total		al To Date:	o 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	lo.	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	:	:		Pass
Seam Notes	•														
8.30,23	29	EX	16	3:50 PM	NM	422		550	550	8.31.23	Vacuum	:			Pass
Seam Notes		.,													
8.30.23	27	EΧ	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	:	:		Pass
Seam Notes															
8,30,23	25	EX	24	4:28 PM	NM	422		550	550	8,31,23	Vacuum	:			Pass
Seam Notes															
8.30.23	24	EX	24	4:51 PM	ММ	422		550	550	8,31.23	Vacuum	••	:		Pass
Seam Notes															
8.30.23	23	EX	24	4:54 PM	NM	422		550	550	8.31.23	Vacuum	•	:		Pass
Seam Notes	······································														
8.30.23	22	EX	24	4:57 PM	NM	422		550	550	8.31.23	Vacuum	;	4		Pass
Seam Notes															

Project Name:					Hool Lake Closure	Job#	22-03-1054		Superintendent: Thavone Daranikone						
Material Type:			40 mil f/2 LL			Primary		Pond		Air Pr	essure Test	30	PSI		
Job Description:			Сар			Secondary		Cell		Air Pressur	e Hold Time	5	Minut	es	
Reported By			Guadalupe Estrada			. '		Cap	Х	Allowable Air Pr	essure Loss	3	PSI		
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Other			-		-					,			
•			F of Welding to Date Combined			Extrusion LF Weld Total To Date			1,078	1,078 Fusion LF Weld Total To Dat				ə: 7,760	
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preheat	Test	Test	16/11/1	AT Time Out		Test
Date	N	0,	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSI IN	PSI OUT	Loss	Results
8.30.23	21	EX	24	5115 PM	NM	422		550	550	8.31.23	Vacuum	•			Pass
Seam Notes												· ·	T :		
8.30.23	20	EX	24	5:40 PM	NM	422		550	550	8.31.23	Vacuum				Pass
Seam Notes												<u> </u>	· ·	<del></del>	F
8.30.23	19	EX	24	5:57 PM	ММ	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		:		Pass
Seam Notes	l		t	J											
8.31.23	17	EX	24	8:20 AM	NM	422		550	550	8.31.23	Vacuum		F		Pass
Seam Notes	·		1												
8.31.23	16	EX	24	9:11 AM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes	i		L	<u></u>											
8.31.23	15	EX	24	9:20 AM	NM	422		550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes	1			·L.											
8.31.23	14	EX	24	9:36 AM	NM	422		550	550	8.31.23	Vacuum	1	<u> </u>		Pass
Seam Notes										***************************************					*******

# Global Containment Solutions LLC Seam Control Form

F	roject	Name:			Hoot Lake Closure		Job#	22-03	-1054	Superinte	endent: Thavone	Daranikone	1		
D	/laterla	і Туре:			40 mli f/2 LL		Primary		Pond		Air Pı	essure Test	30	PSi	
Joh	Descr	dption:			Сар		Secondary		Cell		Air Pressur	e Hold Time	5	Minut	es
	Repor	rted By	•		Guadalupe Estrada		•		Сар	х	Allowable Air Pr	essure Loss	3	PSI	
		Other					•						<u></u>	•	
	8,838	Total I	_F of We	lding to	Date Combined	Е	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 Out	PSI	Test
Date	N	lo.	Length	Welded	Name/ ID	No.	Speed	Temp	Temp	Date	Туре	PSHN	PSI OUT	Loss	Results
8.31.23	R30	EX	16	10105 AM	NM	422		550	550	8,31,23	Vacuum	:	;		Pass
Seam Notes	,														
8,31.23	13	EX	66	10:08 AM	МИ	422		550	550	8,31,23	Vacuum		<b>:</b>		Pass
Seam Notes						1			· · · · · · · · · · · · · · · · · · ·						
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	- morento de la composição de la composi	550	550	8.31.23	Vacuum	:	:		Pass
Seam Notes															
8,31,23	11	EX	8	11:51 AM	NM	422	nhi barahamin'ark	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							•							•	
8.31.23	8	EX	26	1:30 PM	NM	422		550	550	8.31.23	Vacuum	1	:		Pass
Seam Notes															

### Global Containment Solutions LLC Seam Control Form

F	Project	Name:			Hoot Lake Closure		Job#	22-03	3-1054	Superinte	endent: Thav	one Daranikon	9		
D	//ateria	l Type:			40 mil f/2 LL		Primary		Pond		A	r Pressure Test	30	PSI	
Job	Desci	ription:	,		Сар		Secondary		Cell		Air Pres	sure Hold Time	5	Minut	es
	Repoi	rted By			Guadalupe Estrada				Сар	X	Allowable Al	Pressure Loss	3	PSI	
		Other			·		•		1				***************************************	•	
		J.,,c,												<b>,</b>	
	8,838	Total (	_F of We	elding to I	Date Combined	E	xtrusion LF	Weld Tot	al To Date	1,078	Fusio	n LF Weld To	lai To Date:	7,	760
Weld	Se	am	Seam	Time	Operator	Mach	Mach	Mach	Preneat	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
8,31,23	7	EX	26	1157 PM	NM	422		550	550	8.31.23	Vacuum	1	:		Pass
Seam Notes															
8.31.23	6	EX	26	2127 PM	NM	422		550	550	8.31.23	Vacuum		<del>-</del> -		Pass
Seam Notes			•												
8,31,23	5	EX	26	3:00 PM	NM	422		550	550	8.31.23	Vacuum	-	:		Pass
Seam Notes							•								
8,31.23	4	EX	26	3:14 PM	NM	422		550	550	8.31,23	Vacuum	:	:		Pass
Seam Notes															
8,31.23	3	EX	26	3:32 PM	NM	422		550	550	8.31.23	Vacuum	*	<u> </u>		Pass
Seam Notes															
8,31.23	2	EX	26	3:42 PM	NM	422		550	550	8.31.23	Vacuum		:		Pass
Seam Notes							, ,								
8.31.23	1	EX	18	4:00 PM	NM	422		550	550	8.31.23	Vacuum		:		Pass
Seam Noles	·						***************************************		·			•	•		

