

## Daniel Brown

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**From:** donotreply@pa.gov  
**Sent:** Monday, June 28, 2021 2:41 PM  
**To:** Daniel Brown  
**Cc:** RA-EP-ONBASENOT@pa.gov  
**Subject:** [RECEIVED] Scanned Forms review - Reference ID: 25326

Dear Daniel Brown,

Thank you for submitting the OTHER form to DEP.

**Region:** SOUTHCENTRAL REGIONAL OFFICE

**County:** LANCASTER

**Municipality:** MANOR TOWNSHIP

**Permit #/Project #:** 101389

**RPCO Reference ID#:**

**DEP Processing Comments (if any):**

"Municipal Waste Landfill Annual Operation Report Form  
LCSWMA Frey Farm Landfill"

We will review the document and associated information and notify you with any concerns.

Your form reference # is 25326. Please use this reference # for future inquiries to DEP and include on the check memo when remitting payment.

The DEP receipt date is 6/28/2021 2:40:24 PM. Note: If your form was submitted after business or weekend / holiday, the receipt date is the next business day.



\* This is an automated email from OnBase - DO NOT REPLY \*

June 23, 2021

Mr. Anthony Rathfon, Waste Management Program Manager  
Pennsylvania Department of Environmental Protection  
Southcentral Region  
909 Elmerton Avenue  
Harrisburg, PA 17110-8200

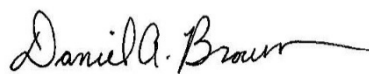
RE: **Annual Operation Report for 2020**  
**Frey Farm Landfill, Permit No. 101389**

Dear Mr. Rathfon:

In accordance with the Municipal Waste Management Regulations (Section 273.313) enclosed herein is the Annual Operation Report relating to the above referenced facility.

Enclosed is a check in the required amount of \$2,800 for administration fees. If you have any questions or concerns, please do not hesitate in contacting me.

Respectfully submitted,



Daniel A. Brown  
Environmental Compliance Manager

Enclosures

cc: LCSWMA: Environmental, J. Ridinger, A. Rice (w/ enclosures)

Bureau of Radiation Protection (page 5, "Summary of Detected Radioactive Materials," only)  
P.O. Box 8469  
Harrisburg, PA 17105-8469

Office of Energy & Technology Deployment (page 6, Landfill Gas Generation, Recovery, and Beneficial Use Data," only)  
Division of Energy Policy & Technology Deployment  
P.O. Box 8772, 15<sup>th</sup> Floor  
Harrisburg, PA 17105-8772

# 2020 ANNUAL OPERATION REPORT

for the

## **FREY FARM LANDFILL**



**Pennsylvania Department of Environmental Protection**

**Bureau of Land Recycling and Waste Management Permit No. 101389**

Submitted by:

**Lancaster County Solid Waste Management Authority**

**1299 Harrisburg Pike, PO Box 4425**

**Lancaster, Pennsylvania 17604**



**LCSWMA**

**Rethink. Recover. Renew.**



Rethink. Recover. Renew.

1299 OLD HARRISBURG PIKE  
 P.O. BOX 4425  
 LANCASTER, PA 17604-4425  
 PHONE (717) 397-9968  
 FAX (717) 397-9973

**Fulton Bank** NA

60-142/313

CHECK NO. **1219482**

DATE

AMOUNT

[05/28/2021]

[\$\*\*\*\*\*2,800.00]

[\*\*\*\*\*TWO THOUSAND EIGHT HUNDRED AND 0/100 US DOLLARS]

PAY  
 TO THE  
 ORDER OF

COMMONWEALTH OF PA  
 DEPT OF ENVIRONMENTAL PROTECT  
 BUREAU OF WASTE MANAGEMENT  
 HARRISBURG, PA 17106-9170

*R Edward Gordon*  
*Robert B. Thompson*  
 TWO SIGNATURES REQUIRED

⑈ 1219482 ⑈ ⑆ 031301422 ⑆ 0201825459 ⑈

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY

**1219482**

VENDOR ID	NAME	ACCOUNT NO.	CHECK NO.	CHECK DATE		
COMMO015	COMMONWEALTH OF PA		1219482	05/28/2021		
VOUCHER	INVOICE	DATE	AMOUNT	DISCOUNT	OTHER	NET
05242021/FFLF	PPINV-103694	5/24/2021	2,800.00			2,800.00
Total						2,800.00

COMMENT

# TABLE OF CONTENTS

	Section
<b>Municipal Waste Landfill Annual Operation Report Form (2520-FM-BWM0167):</b> .....	Page 1
Reference Item A. Facility Capacity Information .....	See Attachment 1
Reference Item B.1. Form HW-C “Compliance History” .....	See Attachment 2
Reference Item B.3. Progress in Implementing the Closure Plan .....	See Attachment 1
Reference Item B.4. Monitoring Plan Evaluation .....	See Attachment 1
Reference Item B.5. Radioactive Monitoring .....	Page 5 (Report Form)
Reference Item B.6. Landfill Gas Generation, Recovery and Beneficial Use Data.	Page 6 (Report Form)
Reference Item B.7. Landfill Benefits Monitoring .....	See Attachment 1
Reference Item C.1. Financial Assurance Bonding Information .....	See Attachment 3
Reference Item C.2. Financial Assurance Insurance Certificates .....	See Attachment 4
Reference Item D. Topographic Map Updates .....	See Attachment 5
Reference Item E. Drawings .....	See Attachment 5
<b>Annual MSE Berm Inspection Report</b> .....	See Attachment 6
<b>Visual Landscape Synthesis Plan Annual Report</b> .....	See Attachment 7



## MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT FORM INSTRUCTIONS

1. This report is due on or before June 30 each year, covering the period January 1 to December 31 of the preceding year.
2. Send one (1) copy of the report with a check for the administrative fee of \$2,800 made payable to the "Commonwealth of Pennsylvania," attention Solid Waste Manager in the respective Regional Office listed below.
3. Send one (1) copy of the completed Report Form to:  
Bureau of Waste Management  
Director's Office and Program Development  
P.O. Box 69170  
Harrisburg, PA 17106-9170
4. Send one (1) copy of page 5 "Summary of Detected Radioactive Materials" to:  
Bureau of Radiation Protection  
P.O. Box 8469  
Harrisburg, PA 17105-8469
5. Send one (1) copy of page 6 "Landfill Gas Generation, Recovery, and Beneficial Use Data" to:  
Energy Programs Office  
P.O. Box 8772, 15<sup>th</sup> Floor  
Harrisburg, PA 17105-8772
6. The report forms may be reproduced without modification of content.
7. All report drawings should be signed and sealed by a Pennsylvania Professional Engineer.

### **REGIONAL OFFICES** **(and counties served)**

DEP Southeast Region  
2 East Main Street  
Norristown, PA 19401-4915  
Phone: (484) 250-5960  
Bucks - Chester - Delaware - Montgomery - Philadelphia

DEP Northeast Region  
2 Public Square  
Wilkes-Barre, PA 18711-0790  
Phone: (570) 826-2516  
Carbon - Lackawanna - Lehigh - Luzerne - Monroe -  
Northampton - Pike - Schuylkill - Susquehanna - Wayne -  
Wyoming

DEP Southcentral Region  
909 Elmerton Avenue  
Harrisburg, PA 17110-8200  
Phone: (717) 705-4706  
Adams - Bedford - Berks - Blair - Cumberland - Dauphin -  
Franklin - Fulton - Huntingdon - Juniata - Lancaster -  
Lebanon - Mifflin - Perry - York

DEP Northcentral Region  
208 W. Third Street, Suite 101  
Williamsport, PA 17701-6448  
Phone: (570) 327-3653  
Bradford - Cameron - Centre - Clearfield - Clinton -  
Columbia - Lycoming - Montour - Northumberland - Potter -  
Snyder - Sullivan - Tioga - Union

DEP Southwest Region  
400 Waterfront Drive  
Pittsburgh, PA 15222-4745  
Phone: (412) 442-4000  
Allegheny - Beaver - Cambria - Fayette - Greene -  
Somerset - Washington - Westmoreland

DEP Northwest Region  
230 Chestnut Street  
Meadville, PA 16335-3481  
Phone: (814) 332-6848  
Armstrong - Butler - Clarion - Crawford - Elk - Erie - Forest -  
Indiana - Jefferson - Lawrence - McKean - Mercer -  
Venango - Warren

### **DEFINITIONS:**

**Municipal Waste** - garbage, refuse, industrial lunchroom or office waste and other wastes from the operation of residential, municipal, commercial, or institutional establishments and from community activities.

**Residual Waste** - wastes and sludges resulting from industrial, mining, or agricultural operations and wastewater treatment facilities, water supply treatment facilities, or air pollution control facilities, and which does not qualify as a hazardous waste under Pennsylvania law.

**Special Handling Wastes** - sewage sludge, infectious waste, chemotherapeutic waste, construction/demolition waste, ash, and asbestos. Disposal of infectious and chemotherapeutic waste at a municipal waste landfill requires compliance with 25 PA Code Chapter 273, Subchapters D and E.



Date Prepared

6/11/21

## MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT FORM

Permit Number

101389

**Instructions:** This report is to be completed based on the preceding calendar year. Responses regarding volumes remaining should be based on availability on January 1 of the following year (ex: capacity used would be from January 1, 2001 through December 31, 2001 and remaining capacity would be as of January 1, 2002).

Facility Name: LCSWMA Frey Farm Landfill I.D. No.: Site ID # 450744

For the report period 2020 (January 1 to December 31)  
(enter year)

### A. FACILITY CAPACITY INFORMATION

1. Permitted Airspace*:	<u>17,037,197</u>	CY
2. Total Airspace Used*:	<u>10,653,826</u>	CY
3. Airspace Used this Report Period*:	<u>387,917</u>	CY
4. Total Airspace Remaining*:	<u>6,383,371</u>	CY
5. Waste Accepted in this Report Period:	<u>413,644</u>	Tons
6. Waste Accepted in Previous Years:	<u>9,483,969</u>	Tons
7. Total Waste Accepted:	<u>9,897,613</u>	Tons
8. Current Conversion Factor:		
	Current Conversion Factor = <i>Waste Accepted in this Report Period / Airspace Used this Report Period</i>	
	= <u>1.07</u>	Tons/CY
9. Total Capacity Remaining:		
	Total Capacity Remaining = <i>Current Conversion Factor x Total Airspace Remaining</i>	
	= <u>See Attachment 1</u>	Tons
10. Operating Days This Report Period:	<u>296</u>	Days
11. Average Daily Volume of Waste Accepted**:	<u>1,397.4</u>	Tons
12. Estimated Remaining Life:	<u>See Attachment 1</u>	
	Estimated Remaining Life = <i>Total Capacity Remaining / Avg. Volume of Waste Accepted / # Operating Days</i>	
	= <u>See Attachment 1</u>	Years

\*All airspace capacity calculations should be based upon actual field survey or aerial mapping.