# Final Cover Field Destructive Testing Forms

# Global Containment Solutions LLC Destructive Sample Information

Material Type:   Ad mill file   Cap   Secondary   Secondary   Column   Column   Cap   Perimany   Cap   Per	F	roject Name: _		Hoot Lake Closur	re	_ Job#	22-03	3-1054	Superintendent:	Thavone Da	aranikone			
Reported By: Other:   Guadatupe Estrada	N	Materiai Type:		40 mil f/2 LL			Primary		Pond	Peel	Test Extrusi	on Minimum	44	PPI
Other   Othe	Job	Description:		Сар		Se	condary		Cell	Pe	el Test Fusi	on Minimum	50	PPI
D.S.   Seam   Wold   Operator   Mach   No.   Speed   Temp   Tem		Reported By:		Guadalupe Estrac	la	_			Сар Х		Shear Te	st Minimum	60	PPI
No.   No.   Date   Name/ID   No.   Speed   Temp   Temp   A   B   A   B   A   B   A   B   A   B   A   B   Results		Other:												
1   3   4   8.29.23	D.S.	Seam	Weld	Operator	Mach	Mach	Mach	Preheat	Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
1	No.	No.	Date	Name/ ID	No.	Speed	Temp	Temp						Results
DS Location and Notes   DS L	1	3 / 4	8.29,23	NM	4941	6	860							Pass
2   DS Location and Notes   Shear   62   82   80   81   82   83   82   80   81   82   83   82   80   81   82   83   82   83   82   83   83   83	,													
B. Location and Notes   Bell   Bi   Tr   Tr   Tr   Bi   Tr   Tr   Bi   Tr   Tr   Bi   Tr   Tr   Bi   Tr   Tr   Tr   Bi   Tr   Tr   Tr   Bi   Tr   Tr   Tr   Tr   Bi   Tr   Tr   Tr   Tr   Tr   Bi   Tr   Tr   Tr   Tr   Tr   Tr   Tr   T	,	1	8,29,23	NM	4941	6	860							Pass
Shear   Shea	2		·											
State   Control   State   Control   State   Control   State   Control   State   Control   State   Control   State   Control   State   Control   State   Control   State   Control   State		_ / / _	8.29.23	MB	4940	6	860							Pass
10	3													
DS Location and Notes   DS Location   DS	4		8.29.23	MB	4940	6	860							Pass
14   15   8.29.23   MB   4940   6   860   Shear   81   85   81   85   86   Pass	*													
DS Location and Notes   DS Location and Notes   Shear   Solution   S		14 / 15	8,29,23	MB	4940	6	860							Pass
6   16   17   8.29.23   MB   4940   6   860   Shear   62   88   83   85   86   Pass    DS Location and Notes	Ů										,			
DS Location and Notes	c	16 / 17	8.29.23	MB	4940	6	860							Pass
7   17   18   6.30.21   MB   4940   6   600   Shear   89   80   82   83   85   Pass	U													
DS Location and Notes	-	17 / 18	8.30.21	MB	4940	6	860							Pass
8   19   20   8.30.21   MB   4940   6   860   Shear   82   82   80   82   83   Pass	′													
DS Location and Notes  20 21 8.30.21 NM 4941 6 860 Peel 86 82 83 78 83 80 85 70 84 80 Pass  DS Location Representation 1	0	19 / 20	8,30,21	MB	4940	6	860							Pass
9 DS Location NM 4941 6 860 Shear 87 83 86 80 83 Pass	0											•		
DS Location	,	20 / 21	8,30,21	NM	4941	6	860							Pass
	9													

# Global Containment Solutions LLC Destructive Sample Information

P	roject Name	:	Hoot Lake Closur	e	_ Job# .	22-03	3-1054	Superi	ntendent:	Thavone Da	aranikone			
N	laterial Type	»:	40 mil f/2 LL			Primary		P	ond	Peel	Fest Extrusi	on Minimum	44	PPI
Job	Description	:	Сар		Se	condary			Cell	Pe	el Test Fusi	on Minimum	50	PPI
	Reported By	v:	Guadalupe Estrac	la					Cap X		Shear Te	st Minimum	60	PPI
	Other	:												
D.S.	Seam	Weld	Operator	Mach	Mach	Mach	Preheat	I	Coupon 1	Coupon 2	Coupon 3	Coupon 4	Coupon 5	Test
No.	No.	Date	Name/ ID	No.	Speed	Temp	Temp		А В	АВ	АВ	A B	А В	Results
	22 23	8,30.21	NM	4941	6	860		Peel Shear	76 76 81	77 77 83	79 74 81	81 77 84	77 75 87	Pass
10	DS Locatio and Note													
	23 / 24	8.30.21	МВ	4940	6	860		Peel Shear	82   79 84	68   80 83	78 <b> </b> 80 81	74 <b>j</b> 78 80	77   79 82	Pass
11	DS Location			W										
	25 / 26	8.30.21	MB	4940	6	860		Peel Shear	81 77 88	81   79 83	80 <b>7</b> 8 82	82 <b>8</b> 0 (	81 78 84	Pass
12	DS Location													
13	26 27	8.30.21	NM	4940	6	860		Peel Shear	81 78 87	80 T 78 82	83 <b>78</b> 83	80 <b>1</b> 76 82	82 78 85	Pass
13	DS Locatio and Note													
								Peel Shear						
	DS Location		·•				•							
	1							Peel Shear	;			·	Ţ.	
	DS Locatio		.1,				<u> </u>	Onour				l.,	:	
	and Note	5						Peel	i	i		i	į	
	DS Locatio		<u> </u>					Shear					·	
	and Note													
		***						Peel Shear		1		:		
	DS Locatio			<b></b>		L				<u> </u>				4
								Peel Shear	į			_;_		-
	DS Location			L	i .	L	1 1	Oncor		I		<u> </u>		t
	and NOTE	9												

Final Cover Repair Forms

Proje	ect Name			Hoot Lake Closure	Jo	b#:		- 1	22-03-10	54	Superintendent:	Thavone Darani	kone		
Mater	ial Type:			40 mil f/2 LL	Pri	nary			Pond		•				
Job Des	cription:			Сар	Sec	ndary			Cell						
Repo	ried by :			Guadajupe Estrada					Cap	Х					
	Other:										•				
				Damage Codes							SF Patch Material	Test Type	Abbry,		r Types
	Crease Destruct	Samole		Failed Searn MatDMaterial Defect Wrinkle WSWelder Restart	LLLost MDMech		)ama	ae		Custom Fit Pipe Boot	872	Vacuum Air Pressure	*S=South *N=North	PPatch	•
		Irregularity		Airvent RWRoller Wrinkle	DODam	ige By (	Other	S		Bum Out	LF Welded	Spark	*W=West	BExtrus	ion Bead
\$J	Seam Joi	int	AO	Add On CSConcrete Structure					AT -A	ir Test	1098.00	Air Lance	*E=East		
Repair	Damage	Seam	Panel		Repa	1	Patci		Bead	Date		Machine	Test	Test	Date
Number	Code	Number	Number	Location	Тур	<del></del>	(Fee	<i>i</i>	(Inches)	Welded	Operator Name	Number	Туре	Results	Complete
1	SJ			1/14/EX	Р	3	х	12		8,31,23	MB	813	Vacuum	Pass	8.31.23
2	ВО	1/EX			P	2	х	5		8.31.23	MB	813	Vacuum	Pass	8,31,23
3	SJ	1/EX		50' SONEOS	P	2	х	3		8.31.23	MB	813	Vacuum	Pass	8,31,23
4	во	1/EX		67' SONEOS	Р	2	х	4		8.31.23	MB	813	Vacuum	Pass	8.31.23
5	SJ	1/EX		87' SONEOS	P	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	MB	813	Vacuum	Pass	8,31.23
7	SJ	1/EX		182' SONEOS	Р	2	х	4		8.31.23	MB	813	Vacuum	Pass	8,31,23
8	BO	1/EX		192' SONEOS	Р	2	х	5		8.31.23	MB	813	Vacuum	Pass	8.31.23
9	SI	1/EX		204' SONEOS	P	2	х	3		8.31.23	NM	422	Vacuum	Pass	8,31.23
10	во		1/2/14		Р	2	х	7		8.31.23	MB	813	Vacuum	Pass	8,31,23
11	SJ		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	x	6		8.31.23	MB	813	Vacuum	Pass	8.31.23
13	SJ	4/14		4' WOEEOS	P	3	х	7		8.31.23	MB	813	Vacuum	Pass	8.31.23
14	SJ	4/5		3' SONEOS	P	3	х	6		8.31.23	M8	813	Vacuum	Pass	8.31.23
15	во	4/5		72' SONEOS	P	4	x	5		8.31.23	MB	813	Vacuum	Pass	8.31.23
16	WR	4/5		195' SONEOS	P	2	x	14		8.31.23	NM	422	Vacuum	Pass	8,31.23
17	DS-2	5/6		187' SONEOS	P	2	х	6		8.31.23	NM	422	Vacuum	Pass	8,31,23
18	SJ		5/6/14		Р	2	x	3		8.31.23	MB	813	Vacuum	Pass	8.31.23
19	SJ		6/7/14		Р	2	x	2		8.31.23	MB	813	Vacuum	Pass	8.31,23
20	SJ	8/14		4'W0EEOS	Р	4	х	7		8.31.23	DB	77	Vacuum	Pass	8,31,23

Proje	ect Name			Hoot Lake Ck	osurė		Job	#;		2	22-03-10	54	Superintendent:	Thavone Darani	kone		
Mater	ial Type:			40 mil f/2 l	LL		Prim	ary			Pond						
Job Des	cription:			Cap			Secon	dary			Cell		1				
Repo	rted by :			Guadalupe Es	strada			•			Сар	Х					
	Other:											***	•				
					Damage Codes		11 (					Custom Fit	SF Patch Material	Test Type	Abbry.	Repai CCap S	r Types
	Crease Destruct	Sample		Falled Seam Wrinkle	MatDMaterial Defect WSWelder Restart		Lost La Mechar	•	amag	e		Pipe Boot	872	Vacuum Air Pressure		PPatch	
	-	e Irregularity		Airvent	RWRoller Wrinkle		Damag	ө Ву О	Hiers	i		Burn Out	LF Welded	Spark	*W=West	BExtrus	on Bead
	⊷Seam Jol			Add On	CSConcrete Structure	9					AT -A		1098,00	Air Lance	*E=East	I	
Repair Number	Damage Code	Seam Number	Panel Number		Location		Repair Type	ŧ	Patch Feet		Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
21	SJ	***************************************	8/9/14				Р	2	x	2	,	8.31.23	DB	77	Vacuum	Pass	8.31.23
22	DS-3	8/9		1:	22' SONEOS		Р	2	x	6		8.31.23	MB	813	Vacuum	Pass	8.31.23
23	WR	9/10		19	96' SONEOS		Р	2	х	3		8,31.23	NM	422	Vacuum	Pass	B.31.23
24	WR	10/11		19	96' SONEOS		Р	2	х	2		8.31.23	NM	422	Vacuum	Pass	8,31,23
25	DS-4	10/11		3	34' SONEOS		Р	2	х	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				Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	B.31.23
28	SJ		11/12/14				Р	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		P	6	х	16		8.31.23	NM	422	Vacuum	Pass	8.31.23
31	WR	14/15		30	31' WOEEOS		Р	2	х	5		8.31.23	ħМ	422	Vacuum	Pass	8.31.23
32	DS-5	14/15		5	6' WOEEOS		þ	2	х	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
33	во	14/15		2	4' WOEEOS		P	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	МВ	813	Vacuum	Pass	8.31.23
35	SJ				15/16/EX		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
36	P8	16/17		333' W	VOEEOS, 4' NOS		Р	3	х	3		8.31.23	NM	422	Vacuum	Pass	8.31.23
37	во	16/17		32	29' WOEEOS		Р	2	х	6		8,31.23	NM	422	Vacuum	Pass	8,31,23
38	DS-6	16/17		31	12' WOEEOS		Ъ	2	х	5		8.31.23	NM	422	Vacuum	Pass	8.31.23
39	во	16/17		13	35' WOEEOS		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31,23
40	BO	16/17		10	04' WOEEOS		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23

Proje	ct Name			Hoot Lake (	Closure		dob	#:		- 2	22-03-10	54	SuperIntendent:	Thavone Darani	kone		
Mater	ial Type:			40 mli f/2	2 LL		Prim	ary			Pond						
Job Des	cription:			Сар			Secon	dary			Cell						
Repo	orted by :			Guadalupe	Estrada			•			Cap	Х					
	Other:												•				
	Crease			Falled Seam	Damage Codes MaIDMaterial Defect		Lost L	00			CE.	Custom Fit	SF Patch Malerial	Test Type Vacuum	Abbrv. *S≃South	Repai CCap S	r Types
	-Destruct	Sample		Wrinkle	WSWelder Restart		Mechai		amaç	je		Pipe Boot	872	Air Pressure	*N=North	PPatch	•
_	-	e Irregularity		Airvent	RWRoller Wrinkle		Damag	e By C	thers	•		Burn Out	LF Welded	Spark	*W=West	BExtrus	sion Bead
	Seam Joi			Add On	CSConcrete Structure	e	F				AT -A		1098.00	Air Lance	*E=East Test	Test	Data
Repair Number	Damage Code	Seam Number	Panel Number		Location		Repair Type		atch Feet		Bead (inches)	Date Welded	Operator Name	Machine Number	Type	Results	Date Complete
41	SJ	710111001			16/17/EX		P	2	x	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
42	SJ				17/18/EX		P	3	×	4		8,31,23	DB	77	Vacuum	Pass	8,31,23
43	MD	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		Р	2	х	5		8.31.23	DB	77	Vacuum	Pass	8.31.23
45	ΜD	17/18		217'	WOEEOS, 2' SOS		Р	2	х	4		8,31.23	DB	77	Vacuum	Pass	8,31.23
46	BO	17/18			241' WOEEOS		٩	2	х	3		8,31,23	DB	77	Vacuum	Pass	8.31.23
47	BO	18/19			325' WOEEOS		Р	3	×	11		8.31.23	NM	422	Vacuum	Pass	8,31,23
48	SJ				18/19/EX		Р	2	х	2		8,31.23	DB	77	Vacuum	Pass	8.31.23
49	SJ				19/20/EX		Р	2	х	2		8.31.23	DB .	77	Vacuum	Pass	8,31.23
50	DS-8	19/20			19' WOEEOS		Р	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		Ρ	3	х	14		8.31.23	DB	77	Vacuum	Pass	8,31.23
53	SJ				21/22/EX		Р	3	х	4		8,31,23	D8	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'\	WOEEOS, 11' NOS		Ρ	2	х	2		8,31,23	DB	77	Vacuum	Pass	8.31.23
56	MD	21/22		12'\	WOEEOS, 14' NOS		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
57	MD	21/22		20' \	NOEEOS, 11' NOS		P	2	х	2		8.31.23	DB	77	Vacuum	Pass	8,31,23
58	MD	21/22		27'\	WOEEOS, 11' NOS		Р	2	х	2		8,31,23	DB	77	Vacuum	Pass	8,31,23
59	DS-10	22/23			289' WOEEOS		Р	2	х	6		8,31,23	NM	422	Vacuum	Pass	8,31,23
60	SJ				22/23/EX		Р	2	х	3		8.31.23	D8	77	Vacuum	Pass	8.31.23

Proje	ect Name			Hoot Lake	Closure		Job	#:		2	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:												•				
	Crease			Falled Seam	Damage Codes MatDMaterial Defect		Lost L				AP .	Custom Fit	SF Patch Material	Test Type Vacuum	Abbrv. *S≃South	Repai CCap S	r Types
	Destruct	Semple		Wrinkle	WSWelder Restart		Mecha		amag	e		ipe Boot	872	Air Pressure		PPatch	шр
		e Irregularity		Airvent	RWRoller Wrinkle		Damag	e By C	ihers	3		Burn Out	LF Welded	Spark	*W=West	BExtrus	ion Bead
SJ	Seam Jo			Add On	CSConcrete Structure	e		,			AT -Ai	r Test	1098.00	Air Lance	*E=East		
Repair Number	Damage Code	Seam Number	Panel Number		Leadion		Repair	E	atch		Bead	Date	Operator Name	Machine	Test Type	Test Results	Date
61	SJ	Number	Manager		Location 23/24/EX		Туре Р	2	Feet	2	(Inches)	Welded 8,31,23	DB DB	Number 77	Vacuum	Pass	8.31.23
	MD	24/EX		101	NOSEOS, 2' WOS		P	3	Н	3		8.31.23	DB	77		Pass	8.31,23
62				12					X						Vacuum		
63	BO	23/24			12' WOEEOS		P	2	X	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
64	MO	23/24		11''	WOEEOS, 13' NOS		P	2	x	2		8.31.23	D8	77	Vacuum	Pass	8.31.23
65	BO	23/24			38' WOEEOS		Р	2	х	3		8.31.23	DB	77	Vacuum	Pass	8.31.23
66	MD	23/24		48'	WOEEOS, 14' NOS		P	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
67	80	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		P	2	х	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
69	SJ				24/25/EX		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
70	SJ				25/26/EX		P	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
71	80	25/26			28' WOEEOS		Р	2	х	3		8.31.23	DB	77	Vacuum	Pass	8,31,23
72	DS-12	25/26			74' WOEEOS		P	2	х	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
73	80	26/27			297' WOEEOS		P	2	х	5		8.30.23	DB	77	Vacuum	Pass	8.31.23
74	80	26/27			244' WOEEOS		Þ	2	х	3		8.30.23	DB	77	Vacuum	Pass	8,31,23
75	DS-13	26/27			55' WOEEOS		Þ	2	х	6		8.31.23	DB	77	Vacuum	Pass	8.31.23
76	SJ	27/EX			2' NOSEOS		P	2	х	5		8.31.23	DB	77	Vacuum	Pass	8.31.23
77	SJ				27/28/EX		Р	2	х	2		8.31.23	DB	77	Vacuum	Pass	8.31.23
78	80	27/28			165' WOEEOS		Р	2	х	4		8.30.23	DB	77	Vacuum	Pass	8.31.23
79	SJ				27/28/29		P	2	х	3		8.30.23	DB	77	Vacuum	Pass	8.31.23
80	80	27/29			123' WOEEOS		Р	2	x	3		8.30.23	DB	77	Vacuum	Pass	8.31,23