\*\*Avg. volume of waste accepted = *Waste Accepted in this Report Period / # Operating Days*

### B. PERMIT AND OPERATION STATUS

- Have there been any changes to your compliance information?
  - NO. If "NO," complete a copy of Form C1 "Compliance History Certification" (2540-PM-BWM0351) and attach it to this report.
  - YES. If "YES," complete a copy of Form HW-C, "Compliance History" (2540-FM-BWM0058) and attach it to this report.

2. Have there been any changes to your Contractual Consent of Landowner (Form E) or your Compliance History Certification (Form C1)?

NO.

YES. If "YES," submit a revised copy of Form E, "Contractual Consent of Landowner" (2540-PM-BWM0353). Changes involving land ownership may require the submittal of Part B2 and B3 of Form C1 concerning surface or subsurface land ownership.

3. Operation Update	This Report Period:		Site Total:	
a. Acreage used for disposal	<u>11.5</u>	acres	<u>95.37</u>	acres
b. Acreage seeded	<u>8.5</u>	acres	<u>22.4</u>	acres
c. Acreage vegetated	<u>8.5</u>	acres	<u>22.4</u>	acres
d. Acreage permanently vegetated	<u>8.2</u>	acres	<u>59.1</u>	acres
e. Attach a narrative description of the progress in implementing the closure plan.				

4. Monitoring Plan Evaluation

Develop and attach an evaluation of the groundwater monitoring plan required under Section 273.282 (relating to number, location and depth of monitoring points). The evaluation should determine if revisions to the groundwater monitoring plan are required due to changes in groundwater elevation, hydrogeologic conditions or other reasons. If this evaluation determines that changes in the approved groundwater monitoring plan are necessary, the operator shall immediately notify the Department and submit an application for permit modification.

Revisions are required. Report is attached.

Revisions are not required. Report is attached.

5. Radioactive Monitoring

Attach a summary of detected radioactive materials using the attached form:

Note to Operator: Forward a copy of the above attachment to:

Bureau of Radiation Protection,  
 P.O. Box 8469,  
 Harrisburg, PA 17105-8469

6. Landfill Gas Generation, Recovery, and Beneficial Use Data

Attach summary of landfill gas generation, recovery, and beneficial use using the attached form:

Note to Operator: Forward a copy of the above attachment to:

Office of Energy and Technology Deployment  
 Division of Energy Policy & Technology Deployment  
 P.O. Box 8772, 15<sup>th</sup> Floor  
 Harrisburg, PA 17105-8772

7. Landfill Benefits Monitoring

Attach a summary of the landfill benefits for this reporting period with supporting documentation using the attached form. The summary shall identify the approved benefit, the magnitude of the benefit and whether the claimed benefit was realized as anticipated. In the event that a benefit is less than the landfill had anticipated, include an explanation and any proposed corrective action to fulfill the claimed benefit.



**C. FINANCIAL ASSURANCE**

1. Attach a written update of the total bond liability for the facility in accordance with Section 271.331 (relating to bond and trust amount determination). Bonding worksheets can be found at [www.depweb.state.pa.us](http://www.depweb.state.pa.us). If additional bond is determined to be necessary, it shall be submitted to the Department within 90 days after the annual report is due.  
 Additional bond is not required. Attach copy of completed bond calculation worksheets (not bond documents).  
 Additional bond will be submitted. Attach copy of completed bond calculation worksheets (not bond documents).
2. Attach documentation of current certificate of insurance as specified in § 271.374(a) (relating to proof of insurance coverage), proving continuous coverage for public liability insurance as required by § 271.371 (relating to insurance requirement).

**D. TOPOGRAPHIC MAP UPDATE**

Attach a topographic map of the same scale, contour interval and grid system as the original site plans showing:

1. Contours at the beginning and the end of the report period.
2. The completed areas of the site at final elevation and the areas partially filled, but not active during the report period.
3. Areas that have final cover in place, indicating those areas where final cover was placed during the report period.

**E. DRAWINGS**

Attach the following:

1. An isopach drawing which clearly identifies the existing elevations as well as the final permitted elevations. These can be shown with (a) different color contour lines or (b) with contours for the existing elevations and the overfill/underfill delineated using a numerical grid.
2. A cross-sectional grid with a 50 foot horizontal interval should be submitted for areas that received waste in the past year. The same cross sections approved in the permit application should be included in the grid, if possible. Each of these cross sections should show the current grades, the grades at the beginning of the report period, the original grades, and the permitted grades. Any areas of overfill should be clearly identified on each cross section, including overfill volumes.
3. The actual field survey or aerial mapping and the calculation used to determine the airspace figures.



**CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER**

This is to certify that the Topographic Map and Drawing Updates accurately represent the status of the facility and does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department. I am aware that there are significant penalties for submitting false information.

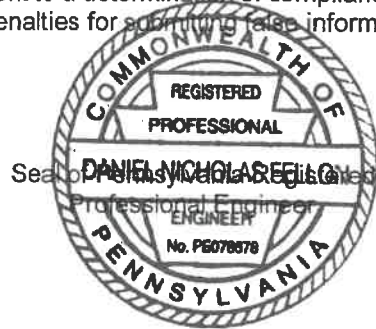
Name Daniel N. Felton, P.E.

Signature *[Signature]* (Please Print)

Date 6/23/2021

Address 1129 W Governor Road; PO Box 797  
Hershey, PA 17033

Telephone (717) 533-8600



F. **ALL REQUIRED ANALYSES WERE RECEIVED DURING THE YEAR** as provided in Section 287.54.

Yes  No

G. **PERMIT ADMINISTRATION FEE**

Please submit a check payable to the "Commonwealth of Pennsylvania." Attach the check to one of the copies being sent to the Regional Office.

\$2,800.00

Name of Permittee: Lancaster County Solid Waste Management Authority

Facility Name: LCSWMA Frey Farm Landfill

City: Lancaster State: PA Zip: 17604-4425 Phone No.: (717) 397-9968

TAX ID: 23-6006036 or SS# \_\_\_\_\_

**Officer Certification**

This is to certify that I have personally examined this report and am familiar with the information submitted in it and all attached documents. I am aware of the Department of Environmental Protection requirements for this report and this facility. To the best of my knowledge, information and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name of Officer Robert B. Zorbaugh  
(Please Print)

Signature *[Signature]*

Title Chief Executive Officer

Date 6/23/2021

Telephone (717) 397-9968

**IDENTIFY ALL ATTACHMENTS BY PERMIT NUMBER AND DATE PREPARED.**

Date Prepared  
**6/11/2021**

**SUMMARY OF DETECTED RADIOACTIVE MATERIALS**

Permit Number  
**101389**

Date	Isotope Detected (e.g. I-131, Ra-226, etc.)	Maximum Dose Rate On Truck* (microR/hr)	Maximum Dose Rate On Item** if measured (microR/hr)	Description of Waste (tenorm, medical, norm, etc.)	Disposition (Disposed on-site rejected-DOT exemption number, etc.)
2/11/20	I-131	43.6 uR/hr		Medical	Disposed
2/12/20	I-131	61.7 uR/hr		Medical	Disposed
2/13/20	I-131	58.8 uR/hr		Medical	Disposed
2/13/20	I-131	50.2 uR/hr		Medical	Disposed
2/17/20	I-131	49.0 uR/hr		Medical	Disposed
2/18/20	I-131	49.0 uR/hr		Medical	Disposed
2/19/20	I-131	48.1 uR/hr		Medical	Disposed
2/20/20	I-131	42.2 uR/hr		Medical	Disposed
2/21/20	I-131	38.0 uR/hr		Medical	Disposed
2/24/20	I-131	26.6 uR/hr		Medical	Disposed
2/25/20	I-131	24.7 uR/hr		Medical	Disposed
2/26/20	I-131	24.2 uR/hr		Medical	Disposed
2/26/20	I-131	24.0 uR/hr		Medical	Disposed
3/23/20	I-131	36.0 uR/hr		Medical	Disposed
3/24/20	I-131	39.0 uR/hr		Medical	Disposed
3/25/20	I-131	33.9 uR/hr		Medical	Disposed
3/25/20	I-131	37.1 uR/hr		Medical	Disposed
3/30/20	I-131	22.8 uR/hr		Medical	Disposed
4/23/20	Ra-226	90.3 uR/hr		TENORM	Disposed
5/18/20	Th-232	22.1 uR/hr		TENORM	Disposed
5/18/20	Th-232	26.5 uR/hr		TENORM	Disposed
5/20/20	I-131	60.0 uR/hr		Medical	Disposed
7/9/20	Tech-99m	24.4 uR/hr		Medical	Disposed
8/4/20	Ra-226	75 uR/hr		TENORM	Disposed
9/23/20	Th-232	38.6 uR/hr		TENORM	Disposed
10/8/20	Tech-99m	43 uR/hr		Medical	Disposed
11/25/20	Th-232	1.45 mR/hr		TENORM	Disposed

\* Surface (2") dose rate on truck  
 \*\* One foot dose rate on item

Note: Use additional sheets as necessary.  
 Number of pages included:



## LANDFILL GAS COLLECTION AND BENEFICIAL USE DATA

GENERAL INFORMATION	
Landfill Name: <u>LCSWMA Frey Farm Landfill</u>	Year Opened: <u>1989</u> Permit #: <u>101389</u>
Owner: <u>Lancaster County Solid Waste Management Authority</u>	Year Closed (anticipated): <u>N/A</u>
Primary Contact: <u>Daniel A. Brown</u>	Title: <u>Environmental Compliance Manager</u>
E-Mail: <u>DBrown@lcswma.org</u>	Website: <u>www.lcswma.org</u>
Site Address: <u>3049 River Road</u>	
City: <u>Conestoga</u>	State: <u>PA</u> Zip: <u>17516</u>
County: <u>Lancaster</u>	Municipality: <u>Manor Township</u>
Mailing Address (if different): <u>1299 Harrisburg Pike, Lancaster, PA 17604-4425</u>	
Site Longitude (decimal format): <u>39.953783402</u>	Site Latitude (decimal format): <u>-76.450426788</u>
Waste In Place (tons): <u>9,897,613</u>	Max. Capacity (tons): <u>17,548,313</u>
Annual Acceptance Rate (actual tons): <u>413,644 (2020 actual)</u>	Potential For Expansion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Landfill Alternative Names (if applicable): <u>N/A</u>	
LANDFILL GAS GENERATION & DISPOSITION	
Gas Collection Rate (MMscfy): <u>391.11</u> =	
Avg. Gas Volume Beneficially Used (MMscfy): <u>270.38</u> + Avg. Gas Volume Flared (MMscfy): <u>120.73</u>	
Number of Flares: <u>1</u>	Number of Gas Wells: <u>43</u> Avg. Methane Content (percent): <u>54.21</u>
LANDFILL GAS BENEFICIAL USE PROJECTS	
<b>PROJECT 1</b>	
Project Status: <input type="checkbox"/> Planned/Developing <input checked="" type="checkbox"/> Active <input type="checkbox"/> Closed	
Project Developer: <u>Energy Power Partners, LLC</u>	
Project Started Operating (year): <u>2006</u>	Anticipated Length of Project Operation (years): <u>20</u>
Project Type: <input type="checkbox"/> Direct Thermal <input type="checkbox"/> High-Btu <input checked="" type="checkbox"/> Electric Generation	
Electric Generation Capacity (MW): <u>1.6MW</u>	Annual Electric Energy Generated (kWh): <u>13,163,876</u>
Gas Volume Used (MMscfy): <u>270.38</u>	Annual Heat Content (MMBtu/yr.): <u>147,526</u>
Gas Use Location: Onsite: <u>Yes</u>	Offsite: <u>Yes</u> Pipeline Miles: <u>6.1</u>
Offsite Name: <u>N/A</u>	
Offsite Location: <u>N/A</u>	
<b>PROJECT 2</b>	
Project Status: <input type="checkbox"/> Planned/Developing <input type="checkbox"/> Active <input type="checkbox"/> Closed	
Project Developer: _____	
Project Started Operating (year): _____	Anticipated Length of Project Operation (years): _____
Project Type: <input type="checkbox"/> Direct Thermal <input type="checkbox"/> High-Btu <input type="checkbox"/> Electric Generation	
Electric Generation Capacity (MW): _____	Annual Electric Energy Generated (kWh): _____
Gas Volume Used (MMscfy): _____	Annual Heat Content (MMBtu/yr.): _____
Gas Use Location: Onsite: _____	Offsite: _____      Pipeline Miles: _____
Offsite Name: _____	
Offsite Location: _____	
(Additional projects may be added to back of page using the above format)	

Date Prepared

6/11/2021

**APPROVED BENEFITS IN THE DEP HARMS/BENEFITS ANALYSIS  
WRITTEN REVIEW**

Permit Number

101389

For each approved benefit identified in the DEP Harms/Benefits Analysis Review, please answer and address the following statements. A copy of this page should be provided for all approved benefits.

1. Has the approved benefit been provided?

See attached narrative.

2. If the answer to question #1 is yes, please explain how the benefit has been provided.

3. If the answer to question #1 is no, please explain why the benefit was not provided.

4. If the answer to question #1 is no, please describe the proposed action that will ensure the approved benefit will be provided.

**Use additional sheet(s) to explain if necessary.**

# **Attachment 1**

## **References to the MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT**

### **1. Reference Item A. Facility Capacity Information “Estimated Remaining Life”**

The estimated remaining life at the Frey Farm Landfill was calculated using recent historical information. Tonnage estimates for 2020 and subsequent years were based on the maximum Average Daily Volume allowed at the Frey Farm Landfill. The Frey Farm Landfill is estimated to have operational capacity available through 2029.

### **2. Reference Item B.1. Form HW-C “Compliance History”**

See [Attachment 2](#)

### **3. Reference Item B.3. Narrative Description of Progress in Implementing Closure Plan**

In 2020, 8.2 acres of the landfill became inactive or reached finished grade for refuse. Revegetative efforts continued on all areas having intermediate cover as needed. The total area of final capping acreage is 59.1 acres.

### **4. Reference Item B.4. Groundwater Monitoring Plan Evaluation**

The groundwater monitoring plan (GWMP) was approved by the Department in October 1990. Prior to and since that date, the appropriate GWMP locations have been sampled quarterly and the results have been reported to the Department in accordance with Department regulations.

In 2014, LCSWMA completed a comprehensive GWMP review with its landfill consultant (ARM Group, Hershey, PA). This comprehensive review indicated that no changes were necessary to the GWMP for the existing Frey Farm Landfill. Nonetheless, as part of the proposed Frey Farm Landfill Vertical Expansion permit application process, the ARM Group reviewed the GWMP to determine what changes are needed to accommodate the vertical expansion. With construction of the supporting Mechanically Stabilized Earth (MSE) berm, landfill access roads, and other vertical expansion developments, it is necessary to relocate / modify a few groundwater monitoring wells. The total number of monitoring locations will remain the same even with the changes as part of the Frey Farm Landfill Vertical Expansion process.

As indicated in on-going quarterly submissions to the Department, no changes in groundwater elevations or other hydrogeologic conditions at the Frey Farm Landfill have occurred which would require any revisions to the GWMP. LCSWMA has and will continue to monitor, report, and evaluate hydrogeologic conditions in accordance with the approved GWMP.

### **5. Reference Item B.5. Radioactivity Monitoring**

See [Page 5](#) of the Annual Operation Report

6. **Reference Item B.6. *Landfill Gas Generation, Recovery, and Beneficial Use Data***  
See Page 6 of the Annual Operation Report
7. **Reference Item B.7. *Landfill Benefits Monitoring***  
Landfill Benefits Monitoring does not apply to Permit No. 101389
8. **Reference Items C.1. *Financial Assurance Bonding Information***  
See Attachment 3
9. **Reference Items C.2. *Financial Assurance Insurance Certificates***  
See Attachment 4
10. **Reference Items D. and E. *Topographic Maps and Drawings***  
See Attachment 5

# 2020 Annual Operations Report

## Summary of Benefits

### 1.0 INTRODUCTION

This document presents an update to the detailed evaluation and balancing of the harms and benefits of the Frey Farm Vertical Expansion (FFVE) at the Frey Farm Landfill (FFLF), which is owned and operated by the Lancaster County Solid Waste Management Authority (LCSWMA). This evaluation has been prepared in connection with the Form D Environmental Assessment Process and as required by the PADEP Permit dated July 26, 2017, Condition #4, providing a description of mitigation measures initiated and/or completed and all benefits provided to date.

### 2.0 BENEFITS

#### 2.1 *Local Fees*

##### Manor Township Host Fee

Over the proposed 10-year operating life of the proposed FFVE, this host fee would amount to at least \$1,020,000 per year, or a total of \$12,331,164.

The Host Benefit fees paid in 2020 were \$1,086,151.22.

#### 2.2 *Growing Greener Fee*

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$4.00 to the Commonwealth for landfill disposal fees in support of the Commonwealth's Growing Greener program. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$2,016,000 to \$2,800,000 per year over the proposed operating life of the FFVE. Growing Greener Fee payments would total \$20,160,000 to \$28,000,000 over the 10-year life of the disposal area.

The Growing Greener fees paid in 2020 were \$935,726.80.

#### 2.3 *Recycling Fee*

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$2.00 to the Commonwealth as required by 25 PA Code § 273.315 (c) for recycling (Act 101) fees. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$1,008,000 to \$1,400,000 per year over the proposed operating life of the FFVE. Recycling fee payments would total \$10,080,000 to \$14,000,000 over the 10-year life of the disposal area.





The recycling fees paid in 2020 were \$463,184.96.

#### **2.4 Environmental Stewardship Fee**

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$0.25 to the Commonwealth as required by 25 PA Code § 273.316 (c) for environmental stewardship fees. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$126,000 to \$175,000 per year over the proposed operating life of the FFVE. Environmental Stewardship Fee payments would total \$1,260,000 to \$1,750,000 over the 10-year life of the disposal area.

The Environmental Stewardship fees paid 2020 were \$103,406.76.

#### **2.5 Operating Costs, Purchases of Goods/Services**

Over the proposed 10-year operating life of the proposed FFVE facility, LCSWMA would incur significant operating costs each year. These costs would be related to: equipment purchases; site and equipment maintenance; utility costs; and other operating costs. Additional costs will continue to include (but not limited to): surveying, health and safety provisions, mobilization/demobilization, stormwater management system modifications/upgrades, groundwater monitoring well decommissioning, utility and infrastructure modifications, existing LFG system modifications, new maintenance building installation, truck wash relocation, access road and channel construction, FFLF cap and soil cover removal, MSE berm construction, construction of approximately 9 acres of new liner system and the construction of the proposed leachate collection/detection system clearing and grubbing, excavation, soil processing, and soil stockpiling, installation of approximately 48.4 acres of new final cover and cap system, and based on the necessary upgrades and additions necessary for the existing site LFGCCS, engineering and construction quality assurance (CQA), etc.

Overall, these expenditures would be projected to amount to approximately \$49,000,000 over the 10-year facility life of the FFVE.

LCSWMA continues to make equipment purchases, perform site maintenance, pay utilities, etc. as part of normal operations. Additionally, LCSWMA continues to employ local contractors and suppliers to complete capital improvements for the facility. Therefore, this benefit has been realized during the reporting period.

#### **2.6 Wages and Benefits**

Over the 10-year operating life for the proposed FFVE, the total value of this benefit will be [at least] approximately \$9,881,240 (Note: This amount does not take into account cost of living and performance-based raises that are highly likely to occur. This amount also does not include professional and management-level staff whose jobs are [indirectly] partially or fully sustained due to the need for compliance, planning, engineering, and surveying tasks to be completed in support of the FFLF/FFVE).



LCSWMA has paid annual wages and benefits to its 10 full-time employees at the FFLF during 2020; therefore, this benefit has been satisfied during the reporting year.

## **2.7 Wage Tax Payments**

During the projected 10-year operating life of the proposed FFVE, based on the estimated aggregate wages paid to facility employees and assuming an average total federal, state and local wage tax burden of 20 percent, the employees of the facility will pay, through the life of the FFVE, roughly \$197,625 per year to total \$1,976,250 over the facility's 10- year life. The annual wages paid to LCSWMA employees will not decrease with the proposed FFVE project and, in fact, are projected to increase, due to adding personnel and standard yearly wages increases.

The above-described taxes will be apportioned to various government agencies and will ultimately result in substantial public benefits. Locally, assuming a 1 percent local wage tax, aggregate local wage taxes paid by employees of the facilities will be approximately \$9,880 per year to total \$98,800 over the expected 10-year operating life of the facility.

Assuming that employees at the proposed facility will pay a 3.1 percent state tax to the Commonwealth of Pennsylvania, aggregate wage taxes paid by employees of the facilities will be approximately \$30,630 per year to total \$306,300 over the expected 10-year operating life of the facility.

LCSWMA's 10 full-time employees at the FFLF were subject to wage taxes during 2020; therefore, this benefit has been satisfied during the reporting year.

## **2.8 Community Benefits**

### Free Residential Municipal Solid Waste Disposal

As documented in the *Amendment to April 2002 Agreement*, LCSWMA continues to provide for the collection of residential municipal solid waste from residences located on River Road/Route 441 from Washington Boro Park to Safe Harbor Park, Chestnut Grove Road, Oak Road, and Observation Site Road two (2) times per year. There are approximately 174 residences that receive this benefit.

### Free Yard Waste Disposal

LCSWMA offers free waste disposal to Manor Township residents for yard waste.

### Free Waste Disposal for Cleanup Crews

LCSWMA also waives tipping fees for the disposal of litter picked up by cleanup crews.



### Recycling Center

LCSWMA continues to provide a local public drop-off center for recyclables and composting for the convenience of local residents with the approval of the FFVE.