Proie	ct Name			Hoot Lake (	Closure	Job #	<b>#</b> ;		2	2-03-10	54	Superintendent:	Thavone Daranil	cone		
•	ial Type:			40 mll f/2	2 LL	 Prima	ıry [			Pond						
Job Des	•			Сар		 Secon	dary			Cell						
	rted by :			Guadalupe	Estrada		•		-	Сар	Χ					
	Other:													<b></b>		
	-				Damage Codes	 					Custom Fit	SF Patch Material	Test Type Vacuum	Abbrv. *S≃South	Repair CCap S	Types
	Crease Destruct \$	Comala		Falled Seam Wrinkle	MatDMaterial Defect WSWelder Restart	Lost La		mag	е		ipe Boot	872	Air Pressure	*N=North	PPatch	,
		irregularity		Alrvent	RWRoller Wrinkle	Damag					um Out	LF Welded	Spark		BExtrus	lon Bead
	Seam Jol		AO	Add On	CSConcrete Structure	 				AT -A	r Test	1098.00	Air Lance	*E=East		
Repair	Damage	Seam	Panel			 Repair		atch		Bead	Date		Machine	Test	Test	Date
Number	Code	Number	Number		Location	 Туре	(	Feet		(Inches)	Welded	Operator Name	Number	Туре		Complete
81	SJ	29/EX			115' WOEEOS	 Р	2	x	2		8,30.23	DB	77	Vacuum	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	 Ρ	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	Р	2	х	4		8,30.23	DB	77	Vacuum	Pass	8.31.23
86	во	5/14			10' WOEEOS	Р	2	х	2		8.31.23	MB	813	Vacuum	Pass	8.31.23
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99								x								<u> </u>
400						 		l x	1			1	1	i		1

## 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

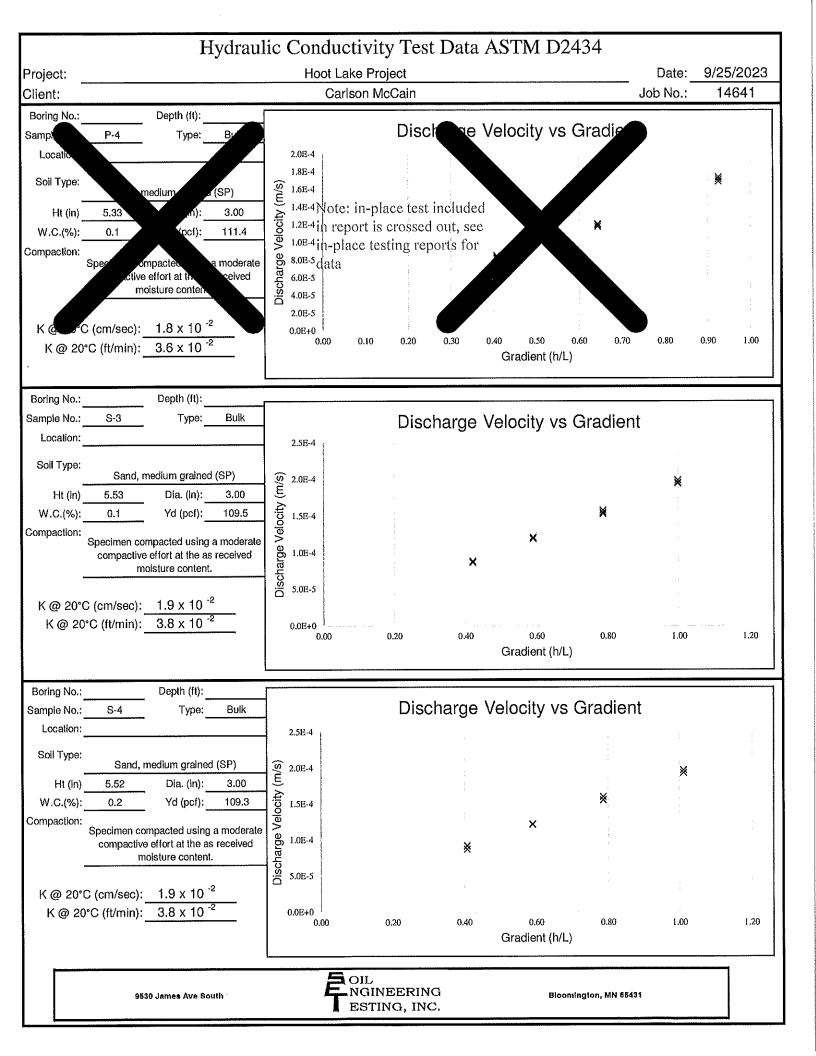
Granular Drainage Material Source Particle Size Test Reports

					Grain S	Size	Dist	ribut	ion	AST	Μ	D۷	122	2-1	6	1					0. :		554
	Project: Ho			al Cover	Project												Г			Da			4/23
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• [				S-2		Bull	(					Sa	nd, n	nediu	m graine	d (SP)			tor	250	il so	urce	s for
♦ [				Ti		Duli	-			Ĩ.c	. arr c	any .	wy su	net an	ci a nacc	oi gra	v.i	(CE)	tes	stin ta	g re	port	s for
		Grav			~ .		Sar	ıd			4				Hyd	lromet			ysis				
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Wate	m.b4318 or Content				1	18		<u> </u>		X				Cu									
Dry De	m.D2218 ensity (pcf) m.D7263				<b>–</b>   3	/4"	100.0			98.5				Cc						]			
Speci	flc Gravity					/8"	100.0			9, 2		_	Rem	arks:									
P	orosity					#4	100.0	100	0.0	96.1													
	nic Content TM:D2974				<b>」</b>	110	94.0	94.	3	95.3				ē									
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						<sup>‡40</sup>	19.3	20.		91.8	-												
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				Grain Siz	ze Dist	ributio	า ASTI	VI D	422-10	6			ob No		14641
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Report	ed To: Car	ison McC	ain			****					<del></del>		rt Da		9/25/23
	Location / B	Boring No.	Sample No.		ample Type				Soil Clas	sification			n-pla ed in		
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•			S-3		Bulk				Sand, mediun			sting	repo	orts fo	or data
♦			S-4		Bulk		,		Sand, medium						
L		Grave			San	d					meter /	Analys	sis		
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						ercent Passi	20								
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Pla	stic Limit			2					D <sub>30</sub>			<u> </u>			
AS	ticity Index			1.5					D <sub>10</sub>			<u> </u>	_		
Wate	er Content TM:D2216			1	" 200.0	100.0			Cu			<u> </u>	_		
Dry D	ensity (pcf)			3/4	<b>X</b>	99.9	100.0		Cc			<u> </u>			
A	ific Gravity stm.0854			3/8		99.7	99.7		Remarks:						1
	orosity			#	<b>X</b>	99.7	99.5								
Urgai As	nic Content	ļ		#1		95.5	93.8								
ASTM:	pH 04972 Method B		<u> </u>	#2	X	65.5	60.4								
				#4		28.9	24.8								
				#10 #20	X	0.3	0.6								
(* =	assumed)			#20	- <del> </del>	1 0.0		I							
<u> </u>					<b>a</b> oii	Ĺ									
	ç	9530 Jame	s Ave South		NG.	HNEER				Bloc	omingto	on, M	N 554	31	
1	•				ES	TING,	INC.								

Granular Drainage Material Source Hydraulic Conductivity Test Reports

	Hydraulic Co	nductivit	y Test ]	Data A	ASTM I	D2434	<u>-</u>			
Project:	Hoot Lake	Landfill Final	Cover Pro	ject				Date:	8/9/	/2023
Client:		Carlson Mo	Cain				J	ob No.:	14	1554
Boring No.: Depth (ft) Sample No.: S-1 Type Location:		-4 [	Disch	arge V	elocity	vs Gra	dient			
Soli Type:  Sand, medium grai  Ht (in)  5.44  Dia. (in  W.C.(%):  0.4  Yd (pcf  Compaction:  Specimen reconstitute moderate compactive e received moisture  K @ 20°C (cm/sec):  4.3 x 1	1.5E   3.00   2.5E   2.	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			×	×		×		
K @ 20°C (ft/min): 8.5 x 1		0.00 9.10	0.20	0.30	0.40 Gradient	0.50 (h/L)	0.6	e c	0.70	08.0
Boring No.: Depth (ff Sample No.: S-2 Type			Disch	argo M	/alooity	ve Gra	dient			
Location:  Soil Type:	4.08		Discn	arge v	elocity	vs Gra	aieni	· }	{	
Sand, medium grain Ht (in) 5.28 Dla. (in W.C.(%): 0.4 Yd (point in the second in the s	ned (SP) (5): 3.00 (1): 108.9 (2.58) (3.00) (2.58) (3.00) (3.00) (4.00) (5): 2.58 (6): 2.08 (7): 2.08 (8): 2.08 (9): 2.08 (9): 2.08 (1): 2.58	-4	×	·		*	×		`	
K @ 20°C (cm/sec): 4.5 x 1 K @ 20°C (ft/min): 8.9 x 1	0 <sup>-2</sup> 5.0E	1-5	0.20	0,30	0.40 Gradient		0,60	0.70	0.80	0.90
Boring No.: Depth (f	i):									
Sample No.: Typ Location:		į.	Disch	arge √	/elocity	vs Gra	adient	:		
Soil Type:  Ht (in) Dia. (ir  W.C.(%): Yd (pc  Compaction:	(S) 8.0E-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
K @ 20°C (cm/sec): K @ 20°C (ft/min):		-1	0.20	0.30 0.	.40 0.50 Gradient	0.60	0.70	0.80	0.90	1.00

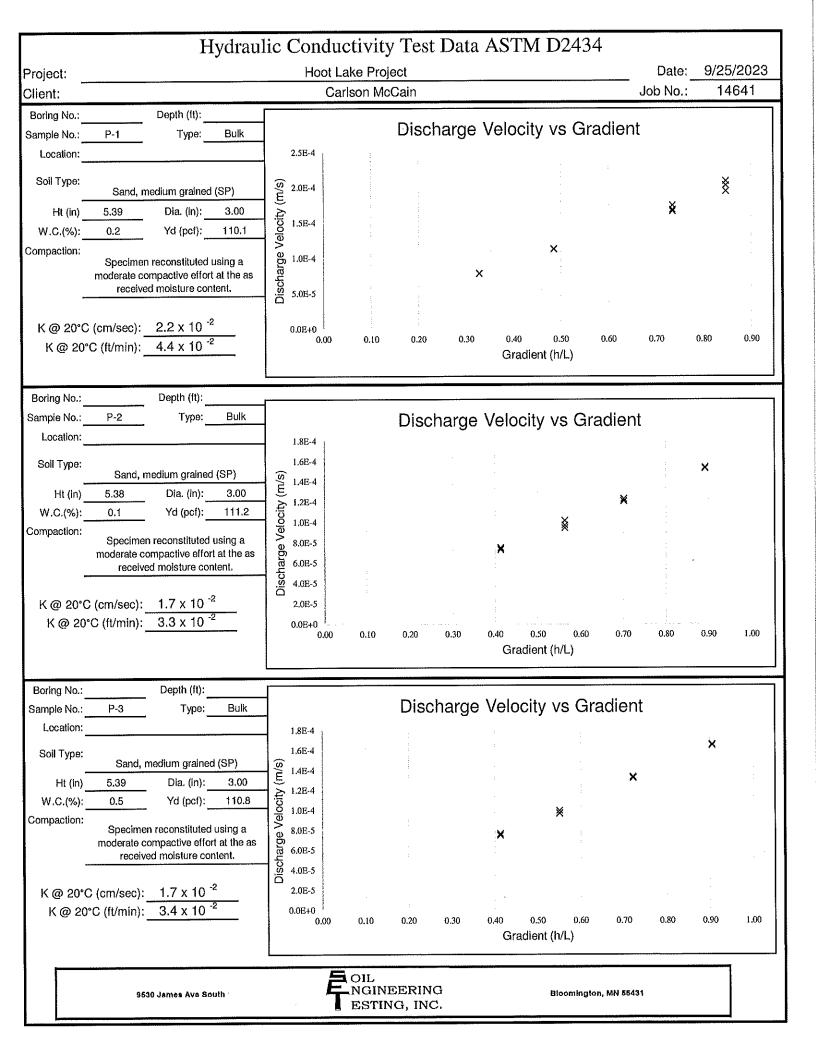


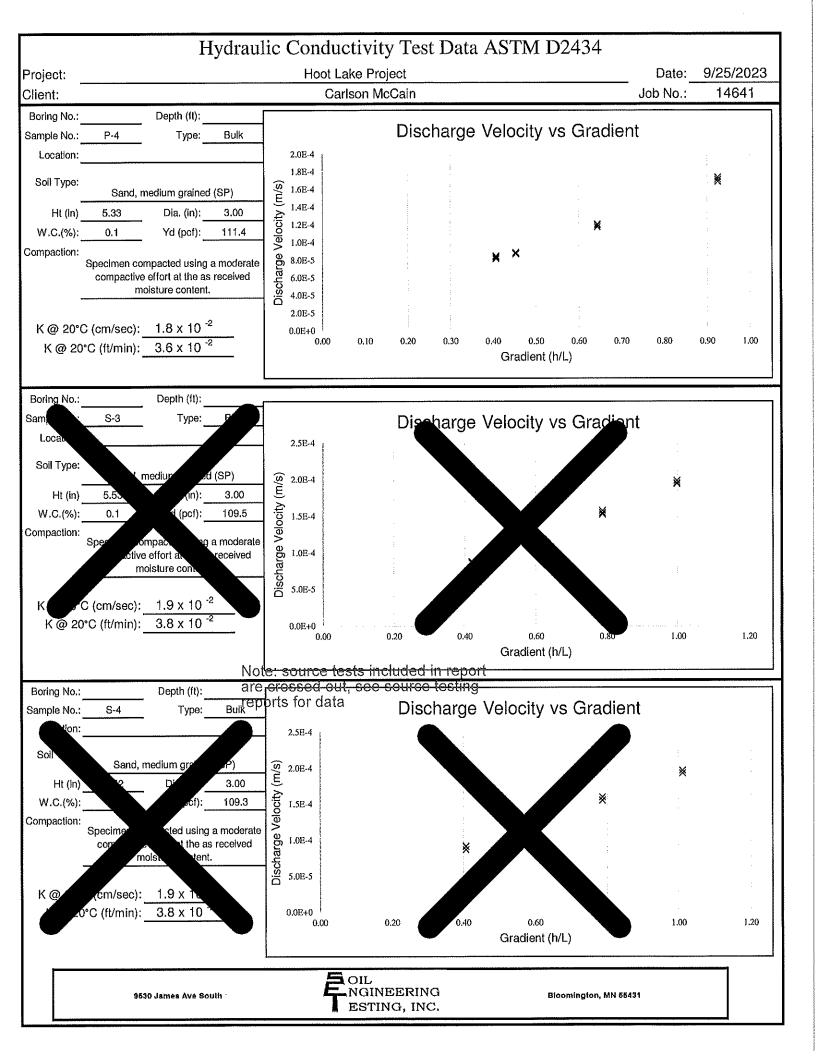
Granular Drainage Material In-Place Particle Size Test Reports