### **Community Tours/Educational Programs**

LCSWMA continues sponsorship of community information and educational services such as: (i) environmental education through site tours; and (ii) on-site presentations for residents. Community educational outreach were conducted virtually in 2020 due to the COVID-19 pandemic, as no on-site tours were complete due to the pandemic.



## **Attachment 2**

### **FORM HW-C**

### **COMPLIANCE HISTORY**

including Attachments "A", "B", "C" and "D"



## FORM HW-C COMPLIANCE HISTORY

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

Type of Form HW-C Submittal (check all that apply):

Original Filing                       Amended Filing                      Date of Last Filing 12/23/2020

Type of Permit or License Submittal:

New Application                       Renewal                       Annual Update                       Other \_\_\_\_\_  
(specify)

### A. General Applicant Information:

1. NAME OF PERMIT OR LICENSE APPLICANT/PERMITTEE/LICENSEE ("applicant")  
(non-corporations attach documentation of legal name):

Lancaster County Solid Waste Management Authority

ADDRESS: 1299 Harrisburg Pike

P.O. Box 4425

Lancaster, PA 17604-4425

TELEPHONE NUMBER: (717) 397-9968

TAXPAYER ID#: 23-6006036

PERMIT, LICENSE OR APPLICATION ID#: 101389

2. Identify the form of management under which the applicant conducts its business (check appropriate box) and describe the type(s) of business activities performed:

<input type="checkbox"/> Individual	<input type="checkbox"/> Fictitious Name
<input type="checkbox"/> Municipality	<input type="checkbox"/> Partnership
<input type="checkbox"/> Proprietorship	<input type="checkbox"/> Limited Partnership
<input type="checkbox"/> Public Corporation	<input type="checkbox"/> Government Agency
<input type="checkbox"/> Private Corporation	<input type="checkbox"/> Joint Venture
<input type="checkbox"/> Syndicate	<input type="checkbox"/> Association
<input checked="" type="checkbox"/> Municipal Authority	<input type="checkbox"/> Other Type of Business _____

(specify)

3. Type of permit, license or application (check all that apply):

Hazardous Waste Permit  
 Hazardous Waste Transporter License  
 Municipal Waste Permit  
 Regulated Medical, Chemotherapeutic Waste Transporter License  
 Residual Waste Permit  
 Other \_\_\_\_\_

(specify)

## FORM HW-C

### B. General Information Regarding "Related Parties"

1. **Applicants which are a corporation or a division of a corporation**, provide the following information:
  - a. The principal shareholders or stockholders who own, hold, or control stock of five percent (5%) or more of a publicly held corporation or ten percent (10%) or more of a privately held corporation.
  - b. State the names, principal places of business and taxpayer ID numbers of all domestic and foreign parent corporations (including ultimate parent corporations), and all domestic and foreign subsidiary corporations of the applicant, as well as the subsidiary corporations of the ultimate parent corporation. Include unincorporated divisions and private corporations. A diagram of corporate structure may be provided to illustrate corporate relationships.
  - c. List all principals of the corporation that have also been principals of other corporations which have committed any violation of the Environmental Protection Acts. (See Instructions, Items 2 and 6.)
2. Provide the names and addresses of all principals, corporate officers, general and limited partners, directors, other persons performing a function similar to a director, and other persons or related parties of the applicant (see Instructions, Items 4 and 5). The relationship to the applicant must be clearly described.
3. Provide the names and addresses, or IRS tax identification numbers<sup>1</sup> and affiliation of other persons or related parties having or exercising control over any aspect of the proposed facility or activity that is regulated by the Department, including but not limited to, associates, agents, contractors, subcontractors, and property owners.
4. Provide the names and addresses of all owners of record of surface and subsurface areas within and contiguous to the proposed permit area. (Not applicable to transporter license applicants.)
5. Provide the names and addresses of all holders of record to a leasehold interest of surface and subsurface areas within and contiguous to the proposed permit area.
6. If the applicant, or other related party to the applicant, has a beneficial interest in, or otherwise manages or controls any other person, municipality or other related party (as described in Sections A and B) engaged in the business of solid waste collection, transportation, storage, processing, treatment, or disposal, provide the following information:
  - a. The name, address and tax identification number or employer identification number of the corporation, other person, municipality, or other entity, in which the applicant or other related party has a beneficial interest, manages, or controls as described above.  
  
NOT APPLICABLE
  - b. The nature of the relationship or participation with the corporation, other person, municipality, or other related party.  
  
NOT APPLICABLE

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<sup>1</sup> Failure to provide all applicable numbers may delay processing of the application.

## FORM HW-C

### C. Specific information Regarding the Applicant and Its Related Parties

1. List the name and location of all of the **applicant's** and **related party's places of business and terminals** where municipal, residual and/or hazardous waste activities are conducted. Such activities include, but are not limited to generation, processing, collection, transportation and storage, treatment or disposal of solid waste, except that locations that generate only municipal waste need not be listed.
  - a. Frey Farm Landfill, 3049 River Road, Conestoga, PA 17516
  - b. Frey Farm Landfill Treatment Plant, 3049 River Road, Conestoga, PA 17516
  - c. Lancaster County Resource Recovery Facility, 1911 River Road, Bainbridge, PA 17502
  - d. LCSWMA Transfer Station, 1299 Harrisburg Pike, Lancaster, PA 17604
  - e. Household Hazardous Waste Facility, 1299 Harrisburg Pike, Lancaster, PA 17604
  - f. Susquehanna Resource Management Complex, 1670 South 19th Street, Harrisburg, PA 17104
  - g. Susquehanna Resource Management Complex Ash Landfill, 1670 South 19th Street, Harrisburg, PA 17104
2. List all **permits or licenses issued** by the Department or any other state or federal agency under the Environmental Protection Acts to the applicant or any other persons or related parties identified in Sections A or B, that are currently in effect or have been in effect at any time in the ten years previous to the date on which this form is notarized. This list is to include the type of permit or license, permit or license number, location, address, issuance date and expiration date.

See Attachment "C"

3. List all **permit or license denials** issued by the Department or any other state or federal agency under the Environmental Protection Acts to the applicant or any other person or related party identified in Section A or B, within ten years previous to the date on which this form is notarized. Include the type of permit or license, permit or license number, location, denial date and reason for denial.

NONE

4. List all persons or related parties identified in Sections A or B which have filed for or been discharged from **bankruptcy** within 10 years previous to the date on which this form is notarized. Specify the circumstances of bankruptcy including those for which the debtor sought to abandon property or to be discharged from any environmental liability subject to the Environmental Protection Acts. Include the name of the bankruptcy court, docket number and description and location of any property involved.

NONE

### D. Compliance Background:

*(Note: Copies of specific documents must be made available to the Department upon its request)*

## FORM HW-C

**Compliance History:**

List all **"Enforcement Actions"** issued by the Department or any other state or federal or county agency to the applicant or those persons or related parties identified anywhere in response to Sections A, B or C using the following format grouped by state and location in chronological order.

Date	Location	Permit/ License/ EPA ID #	Issuing Agency	Type of Action	Nature of Violation	Disposition	Dollar Amount of Penalty
------	----------	---------------------------------	-------------------	----------------------	------------------------	-------------	--------------------------------

Enforcement actions include but are not limited to:

All **notices of violation (NOVs)**, issued by any regulatory agency to the applicant or those persons or related parties identified anywhere in Sections A, B or C concerning the Environmental Protection Acts, or any other environmental statute, regulation or ordinance.

All **administrative orders, civil penalties, permit or license suspensions/revocations, bond forfeiture actions, and civil penalty** actions adjudicated by any judicial body against the applicant or those persons or related parties identified anywhere in Sections A, B or C concerning the Environmental Protection Acts, or a regulation or order or a condition of a permit or license.

All **consent orders, consent adjudications, consent decrees or monetary settlements (settlement agreements, letter agreements, settlement letters or consent assessments)** between the applicant or those persons or related parties identified anywhere in Sections A, B or C and any state, federal or county agency regarding the Environmental Protection Acts, or any other environmental statute, regulations or ordinance.

All **court proceedings** in which those persons or related parties identified anywhere in Sections A, B or C have been involved in relation to the Environmental Protection Acts.

All **summary, misdemeanor, or felony convictions, or pleas of guilty or no contest** that have been obtained against the applicant or those persons or related parties identified anywhere in Sections A, B or C, pursuant to the Environmental Protection Acts, or for any acts involving the generation, storage, treatment, transportation, processing, or disposal of municipal, residual or hazardous waste.

For all persons and municipalities identified in Section A, B or C, indicate all violations committed and any subsequent enforcement actions taken regarding the facility or activity not previously listed in this section, concerning the Environmental Protection Acts.

State the reasons for suspension, revocation, or denial of any permit/permit application or license/license application filed by the applicant or any related party concerning the Environmental Protection Acts. Provide the date, location and nature of the violations, type of action, issuing agency, dollar amount of any monetary penalty associated with the action and permit, license, EPA ID# or other identifying number if applicable.



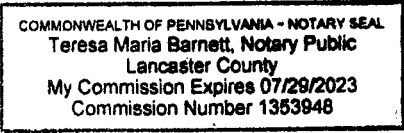
### FORM HW-C

I hereby certify that I have the authority to respond to the above questions on behalf of the applicant, and that the information provided herein is true and correct to the best of my knowledge, information and belief.

*Robert B. Zorbaugh*  
(Signature)

Name: Robert B. Zorbaugh  
(Print or Type Name)

Title: Chief Executive Officer  
(Print or Type Title)



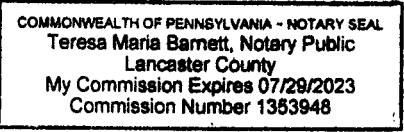
Sworn to and subscribed before me this  
23<sup>rd</sup> day of June,

2021  
*[Signature]*  
Notary Public

*Daniel A. Brown*  
(Signature)

Name: Daniel A. Brown  
(Print or Type Name)

Title: Environmental Compliance Manager  
(Print or Type Title)



Sworn to and subscribed before me this  
23<sup>rd</sup> day of June,

2021  
*[Signature]*  
Notary Public

\_\_\_\_\_  
Attach copy  
of Articles of Incorporation

(For Corporations, see the Instructions, Item 9, regarding signatures and submission of Articles of Incorporation.)

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY JANUARY 2021		
BOARD OF DIRECTORS	ADDRESS	PHONE/FAX
Michael W. Brubaker (Spouse: Cindy) Chair – Term Exp. 12/31/24 Year Appointed: 2015 Email: <a href="mailto:mwbrubaker@gmail.com">mwbrubaker@gmail.com</a>	40 South Broad Street Lititz, PA 17543	Work/Cell: 717-945-9139
George Rettew (Spouse: Jackie) Vice-Chair – Term Exp. 12/31/21 Year Appointed: 2017 Email: <a href="mailto:grettew68@comcast.net">grettew68@comcast.net</a>	1078 Olde Forge Crossing Lancaster, PA 17601	Cell: 717-940-6252
J. Scott Ulrich (Spouse: Louise) Secretary - Term Exp. 12/31/22 Year Appointed: 2011 Email: <a href="mailto:jscottulrich@gmail.com">jscottulrich@gmail.com</a>	1410 Picket Drive Lancaster, PA 17601	Cell: 717-575-6598
R. Edward Gordon (Spouse: Jean) Treasurer – Term Exp. 12/31/23 Year Appointed: 2003 Email: <a href="mailto:yankskis@comcast.net">yankskis@comcast.net</a>	1016 Stonemanor Dr. Lancaster, PA 17603	Cell: 717-940-8395
John Blowers (Spouse: Lisa ) Member– Term Expires 12/31/25 Year Appointed: 2021 Email: <a href="mailto:jblowers1@gmail.com">jblowers1@gmail.com</a>	102 Strasburg Pike Lancaster, PA 17602	Cell: 717-475-0921
Joseph R. Deerin Member – Term Exp. 12/31/24 Year Appointed: 2012 Email: <a href="mailto:jrdeerin@deerincompanies.com">jrdeerin@deerincompanies.com</a>	1414 Valley Road Lancaster, PA 17603	Work: 717-735-5545 Cell: 717-314-2260 Home: 717-392-8237
Steve Dzurik (Spouse: Kristin) Member – Term Exp. 12/31/21 Year Appointed: 2012 Email: <a href="mailto:steve_dzurik@ajg.com">steve_dzurik@ajg.com</a>	484 Lancer Drive Columbia, PA 17512	Home: 717-285-3863 Work: 443-798-7476 Cell: 717-682-8227 Fax: 443-798-7290
Lester O. Houck (Spouse: Faye) Member – Term Exp. 12/31/21 Year Appointed: 2001 Email: <a href="mailto:lohouck@comcast.net">lohouck@comcast.net</a>	361 Diem Woods Drive New Holland, PA 17557	Work: 717-768-8059 Home: 717-354-9793 Cell: 717-413-6267
Karen M. Weibel (Spouse: Robert) Member – Term Exp. 12/31/23 Year Appointed: 2009 Email: <a href="mailto:kweibel@ptd.net">kweibel@ptd.net</a>	202 North Cedar Street P.O. Box 112 Lititz, PA 17543	Home: 717-626-5028 Cell: 717-314-4628 Fax: 717-626-9142

Executive Team information printed on reverse side.

<b>LCSWMA Executive Team</b>	<b>1299 Harrisburg Pike - P.O. Box 4425 Lancaster, PA 17604-4425</b>	<b>Phone: 397-9968 Fax: 397-9973</b>
Robert B. Zorbaugh (Spouse: Stacy) Chief Executive Officer Email: <a href="mailto:bzorbaugh@lcswma.org">bzorbaugh@lcswma.org</a>	1832 Fritz Lane Lancaster, PA 17602	Office: 717-735-0162 Cells: 717-666-8014 717-669-2526
Thomas F. Adams (Spouse: Brittainy) Chief Operating Officer Email: <a href="mailto:tadams@lcswma.org">tadams@lcswma.org</a>	1981 New Danville Pike Lancaster, PA 17603	Office: 717-735-0180 Cell: 717-327-9951
Daniel G. Youngs (Spouse: Crystal) Chief Financial Officer Email: <a href="mailto:dyoungs@lcswma.org">dyoungs@lcswma.org</a>	826 S. 14 <sup>th</sup> Avenue Lebanon, PA 17042	Office: 717-735-0164 Cell: 717-644-5099
Michelle Marsh Chief Business Development Officer Email: <a href="mailto:mmarsh@lcswma.org">mmarsh@lcswma.org</a>	157 W. Market Street Marietta, PA 17547	Office: 717-735-0178 Cell: 717-572-3188
Alex Henderson (Spouse: Molly) General Counsel Email: <a href="mailto:ahenderson@lcswma.org">ahenderson@lcswma.org</a>	2051 Rice Road Lancaster, PA 17603	Office: 717-735-0175 Cell: 717-475-9177

**Attachment “B”  
Reference FORM HW-C Item B.4.**

**FREY FARM LANDFILL  
CONTIGUOUS LANDOWNERS**

Aaron C. Frey  
3106 River Road  
Conestoga, PA 17516

Ann M. Kirchner  
3100 River Road  
Conestoga, PA 17516

Anthony L. Wenger  
3126 River Road  
Conestoga, PA 17516

Brian J. Sensenich  
3076 River Road  
Conestoga, PA 17516

Craig A. Frey  
3232 Anchor Road  
Washington Boro, PA 17582

John G. Miller  
3052 River Road  
Conestoga, PA 17516

Hans E. Weber  
3088 River Road  
Conestoga, PA 17516

Manor Township  
950 West Fairway Drive  
Lancaster, PA 17603

**ATTACHMENT C**  
**Reference Form HW-C; Item C.2.**  
**LCSWMA Permit List**  
LCSWMA Permits; DEP Client #4660

**Resource Recovery Facility:**

1911 River Road, Bainbridge, PA 17502  
DEP site ID #241770; facility ID #255039 (Covanta Client ID# 2839)

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	400592	Municipal Waste	01/07/2019	3/30/2029
BWQM	36-62776	AST/UST	Annual	
	3688402	Water Storage Ponds	2/22/1989	No Expiration
BSWC	3688802	Earth Disturbance	2/22/1989	No Expiration
BCEC	3688532	Drinking Water	11/5/1991	No Expiration
BAQC	36-05013	Title V	2/1/2017	1/31/2022
SRBC	20180908	Groundwater Usage	9/8/2018	9/30/2033

Notes: (1) The Facility holds EPA ID #0000103713

**Susquehanna Resource Management Complex:**

1670 S. 19<sup>th</sup> Street, Harrisburg, PA 17104  
DEP site ID#450856; facility ID# 481371 (RRF)/ # 478223 (LF)

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	100758	Municipal Waste (SRMC)	12/23/2013	11/29/2022
BLRWM	100759	Municipal Waste (Ash Landfill A)	Closed	
BLRWM	100992	Municipal Waste (Ash Landfill B)	7/11/2018	6/1/2028
BWQM	403508	Stormwater NPDES – PAG-03	09/24/2016	09/23/2021
BAQC	22-05007	Title V	01/01/2018	12/31/2022
CRW	122022-9	Industrial User	12/21/17	12/20/2022
SRBC	20140906	Groundwater Usage	10/1/2014	9/30/2029

**Transfer Station:**

1299 Harrisburg Pike, Lancaster, PA 17603  
DEP site ID #577359/556046; facility ID 596402

Notes: (1) HHW Facility holds EPA ID # PAD987284932

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	100009	Municipal Waste	12/10/2013	4/12/2024
BWQM	PAR403505	Stormwater NPDES – PAG-03	9/24/2016	9/23/2021
	36-17038	AST/UST	Annual	

**ATTACHMENT C**  
**Reference Form HW-C; Item C.2.**  
**LCSWMA Permit List**

**Frey Farm Landfill:**

3049 River Road, Conestoga, PA 17516

DEP site ID #450744; facility ID #477357; client ID #4703/#4660

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	101389	Municipal Waste	9/27/2010	5/26/2031
BWQM	PAR503501	Stormwater NPDES – PAG-03	9/24/16	9/23/2021
BAQC	36-05081	Title V (BAQC facility id #522092)	8/1/2016	7/31/2021
BAQC	36-05081B	Title V Plan Approval	9/14/2017	8/31/2020
LASA	377	Leachate Discharge	3/27/2021	3/26/2026
SRBC	20061208	Groundwater Usage	12/5/2006	12/5/2031
BAQ	GP3-36-0581 & GP-9-36-05081	Portable Nonmetallic Mineral Processing Plant and Diesel or No. 2 Fuel-Fired IC Engine	2/28/2019	2/29/2024
BAQ	GP3-36-0581B & GP-9-36-05081B	Portable Nonmetallic Mineral Processing Plant and Diesel or No. 2 Fuel-Fired IC Engine	5/14/2021	5/31/2026

**Creswell Landfill:**

3049 River Road, Conestoga, PA 17516

DEP site ID #248683

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	100008	Municipal Waste	Closed	
BWQM	PA0043486	CWLTP NPDES	1/1/2012	12/31/2016
BAQC	36-05081	Title V	8/1/2016	7/31/2021

**INASHCO Metals Recovery Facility:**

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BWQM		Stormwater NPDES – PAG-03 Non-Exposure Certification	04/01/2018	03/31/2023

**Frey Farm Liquid Treatment Plant:**

DEP site ID #497686

<b><u>Bureau</u></b>	<b><u>Number</u></b>	<b><u>Regarding</u></b>	<b><u>Start</u></b>	<b><u>End</u></b>
BLRWM	301317	Residual Waste	6/10/1998	6/9/2008
LASA	377	Leachate Discharge	3/27/2016	3/27/2021

**ATTACHMENT C**  
**Reference Form HW-C; Item C.2.**  
**LCSWMA Permit List**

**Miscellaneous LCSWMA Permit Information:**

- 1) LCSWMA Federal I.D.# (tax #): 23-6006036
- 2) LCSWMA Dunn and Bradstreet #: 06-709-5828
- 3) SIC; 4953 Refuse Systems (solid waste landfills, combustors)
- 4) NAICS;
  - a) 562212 (Waste Treatment and Disposal; Solid Waste Landfills); LF
  - b) 562998 (All Other Miscellaneous Waste Management Services); TS
  - c) 562213 (Waste Treatment and Disposal; Solid Waste Combustors); RRF
- 5) Other DEP-recognized sites owned by LCSWMA include:
  - a) CFI; site ID #577301
  - b) Lancaster Malleable LF; site ID #248940
- 6) Other miscellaneous permit information:
  - a) SRMC Covanta Stormwater NPDES Permit #PAS503501
  - b) Spotted Lanternfly Permit PA-20190508569 Permit Issued 5/20/19
  - c) Waste Tire Transporter Authorization License; Issued 12/11/2020; Expires 1/31/2022