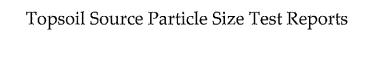
	Grain Size Distribution ASTM D422-16  Project: Hoot Lake Project  Exported To: Carlson McCain  Grain Size Distribution ASTM D422-16  Test Date: 9/20/23  Report Date: 9/25/23																			
Report	ed To: Ca	rlson McC	ain		<u>.</u>											Rep	ort D	ate:	9/2	5/23
_	Location / l	Boring No.	Sam	ple No.		ample Type							Soil Cl	assification	ı					
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• _			1	P-2		Bulk						Sand	medi	ım grainec	d (SP)					
<b>♦</b>				P-3		Bulk						Sand	, medi	ım graine	d (SP)					
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Addition	nal Results	*	•	<b>♦</b>		*		•	\ \	>				*	•	<				
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	tic Limit				2'								D <sub>30</sub>							
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AST	r Content M:D2216					ʻ	$\perp$						$C_{\boldsymbol{U}}$							
AST	nsity (pcf) <sub>M:D7263</sub>				3/4'	100.0	0	100.0	1(	0.00			Cc	L	<u> </u>					j
	ic Gravity m:D854				3/8'	99.6		99.9	99	).7		Re	marks							
	prosity				#4	98.7	_	99.7	99	9.4										
AST	c Content			ļ	#10	92.9	4	93.4	94	1.1										
ASTM:D4	PH 972 Method B		<u> </u>	<u> </u>	#20	$\vdash$		60.5	+	l <i>.7</i>										
					#40		_	24.6	+	5.5										
					#100		_	2.2	2.											
"					#200	0.6		0.6	0.	5		L								
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	Project: Ho			:t																		+	ם		est [			9/20	
Report	ted To: Ca	rlson M	cCain		***************************************			Samp															H	ep	ort [	Jati	e:	9/25	/23
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i	orosity							#4	99.	4		99.7		109	.5		ſ												İ
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	٤	9530 Jar	nes A	ve Sou	th			Ē	<u>.</u>		ΙI		RII , IN								Bloor	ning	jtor	n, M	N 55	431			

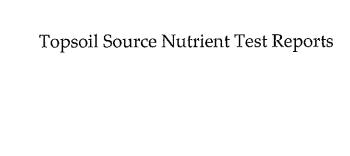
Granular Drainage Material In-Place Hydrauli	ic Conductivity Test Reports







	Grain Size Distribution ASTM D422-16  Project: Hoot Lake Landfill Final Cover Project  eported To: Carlson McCain  Grain Size Distribution ASTM D422-16  Job No.: 14554  Test Date: 8/4/23  Report Date: 8/9/23																						
				al Cover	Project																		
Report	ed To: Ca	rlson Mc	Cain																				
	Location / I	Boring No	. Sam	ple No.	Depth (ft)	Sample Type							Sc	il Cla	ssificatio	n	N	ote	: G	DN 1 in	sol ren	irce te	ests
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# 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

Date Received

08/09/23

Date Reported

08/11/23

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- The recommended rates of P2O5 and/or K2O are to be top-dressed to the establised stand. Re-test in two years.
- For best results, the recommended rate of time should be broadcast and incorporated from 6 to 12 months before seeding.
- 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.
- If only potash is recommended for any agronomic crop and the recommendation is 40ib./A<sup>17</sup>.
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- No phosphate fertilizer is recommended, but, if the soil temperature is low and soils are wet, use 10-15 lb. P2O5/acre in a starter for corn.
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- 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 toams) 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.
- 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 (lb./acre) to apply.
- 22. The soil nlitrate 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).
  - 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 deater.
- 25. No nitrogen is recommended because of NO3-N carryover.

# University of Minnesota Soll Testing Laboratory

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CARLSON MCCAIN **BRANNON PETERSON** 

15650 36TH AVE N

STE 110 PLYMOUTH MN 55446

Page Report No.

87109

Laboratory No.

171145

Date Received

08/09/23

Date Reported

08/11/23

Soli Textur C (coarse):	c ooue.	В 1	P R O	E X C	9		L K							Ver	y High				
sand, loar sandy loar		<sup>н</sup> о	E M	5 5	8	н	î I N	N			К								
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silty clay		" o	L*		5	H		N	············		K			Vei	y Low				
										SOIL TES	T RESUL	TS							
Sample/ Field	Estimated Soil	Organic Matter		oluble Salts			Buffer	Nitrata NO3-N	Olsen Phosphorus	Bray 1 Phosphorus	Potassium	Sulfur SO4 -S	Zinc	lron	Manganese	Copper	Boron	Calcium	Magnesium
Number	Texture	%		hos/cm	ķ	н	Index	lb/A	ppm P	ppm P	ppm K	ppm	ppm	ppm	ppm	ppm	ppm		]
HLP2	Medium	4.5			8	.0		154.4	7	3	101							ppm	ppm
RECOM	MENDAT	IONS	Cro	p Befo	ore	Las	t: CROF	NOT SE	ECIFIED	Last	Crop: Fal	low							
	Crop and Yie	ld Goal		Me	elhod		Lima #ENP/A	N Ib/A		O5 /A	K2O lb/A	S lb/A	Zn lb/A	Fe lb/A	Mn Ib/A	Cu lb/A	B lb/A	Ca Ib/A	Mg Ib/A
Native	Grasses			Broa	dca	st	0	0	4	0	40								
3 to	3 tons/acre Row/Drill																		
Commo	ents: 4,6,	18																	

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

### Comments

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- The recommended rates of P2O5 and/or K2O are to be top-dressed to the establised stand. Re-test in two years.
- For best results, the recommended rate of lime should be broadcast and incorporated from 6 to 12 months before seeding.
- 4. 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.
- 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.
- Broadcast phosphate will not increase yield at this P level. Use 10-15 lb. P205/acre in a starter.
- No phosphate fertilizer is recommended, but, if the soil temperature is low and soils are wet, use 10-15 lb. P2O5/acre in a starter for corn.
- This P level is very 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.
- 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.
- 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 ib. S/acre for alfalfa and red clover. For corn and small grains use either a broadcast application of 25 ib. S/acre or a band application of 10-15 ib. S/acre. Use this recommendation if there was no soil test for S.

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  - 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.
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- 19. Do not place any fertilizer in contact with the soybean seed.
- 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 (lb/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.
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# University of Minnesota Soil Testing Laboratory

Comments: 4,5,18

# SOIL TEST REPORT Farm and Field

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CARLSON MCCAIN BRANNON PETERSON 15650 36TH AVE N

STE 110

PLYMOUTH MN 55446

Page Report No.

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Laboratory No.