## ATTACHMENT "D" Reference FORM HW-C Item D.

DATE	LOCATION	PERMIT/ LICENSE/ EPA ID#	ISSUING AGENCY	TYPE OF ACTION	NATURE OF VIOLATION	DISPOSITION	DOLLAR AMOUNT OF PENALTY
1/1/10	Resource Recovery Facility	400592	PaDEP/BAQC	CACP	Emission Limits Violations; 1st Qtr 2010	Comply/Closed	\$2,483
7/13/10	Resource Recovery Facility	400592	PaDEP	ADMIN	Close Out	Comply/Closed	\$2,483
7/14/11	Transfer Station	100009	PaDEP/BWM	NOV	Failure to disclose prior violations	Comply/Closed	N/A
9/28/11	Transfer Station	100009	Comm. of PA	Non-traffic citation	Brake Line Chafing	Comply/Closed	\$691
9/28/11	Transfer Station	100009	Comm. of PA	Non-traffic citation	Brake Hose Chafing	Comply/Closed	\$650
4/20/12	Resource Recovery Facility	400592	PaDEP/BAQC	CACP	Emission Limits Violations; 2nd Qtr 2010	Comply/Closed	\$400
1/6/2012	Transfer Station	100009	Comm. of PA	Non-traffic citation	Non-traffic citation, Axle was grease soaked thus reducing brake efficiency	Civil Penalty Paid	\$142.00
5/10/12	Transfer Station	100009	Comm. of PA	Non-traffic citation	Non-traffic citation, Brake alignment	Civil Penalty Paid	\$392.00
6/1/12	Resource Recovery Facility	400592	PaDEP/ BWSM	NOV	Public Water Supply Permit, Total Coliform Exceedence	Corrected/Abated	N/A
7/13/12	Transfer Station	100009	PaDEP/BWM	NOV	Failure to disclose prior violations	Comply/Closed	N/A
2/20/14	Susquehanna Resource Management Complex	100758	PaDEP/BWM	Non- Compliance	Surface water discharge	Comply/Closed	N/A
2/20/14	Susquehanna Resource Management Complex	100758	PaDEP/BWM	Non- Compliance	Ash handling violation	Comply/Closed	N/A
3/18/14	Susquehanna Resource Management Complex Ash Landfill	100992	PaDEP/BWM	NOV	Leachate overflow	Comply/Closed	N/A



## ATTACHMENT "D" Reference FORM HW-C Item D.

DATE	LOCATION	PERMIT/ LICENSE/ EPA ID#	ISSUING AGENCY	TYPE OF ACTION	NATURE OF VIOLATION	DISPOSITION	DOLLAR AMOUNT OF PENALTY
5/4/14	Susquehanna Resource Management Complex Ash Landfill	100992	PaDEP/BWM	NOV	Leachate overflow	Comply/Closed	N/A
01/28/16	Susquehanna Resource Management Complex	100758	PaDEP/BAQC	CACP	Emission Limits Violations; 1 <sup>st</sup> Qtr 2014 – 1 <sup>st</sup> Qtr 2015	Civil Penalty Paid	\$5,400
12/30/19	Susquehanna Resource Management Complex	100758	PA DEP / BAQC	TBD	Emission Limits Violations: 2 <sup>nd</sup> Qtr 2015 – 1 <sup>st</sup> Qtr 2017	Civil Penalty Paid	\$42,129.65
04/05/18	Resource Recovery Facility	400592	PA DEP / BAQC	CACP	3 <sup>rd</sup> Qtr 2010 – 1 <sup>st</sup> Qtr 2017 Emission Exceedences	Civil Penalty Paid	\$42,196.23
TBD	Susquehanna Resource Management Complex	100758	PA DEP / BAQC	TBD	2 <sup>nd</sup> Qtr 2017 – 1 <sup>st</sup> Qtr 2019 Emission Exceedences	TBD	TBD
05/01/19	Creswell Landfill	PA0043486	PA DEP/ BCW	NOV	Discharge Limits Exceeded	Comply/Closed	N/A
01/13/2020	Frey Farm Landfill	377	LASA	NOV	Discharge Limit Exceeded	Comply/Closed	N/A
06/23/2021	Resource Recovery Facility	400592	PA DEP / BAQC	TBD	2 <sup>nd</sup> Qtr 2017 – 1 <sup>st</sup> Qtr 2019 Emission Exceedences	Civil Penalty Paid	\$8,700

**Attachment 3**

**BONDING INFORMATION**

**2020 Annual Operations Report**  
**LCSWMA Frey Farm Landfill – Bonding Information**

Currently, the LCSWMA Frey Farm Landfill has an approved Closure/Post-Closure Bond in the amount \$9,447,860. In accordance with Department requirements, an annual review of the line items and supporting information was completed for calendar year 2020. In summary:

<b>Frey Farm Landfill Bond Comparison</b>		
	2019	2020
Decontaminating the Facility	\$ 11,710	\$ 11,777
Capping/closure	\$ 4,002,158	\$ 4,002,158
Groundwater Monitoring	\$ 632,019	\$ 632,019
Surface Water Monitoring	\$ 36,975	\$ 45,519
Private Water Supply Monitoring	\$ 330,634	\$ 330,634
Gas Monitoring	\$ 84,221	\$ 84,221
Gas Collection/Maintenance	\$ 573,641	\$ 573,641
Other Monitoring	\$ 192,063	\$ 192,063
Leachate Management	\$ 1,924,025	\$ 2,030,066
Borrow Area Closure	\$ 26,499	\$ 26,499
Maintenance Costs	\$ 1,098,642	\$ 1,098,642
Admin; inflator, contingency	\$ 1,981,217	\$ 2,088,687
<b>Total</b>	<b>\$10,893,803</b>	<b>\$11,115,925</b>

1. Maximum volume of solid waste required to be moved or disposed as part of closure (includes cost for solidification)	<u>400 tons</u>
2. Estimated volume of contaminated soils or materials (from accidents, spills, prior remediations)	<u>0</u>
3. Total Volume of waste	<u>400 tons</u>
4. Unit cost to dispose off-site (include any analysis or transportation cost)	<u>\$12.25 /ton</u>
5. Total Cost	<u>\$4,900</u>
6. Estimated volume of contaminated liquid generated during decontamination	<u>50,000 gallons</u>
7. Unit cost to treat/dispose of contaminated liquids (including any transportation)	<u>\$0.019 /gal.</u>
8. Total Cost to dispose of contaminated liquids	<u>\$953.87</u>
9. Estimated volume of fill material	<u>500 CY</u>
10. Unit cost of acquiring, transporting, placing and stabilizing (i.e. revegetating fill material (include costs for off-site purchase if soil not available on site)	<u>\$7.05 /CY</u>
11. Total Cost to fill	<u>\$3,524</u>
12. Equipment decontamination cost	<u>\$2,000 LS</u>
<b>TOTAL COST WORKSHEET A</b>	<b><u>\$11,777</u></b>

- 1. Volume of fill required for area not at final/intermediate grade, but would require filling prior to capping: 0 CY
  
- 2. Maximum area to be capped and covered (this should include all areas at final grade not capped, intermediate grades and areas to be filled to intermediate grades then capped): 57.1 acres
  
- 3. Closure design, surveying and development of construction drawings (use \$750.00/acre of number 2). \$42,825
  - a. Construction and Maintenance of access roads. \$30,000 LS

**Material Volumes/Areas:**

- 4. Earthen Materials
  - a. Structural Fill 0 CY (Specification<sup>1</sup>)
  - b. Intermediate Cover 46,061 CY (Specification<sup>1</sup>)
  - c. Clay Cap Material 0 CY (Specification<sup>1</sup>)
  - d. Final Cover Soil 184,243 CY (Specification<sup>1</sup>)
  - e. Sand/Stone 0 CY (Specification<sup>1</sup>)
  - f. Other 0 CY (Specification<sup>1</sup>)
  
- 5. Synthetic Materials
  - a. Geotextile 2,611,640 Sq. Ft. (Type)
  - b. FML 2,611,640 Sq. Ft. (Type)
  - c. Drainage Layer 2,611,640 Sq. Ft. (Type)
  - d. Other          Sq. Ft. (Type)

6. Cap Penetrations: Estimate the number of cap penetrations that will need to be installed for closure of the facility including, but not limited to gas extraction wells, cleanouts, valve pits, etc. 71

7. Unit cost to place or regrade material to reach final grades (this may include additional waste placement to reach grade) \$1.48 \$/CY

Are sufficient soils available in permitted on-site borrow areas to complete job? (Attach maps that identify sources and stockpiles) yes

- 8. Earthen Materials
  - a. Structural Fill
    - 1. Stockpile 0
    - 2. Borrow

**Total**         

On-site Yes / No  
 Processing Required Yes / No  
 Unit cost to place<sup>2</sup> \$5.03

**b. Intermediate Cover**

1. Stockpile	46,061
2. Borrow	
<b>Total</b>	

On-site	Yes
Processing Required	No
Unit cost to place <sup>2</sup>	\$2.66

**c. Clay Cap Material**

1. Stockpile	
2. Borrow	
<b>Total</b>	

On-site	Yes / No
Processing Required	Yes / No
Unit cost to place <sup>2</sup>	

**d. Final Cover Soil**

1. Stockpile	184,243
2. Borrow	
<b>Total</b>	

On-site	Yes
Processing Required	Yes
Unit cost to place <sup>2</sup>	\$5.10

**e. Sand/Stone**

1. Stockpile	
2. Borrow	
<b>Total</b>	

On-site	Yes / No
Processing Required	Yes / No
Unit cost to place <sup>2</sup>	

**f. Other**

1. Stockpile	
2. Borrow	
<b>Total</b>	

On-site	Yes / No
Processing Required	Yes / No
Unit cost to place <sup>2</sup>	

**9. Synthetic Materials**

a. Geotextile		
Unit cost to place <sup>3</sup>		\$0.218 sq. ft.

b. FML		
Unit cost to place <sup>3</sup>		\$0.370 sq. ft.

c. Drainage Layer

Unit cost to place <sup>3</sup>			\$0.374	sq. ft.
d. Other				
Unit cost to place <sup>3</sup>				sq. ft.
10. Cap Penetrations Unit Cost				
List the unit cost to fabricate and install each cap penetration				
Unit cost to place <sup>3</sup>			\$150	\$/each
11. Unit Cost to construct E & S structures (i.e. channels, letdowns, etc.)			\$1,136	\$/acre
12. Revegetation Cost				
(Seeding rate used: _____)		lbs/acre)		
(Lime rate used: _____)		tons/acre)		
(Fertilizer rate used: _____)		tons/acre)		
(Mulch rate used: _____)		tons/acre)		
Unit cost to revegetate <sup>3</sup>			\$1,524	\$/acre
13. Cost Summary				
a. Fill (line 1 x line 7)			\$0	
b. Construction Drawings (line 3)			\$42,825	
c. Construction Roads (line 3a)			\$30,000	
d. Structural Fill (line 4a x line 8a)			\$0	
e. Intermediate Cover (line 4b x line 8b)			\$122,393	
f. Clay Cap Material (line 4c x line 8c)			\$0	
g. Final Cover (line 4d x line 8d)			\$939,638	
h. Sand/Stone (line 4e x line 8e)			\$0	
I. Other (line 4f x line 8f)			\$0	
j. Geotextile (line 5a x line 9a)			\$569,532	
k. FML (line 5b x line 9b)			\$967,145	
l. Drainage Layer (line 5c x line 9c)			\$977,476	
m. Other (line 5d x line 9d)			\$0	
n. Penetrations (line 6 x line 10)			\$10,706	
o. E & S Structures (line 2 x line 11)			\$64,866.41	
p. Revegetation (line 12 x line 2)			\$86,999	
		<b>Subtotal</b>	<b>\$3,811,579</b>	
CQA costs (use 5% of subtotal)			\$190,579	
		<b>Total</b>	<b>\$4,002,158</b>	