87109

Date Received

171146 08/09/23

INTERPRETATION OF SOIL TEST RESULTS

Date Reported

08/11/23

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Sity Clay					I.A				SOIL TES		rs							
Sample/ Fletd Number	Estimaled Soll Texture	Organic Maller %	s	luble alts nos/cm	рH	Buffer Index	Nitrate NO3-N Ib/A	Olsen Phosphorus ppm P	Bray 1 Phosphorus ppm P	Potassium ppm K	Sulfur SO4 -S ppm	Zinc ppm	fron ppm	Manganese ppm	Coppar ppm	Boron ppm	Calctum	Magneslum
HLP3	Medium	4.6			7.8		348	14	14	134							1	
RECOM	MENDAT	TIONS	Cro	p Befo	ore La	st: CRO	P NOT SI	ECIFIED	; Last	Crop: Fall	ow							
	Crop and Yie	eld Goal		М	ethod	Lime #ENP/A	N lb/A		205 p/A	K2O lb/A	S Ib/A	Zn lb/A	Fe lb/A	Mn Ib/A	Cu lb/A	B lb/A	Ca Ib/A	Mg ib/A
Native	Grasses			Broa	dcast	0	0	2	20	10								
3 to	ns/acre			Row	/Drill	-								·				

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# Appendix E - Turf Establishment Information

Seed Mix Erosion Control Blanket Data Turf Mat Data

Seed Mix

25-121

Sandy General Roadside

Common Name	Scientific Name	Rate (kg/ha)	Rate (Ib/ac)	% of Mix (% by wt)	Seeds/ sq ft
Smooth Brome	Bromus inermis	8.97	8.00	13,12%	26.25
slender wheatgrass	Elymus trachycaulus	2.24	2.00	3.29%	
Hard fescue	Festuca trachyphylla	4.76	4.25	6.96%	5.08
Perennial Ryegrass	Lolium perenne	15.13	13.50	22.13%	55.10
Park Kentucky bluegrass	Poa pratensis Park	17.93	16.00	26.23%	67.25
Canada bluegrass	Poa compressa	8,69	7.75	12.70%	510.50
switchgrass	Panicum virgatum	1.68	1.50	2.46%	425.50
little bluestem	Schizachynum scopanum	1.68	1.50	2.46%	7.73
sand dropseed	Sporobolus cryptandrus	1.68	1.50	2.45%	8.28
	Total Grasses	62.77	56,00	91.80%	110.00 1215.69
purple prairie clover	Dalea purpurea	0.56	0.50	0.82%	2.75
Red Clover	Trifollum pratense	5.04	4.50	7.38%	28.13
	Total Forbs	5.60	5,00	8.20%	30.88
	Totals:	68.37	61.00	100.00%	1246.57
Purpose:	General non-native roadside for d	ry or sandy	soils.	100,0070	1470,01
Planting Area:	Statewide. Well suited for Pine M Uplands, and Anoka Sand Plain s 3B	oraines & (	Dulwash Pl	ains, Mille La Distrot 3A an	cs 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

<u>Packaging</u>: 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.



.Z staples/yd 4:1 SLOPES



1.2 steples/yd 3:1 SLOPES



1.76 staples/yd 2:1 SLOPES



3.5 staples/yd MED to HIGH TEGW CHARVES



3 8 stophis/yd HGHTLGW CHANNYL

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)
<b>XY.</b> A	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)
Net Openings	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	<u>Value</u>
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/yd² (0.653 kg/m²)
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-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
Bench-Scale Rain Splash	ASTM D 7101	SLR == 16.45 @ 4 in/hr *,6
Bench-Scale Rain Splash	ASTM D 7101	SLR = 12.12 @ 6 in/hr 4,6
Bench-Scale Shear	ASTM D 7207	4.3 lb/ft2 @ 0.5 in soil loss b
Germination Improvement	ASTM D 7322	311%

<sup>\*</sup> 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<sup>®</sup> Recyclex<sup>®</sup> 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<sup>a</sup>:

≤ .5H:1V (ASTM D6459)

C factora:

.015 (ASTM D6459)

Shear Stress<sup>a</sup>:

14.0 lb/ft<sup>2</sup> (670 Pa) (ASTM D6460)

Velocity<sup>a</sup>:

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

Functional Longevity:

Permanent

<sup>&</sup>lt;sup>a</sup> 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 <sup>2</sup> (50.2 m <sup>2</sup> )	120.0 yd <sup>2</sup> (100.34 m <sup>2</sup> )
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/yd <sup>2</sup> (0.271 kg/m <sup>2</sup> )	0.500 lb/yd <sup>2</sup> (0.271 kg/m <sup>2</sup> )
Product Weight (± 10%)		1.148 lb/yd <sup>2</sup> (0.623 kg/m <sup>2</sup> )	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)
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TD-Tensile Strength Max.	ASTM D 6818	900.0 lb/ft (13.13 kN/m)
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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 °
Germination Improvement	ASTM D 7322	311%

<sup>&</sup>lt;sup>b</sup> SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. <sup>c</sup> 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

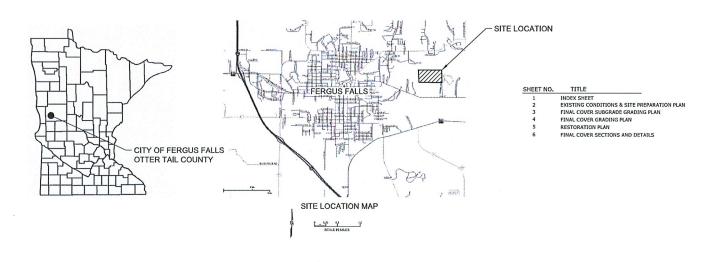
Disclaimer: TriNet Recyclex is a system for erosion control and revegetation on slopes and channels. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in erosion control and re-vegetation applications. However, since physical conditions 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 crosion 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

#### 2023 FINAL CLOSURE **RECORD DRAWINGS**

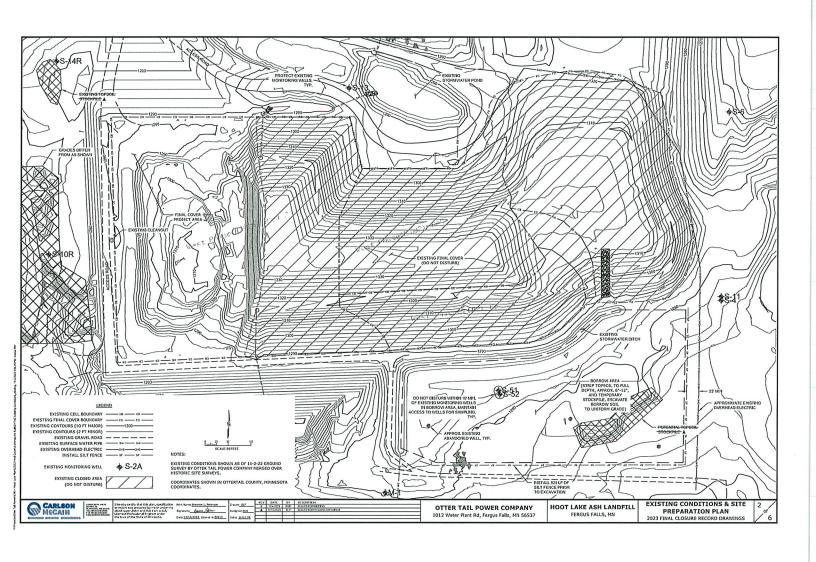
OTTER TAIL POWER COMPANY HOOT LAKE ASH LANDFILL MPCA PERMIT No. SW-211 FERGUS FALLS, MINNESOTA