1. Number of wells in the approved monitoring plan.	<u>19</u>
a. Shallowest well depth	<u>28 ft.</u>
b. Deepest well depth	<u>299 ft.</u>
c. Average well depth	<u>106.4 ft.</u>
d. Number with dedicated pumps	<u>19</u>
2. Unit cost to upgrade an existing well with dedicated pump	<u>\$750 \$/well</u>
3. Unit cost to install a well (assume average well depth, and include drilling, installation, developing and pump installation)	<u>\$15,500 \$/well</u>
4. Number of wells to be installed (wells in the approved plan that haven't been installed)	<u>2</u>
5. Number of wells to be replaced over the life of the monitoring period (use 10% of line 1 and round up)	<u>2</u>
6. Number of pumps to be replaced/repared (use 25% of line 1 over the monitoring period)	<u>5</u>
7. Unit cost to purge and sample a well (assume average well depth, and include methane monitoring, record keeping and shipping)	<u>\$26 \$/well</u>
8. Unit cost to analyze sample(s)	
a. Quarterly (25 PA Code §273.284, §277.284, or §288.254)	<u>\$145 \$/well</u>
b. Annually (15 PA Code §273.284, §277.284, or §288.254)	<u>\$254 \$/well</u>
9. Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, statistical analysis and data review)	<u>\$43 \$/well</u>
10. Cost to purge, sample and analyze -- quarterly (line 7 + line 8a + line 9)	<u>\$212 \$/well</u>
11. Cost to purge, sample and analyze -- annually (line 7 + line 8b + line 9)	<u>\$328 \$/well</u>
12. Number of years of sampling (30 + time to close)	<u>31 years</u>



## 13. Cost Summary -- Groundwater Monitoring System

a. System upgrade ([line 1 -- line 1d] x line 2)	\$0
b. Wells to be Installed (line 3 x line 4)	\$31,000
c. Wells to be replaced (line 3 x line 5)	\$29,450
d. Pumps to be replaced (line 2 x line 6)	\$3,563
e. Cost of Quarterly Monitoring (line 1 x 3 x line 10 x line 12)	\$374,762
f. Cost of Annual Monitoring (line 1 x line 11 x line 12)	\$193,245
<b>Subtotal</b>	<b>\$632,019</b>

Adjustment for resampling, assessments, etc.

a. Use 0% of subtotal if no assessments in last 2 yrs.	
b. Use 5% of subtotal if assessment in last 2 yrs.	
c. Use 10% if currently in assessment, abatement or increase monitoring	\$0
<b>Total</b>	<b>\$632,019</b>

**Solid Waste Surface Water Sampling**

Number of surface points monitored for Solid Waste	
1. Permit	<u>1</u>
Unit cost to sample surface point (record keeping and shipping)	<u>\$17 \$/point</u>
2. shipping)	
3. Unit cost to analyze sample(s)	
a. Quarterly (25 PA Code §273.284 or §288.254)	<u>\$145 \$/point</u>
b. Annually (15 PA Code §273.284 or §288.254)	<u>\$254 \$/point</u>
Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	
4. data, database input, form completion, and data review)	<u>\$43 \$/point</u>
Cost to sample and analyze -- quarterly	
5. (line 2 + line 3a + line 4)	<u>\$205 \$/point</u>
Cost to sample and analyze -- annually	
6. (line 2 + line 3b + line 4)	<u>\$314 \$/point</u>
7. Number of years of sampling (30 + time to close)	<u>31 years</u>

**NPDES Surface Discharge Sampling**

8. Number of outfalls monitored	<u>2</u>
9. Monitoring frequency (i.e. monthly, quarterly, etc.)	<u>Semi-Annual</u>
10. Number of samples to be taken per point/year	<u>2</u>
Unit cost to sample surface point (record keeping and shipping)	<u>\$17 \$/point</u>
11. shipping)	
Unit cost to analyze sample(s) (including data review and completing DMR)	<u>\$105 \$/point</u>
12. completing DMR)	
13. Number of years of sampling (30 + time to close)	<u>31 years</u>
14. Cost Summary -- Surface Water Monitoring	
a. Cost of Quarterly Surface Water Monitoring (line 1 x "4" x line 5 x line 7)	<u>\$18,933</u>
b. Cost of Annual Surface Water Monitoring (line 1 x line 6 x line 7)	<u>\$9,907</u>
c. Cost of NPDES Monitoring (line 8 x line 10 x [line 11 + line 12] x line 13)	<u>\$15,163</u>
d. NPDES renewals over post-closure period (includes application development, fees, etc.) use 10% of line 14c	<u>\$1,516</u>

**Subtotal** **\$45,519**

Adjustment for resampling, assessments, etc.

a. Use 0% of subtotal if no assessments in last 2 yrs.	
b. Use 5% of subtotal if assessment in last 2 yrs.	
c. Use 10% if currently in assessment, abatement or increased monitoring	<u>\$0</u>

**Total** **\$45,519**

**Worksheet E - Contiguous Landowner Monitoring**

Number of private water supplies monitored	10
Unit cost to sample a well (include methane monitoring, record keeping and shipping)	\$28 \$/well
Unit cost to analyze sample(s) quarterly (Act 101 Section 1103)	\$197 \$/well
Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	\$42 \$/well
Total cost for quarterly sampling (line 2 + line 3 line 4)	\$267 \$/well
Number of years of sampling (30 + time to close)	31 years
Cost Summary -- Private Water Supply Monitoring	
a. Cost of quarterly monitoring (line 5 x 4 x line 6)	\$330,634
<b>Sub-Total</b>	<b>\$330,634</b>

1. Number of probes in the approved monitoring plan.	<u>8</u>
a. Shallowest probe depth	<u>14 ft.</u>
b. Deepest probe depth	<u>41 ft.</u>
c. Average probe depth	<u>18.875 ft.</u>
d. Number of probes installed	<u>8</u>
2. Unit cost to install probe (including drilling and installation)	<u>\$8,622 \$/probe</u>
Number of probes to be installed (probes in the approved	
3. plan that haven't been installed)	<u>6</u>
Number of probes to be replaced over the life of the	
4. monitoring period (use 5% of line 1 and round up)	<u>1</u>
5. Unit cost to monitor a probe (include record keeping)	<u>\$24.06 \$/probe</u>
Number of probes and structure monitoring events per	
6. year	<u>4</u>
7. Number of years of monitoring (30 + time to close)	<u>31 years</u>
8. Cost Summary -- Gas Monitoring System	
a. System completion (line 3 x line 2) \$	<u>\$51,729.00</u>
b. Probe replacement (line 2 x line 4) \$	<u>\$8,622.00</u>
c. Probe Monitoring (line 1 x line 5 x line 6 x line 7)	<u>\$23,870.00</u>
	<b>Subtotal</b> <u><b>\$84,221.00</b></u>
Adjustment for resampling, assessments, etc.	
a. Use 0% of subtotal if no assessments in last 2 yrs.	<u>0%</u>
b. Use 5% of subtotal if assessment in last 2 yrs.	
c. Use 10% if currently in assessment or increased monitoring	
	<b>Total</b> <u><b>\$84,221.00</b></u>

**Worksheet G - Gas Collection System**

1. Number of wells in the approved monitoring plan.	~ 86	
a. Shallowest well depth	32	ft.
b. Deepest well depth	239.8	ft.
c. Average well depth	122.2	ft.
d. Number of wells installed	0	
e. Number of pumping wells	0	
2. Cost for flare or other control device installation	\$0.00	LS
Unit cost to install a well (including drilling, installation, and connection to active system)	\$8,500.00	\$/well
Unit cost to install a gas well requiring liquid removal (including drilling, installation, and connection to active system)	\$0.00	\$/well
Number of wells to be installed (wells in the approved plan that haven't been installed)	28	
6. Number of gas wells required liquid removal to be installed	0	
7. Estimate the length of collection piping to be installed	3,467	LF
Unit cost to install collection piping (include excavation, pipe bedding, pipe, backfilling, regrading, revegetating, surveying and QA/QC)	\$35.00	\$/LF
Number of wells to be replaced/repaired over the life of the monitoring period (use 10% of line 1 and round up)	9	
Unit cost to monitor well and balance system monthly (include monitoring of methane, oxygen, carbon dioxide or nitrogen, temperature, pressure, and NSPS record keeping)	\$6.42	\$/well
11. Unit cost to conduct surface monitoring (NSPS)	\$192.50	\$/event
12. Control System Information	N/A	
a. number and size of blowers	_____	
b. flare dimensions and capacity	_____	
c. current flow rate	_____	
d. other features	_____	
13. Cost of electricity to run system	\$0.00	\$/year
Cost to maintain system (including daily check, weekly charts, maintenance, etc.)	\$0.00	\$/year
Cost of annual blower maintenance (including greasing, bearing check, and alignment)	\$0.00	\$/year
16. Cost of stack testing (once per five years)		\$/event
17. Estimate the volume of condensate generated per year		gallons
Cost of condensate management (including pumping, testing, and treatment/disposal)		\$/year
19. Number of years to run system (30 + time to close)	31	years

## 20. Cost Summary -- Gas Collection System

**System Installation**

a. Additional well installation (line 5 x line 3)	\$238,000.00
b. Additional pumping well installation (line 4 x line 6)	\$0.00
c. Cost of collection piping (line 7 x line 8)	\$121,333.00
d. Well replacement (line 3 x line 9)	\$0.00
e. Enclosed ground flare system (line 2)	\$0.00

**System Installation Subtotal** **\$359,333.00**

f. Cost of monitoring/balancing (line 1 x "12" x line 10 x line 19)	\$205,379
g. Cost of surface monitoring (line 11 x "1.5" x line 19)	\$8,927
h. Electric Cost (line 13 x line 19)	\$0.00
i. System maintenance cost (line 14 x line 19)	\$0.00
j. Blower maintenance cost (line 15 x line 19)	\$0.00
k. Stack testing cost (line 16 x [line 19/5])	\$0.00
l. Condensate management cost (line 18 x line 19)	\$0.00

**System Monitoring and Maintenance Subtotal** **\$214,307**

Adjustment for miscellaneous maintenance items (including; knockout pot maintenance, thermocouple replacement, flame detector replacement, flame arrester maintenance, flare maintenance, enrichment/startup gas replacement, pneumatic valve maintenance, sump maintenance, panel board maintenance, etc.)

a. Use 0% of subtotal if system <sup>1</sup> <2 yrs old	
b. Use 5% of subtotal if system <sup>1</sup> is >2 yrs old, but < 5 yrs old	
c. Use 10% if system <sup>1</sup> >5 years old	\$0.00

**Total** **\$573,641**

Note: "N/A" used to designate PPL responsibility should costs be incurred

**Worksheet H - Other Monitoring and Reporting**

1. Title V or other air permit (include the annual permit fee, cost to complete emissions inventory and emissions fees)	<u>\$0</u>	
2. NSPS Annual Report preparation cost	<u>\$0</u>	
3. Local permit or Host Agreement requirements	<u>\$1,600</u>	assumes 1 year only; then FFLF "closed"
4. UST/AST registration	<u>\$0</u>	
5. Other (Annual Report-BLRWM)	<u>\$4,455</u>	assumes 1 year only; then FFLF "closed"
6. Other (AIMS Report)	<u>\$2,045</u>	
7. Other (Semi-annual Compliance Certification)	<u>\$1,080</u>	
8. Other (Quarterly LASA Report)	<u>\$2,704</u>	
9. Other (SRBC)	<u>\$1,720</u>	assumes 1 year only; then FFLF "closed"
Other (Act 220)	<u>\$515</u>	assumes 1 year only; then FFLF "closed"
Other (eGGRT)	<u>\$3,080</u>	assumes 1 year only; then FFLF "closed"
10. Number of years of monitoring/maintenance (30 + time to close)	<u>31</u>	
<b>Total</b>	<b><u>\$192,063.00</u></b>	

Number of years of leachate management (30 years +  
1. closure period)

31

2. Annual leachate volume generated

8,448,478 gallons

Annual cost to manage leachate volume (include pump and  
3. pipe maintenance, electricity and monitoring)<sup>1</sup>

\$0.0020

**Discharge to POTW**

4. Unit cost to discharge leachate to a POTW

\$0.0065 \$/gal

**On-site Treatment (including pretreatment)**

Unit cost for treatment of leachate (include equipment  
maintenance, electricity, personnel, chemicals, sludge

5. disposal, etc.)