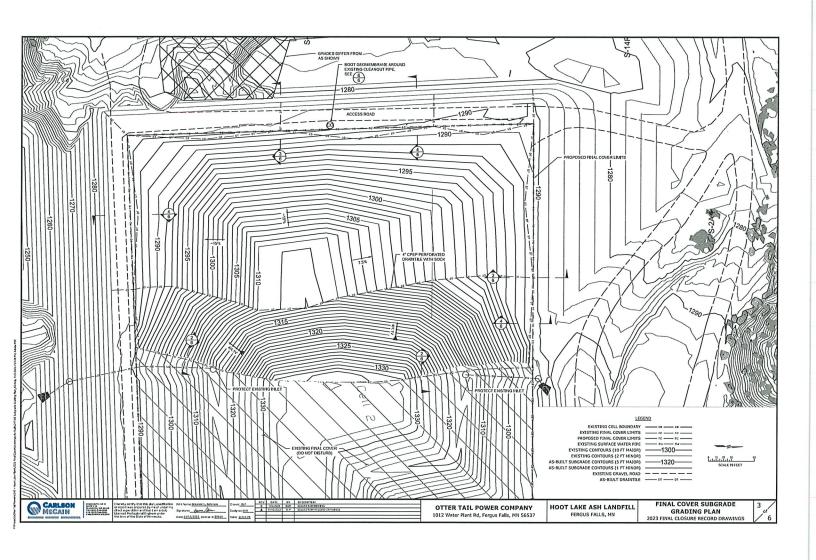


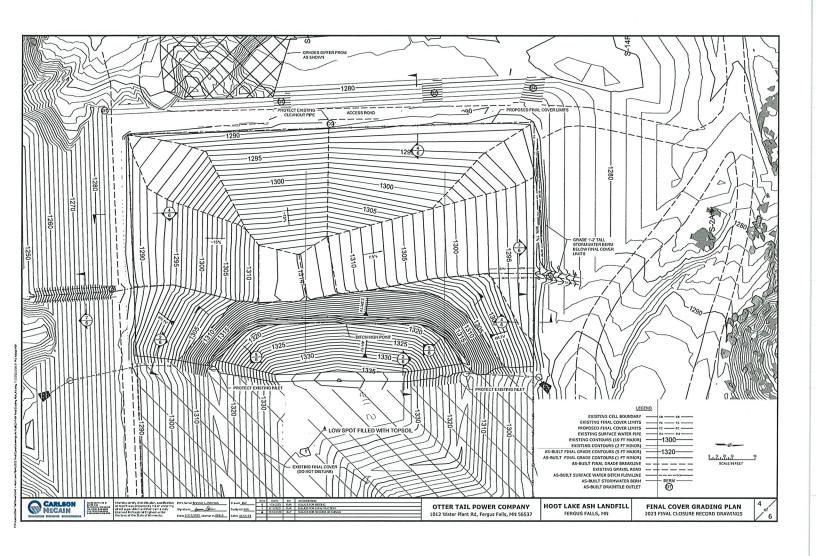
OTTER TAIL POWER COMPANY 1012 Water Plant Rd, Fergus Falls, MN 56537

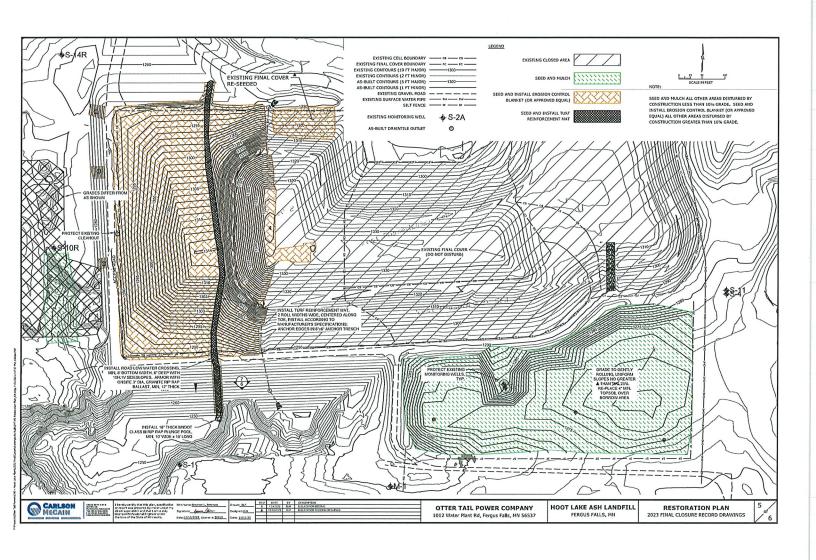
HOOT LAKE ASH LANDFILL FERGUS FALLS, MN

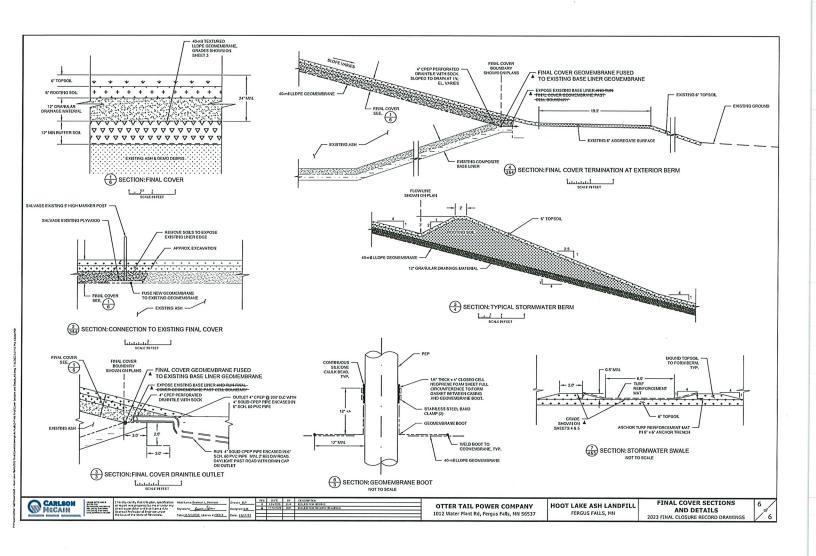
INDEX SHEET
2023 FINAL CLOSURE RECORD DRAWINGS











From: Miller, Joseph P (MPCA) < Joseph. P. Miller @state.mn.us>

Sent: Thursday, January 25, 2024 2:23 PM

To: Vukonich, Paul < pvukonich@otpco.com>

Cc: Hokenson, Alex (MPCA) <alex.hokenson@state.mn.us>; Salo, Aaron (MPCA) <<u>Aaron.Salo@state.mn.us</u>>

Subject: Otter Tail Power Co (SW-211) - Final Cover Construction Certification Report

\*\*This is an EXTERNAL email. DO NOT open attachments or click links in suspicious email

Good afternoon Paul,

The Minnesota Pollution Control Agency (MPCA) has received the following documentation for final closure of Otter Tail Power Company Hoot Lake Ash Landfill (SW-211):

- Final Closure Construction Certification Report dated November 17, 2023 and submitted to the MPCA on November 20, 2023; and
  - Recorded Deed Notation dated and submitted January 11, 2024.

conditions. The MPCA finds that the closure documentation provided in the Final Closure Construction Certification is substantially complete and The MPCA has reviewed the documentation for compliance with Minn. R. 7035.2610, Minn. R. 7035.2635, and other applicable rules and permit approves the construction for final closure. Additionally, the MPCA recommends that the facility mark the edge of waste with signs or posts so that is it clear for any future use and maintenance

The Postclosure Care Period officially begins as of January 11, 2024, per this approval. The MPCA will draft the Closure Document and provide that to you for review when complete.

Thank you,

# Joseph Miller

Minnesota Pollution Control Agency (MPCA)

Resource Management and Assistance Division

520 Lafayette Rd | Saint Paul, MN | 55155

Phone: (651) 757-2310 | Email: Joseph.P.Miller@state.mn.us

Find us on the web at: www.pca.state.mn.us

# MINNESOTA POLLUTION CONTROL AGENCY

Our mission is to protect and improve the environment and human health.

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