\$/gal

Annual cost to maintain NPDES permit (include sampling,  
analysis, report preparation, and factor in five year renewal

6. application preparation and fees)

**Interim Trucking of Leachate**

7. Unit cost to transport and disposal of leachate

\$/gal

NPDES Permit (cost to prepare application, fees, and  
8. sampling/analysis)

Cost to construct on-site treatment or pretreatment system or

9. connection to POTW

Unit cost for treatment of leachate (include equipment  
10. maintenance, electricity, personnel, chemicals, etc.)

\$/gal

Annual cost to maintain NPDES permit (include sampling,  
analysis, report preparation, and factor in five year renewal

11. application preparation and fees)

12. Cost Summary:

a. Cost to manage/convey leachate  
(line 1 x line 3)

\$0.06

*If discharge to POTW*

b. Discharge to POTW cost (line 1 x line 2 x line 4)

\$1,691,722

*If have on-site treatment*

c. Treatment cost (line 1 x line 2 x line 5)

d. NPDES maintenance cost (line 1 x line 6)



*If you currently truck leachate*

- e. Cost of trucking leachate for three years  
(line 1 x "3" x line 10 x line 12) \_\_\_\_\_
- f. NPDES Permit (line 8) \_\_\_\_\_
- g. Cost to construct on-site treatment system or  
connection to POTW (line 9) \_\_\_\_\_
- h. Treatment cost ((line 1 - 3] x line 2 x line 10) \_\_\_\_\_
- i. NPDES maintenance cost ((line 1 - 3] x line 11) \_\_\_\_\_

*If you currently store leachate in impoundments*

- j. Size of pond \_\_\_\_\_ acres
- k. Estimate volume of material to be removed (including  
liner system and minimum of 12" soil) \_\_\_\_\_ CY
- l. Unit cost to dispose of materials (Worksheet A, line 4) \_\_\_\_\_ \$/CY
- m. Cost to dispose of materials (line k x line l) \_\_\_\_\_
- n. Volume of structural backfill \_\_\_\_\_ CY
- o. Cost of backfill (line n x Worksheet B, line 8a) \_\_\_\_\_
- p. Revegetation cost \_\_\_\_\_ LS

**Subtotal** \$1,691,722

Adjustment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum adjustment is 10%.

- a. Add 10% of subtotal if pumps are used to convey leachate. \$169,172
- b. Add 5 % of subtotal if flow volume to POTW is restricted.
- c. Add 10% of subtotal if leachate is stored in ponds.
- d. Add 10% of subtotal if onsite treatment.
- e. Add 15% if trucking leachate.
- f. Add 10 % if current leachate generation exceeds 5MG/year \$169,172

Final adjustment factor: 20%

g. Adjustment (subtotal x factor) \$338,344

**Total** (subtotal + adjustment) \$2,030,066

- |   |                     |
|---|---------------------|
| 1. Size of borrow area                                | <u>5 acres</u>      |
| 2. Volume of material required for regrading          | <u>8,067 CY</u>     |
| 3. Unit cost to regrade (provide equipment and rates) | <u>\$1.48 \$/CY</u> |

Are sufficient soils available to complete job?  
 (list deficit amount and attach maps that identify sources and stockpiles)

4. Earthen Materials

a. Structural Fill

- |              |                                |
|--------------|--------------------------------|
| 1. Stockpile | <u>0</u>                       |
| 2. Borrow    | <u>                    </u>    |
| <b>Total</b> | <u>                    </u> CY |

On-site

Yes / No

Processing Required

Yes / No

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| b. Unit Cost to Place <sup>1</sup> | <u>                    </u> \$/CY |
|------------------------------------|-----------------------------------|

c. Topsoil

- |              |                                  |
|--------------|----------------------------------|
| 1. Stockpile | <u>                    </u>      |
| 2. Borrow    | <u>                    </u>      |
| <b>Total</b> | <u>                    </u> 0 CY |

On-site

Yes

Processing Required

No

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| d. Unit Cost to Place <sup>1</sup> | <u>                    </u> \$/CY |
|------------------------------------|-----------------------------------|

5. Revegetation Cost

(Seeding rate used:                      lbs/acre)

(Lime rate used:                      tons/acre)

(Fertilizer rate used:                      tons/acre)

(Mulch rate used:                      tons/acre)

Unit cost to revegetate	<u>\$1,524 \$/acre</u>
-------------------------	------------------------

6. E & S Controls	<u>\$1,136 \$/acre</u>
7. Bond Maintenance Cost (required if off-site borrow area)	<u>LS</u>
8. Other costs (provide detail)	<u></u>
9. Cost Summary	
a. Fill/Regrading (line 2 x line 3)	<u>\$11,939</u>
b. Structural Fill (line 4a x line 4b)	<u>\$0</u>
c. Topsoil (line 4c x line 4d)	<u>\$0</u>
d. Revegetation (line 1 x line 5)	<u>\$7,618</u>
e. E & S Controls (line 6)	<u>\$5,680</u>
f. Bond maintenance (line 7)	<u>\$0</u>
g. Other (line 8)	<u>\$0</u>
	<b>Subtotal</b> <u><u>\$25,237</u></u>
CQA/Project Management costs (use 5% of subtotal)	<u>\$1,262</u>
	<b>Total</b> <u><u>\$26,499</u></u>

1. Size of facility	<u>175 acres</u>
2. Size of waste placement footprint	<u>102 acres</u>
3. Size of borrow areas on site	<u>5 acres</u>
4. Size of leachate ponds on site	<u>0 acres</u>
5. Size of sedimentation ponds on site	<u>3.9 acres</u>
6. Length of stormwater conveyance ditches	<u>8,500 LF</u>
7. Number of years of site management (30 years + closure period)	<u>31 years</u>
8. Annual Cost to repair cap and final cover <sup>1</sup>	
a. Acres (use 1% of line 2)	<u>1.020 acres</u>
b. Unit cost <sup>2</sup> to repair final cover	<u>\$3,233 \$/acre</u>
c. Unit cost <sup>2</sup> to repair cap	<u>\$4,311 \$/acre</u>
d. Unit cost <sup>2</sup> to repair vegetation	<u>\$1,660 \$/acre</u>
e. Total unit cost (line b + line c + line d)	<u>\$9,204 \$/acre</u>
9. Annual Cost to repair and maintain E&S facilities <sup>1</sup>	
a. Channel repair length (use 3% of line 6)	<u>255 LF</u>
b. Sedimentation pond repair volume (use 20% of line 5)	<u>0.78 acres</u>
c. Unit cost <sup>2</sup> to repair channels	<u>\$27 \$/LF</u>
d. Unit cost <sup>2</sup> to repair ponds	<u>\$3,772 \$/acre</u>
e. Total annual cost (line a x line c) + (line b x line d)	<u>\$9,813 \$/YR</u>
10. Annual Cost to repair and maintain leachate ponds <sup>1</sup>	
a. Leachate pond repair volume (use 20% of line 4)	<u>0 acres</u>
b. Unit cost <sup>2</sup> to repair leachate pond(s)	<u>\$/acre</u>
11. Annual cost to repair and maintain leachate tanks	
a. Number and size of tanks	<u>2 1,000,000</u>
b. Annual unit cost <sup>1</sup> to maintain tanks	<u>\$500 LS</u>
12. Annual cost to repair fences and gates (attach details)	<u>\$2,694 LS</u>
13. Annual cost to maintain site roads	
a. Length of site roads <sup>2</sup>	<u>10,500 LF</u>
b. Annual length of site roads to be repaired (2% of line 13a)	<u>210 LF</u>
c. Unit cost to repair roads <sup>1</sup>	<u>\$38 \$/LF</u>

14. Cost Summary - Facility Maintenance

a. Cost to repair cap/cover (line 7 x line 8a x line 8e)	<u>\$291,036</u>
b. Cost to maintain E&S facilities (line 7 x line 9e)	<u>\$304,207</u>
c. Cost to maintain leachate ponds (line 7 x line 10a x line 10b)	<u>\$0</u>
d. Cost to maintain leachate tanks (line 7 x line 11a x line 11b)	<u>\$31,000</u>
e. Cost to repair fences and gates (line 7 x line 12)	<u>\$83,527</u>
f. Cost to maintain site roads (line 7 x line 13b x line 13c)	<u>\$245,571.30</u>
<b>Subtotal</b>	<b><u>\$955,341</u></b>

Please refer to the instructions. This estimate should reflect unit costs to bring in a contractor to complete the work and should include mobilization, equipment cost, operator costs, material costs and clean-up and inspection costs. Costs not incurred annually should be determined and divided among the years between events. The costs should also include replacements of pumps and meters, electricity used (pumps, heat tracing, etc.) valve replacement and sludge disposal.

1.

This should include access to all maintenance and monitoring areas including but not limited to the disposal area, ponds, leachate conveyance system, tanks, discharge locations, gas extraction system wells, gas probes, groundwater monitoring system and surface water monitoring points.

Adjust ment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum adjustment is 10%.

2.

- a. Add 5% of subtotal if final slopes or benches have been modified from what is specified in 25 PA Code §273.234(f).
- b. Add 5% of subtotal if more than 30% stormwater channels are unlined.
- c. Add 5% of subtotal if length of site access roads exceeds 5 miles
- d. Add 10% for mowing

Final adjustment factor: 15%

e. Adjustment (subtotal x factor)	<u>\$143,301</u>
-----------------------------------	------------------

<b>Total (subtotal + adjustment)</b>	<b><u>\$1,098,642</u></b>
--------------------------------------	---------------------------

**Worksheet L - Cost Summary**

1. Decontaminating the Facility	\$11,777
2. Capping/Closure	\$4,002,158
3. Groundwater Monitoring System	\$632,019
4. Surface Water Monitoring	\$45,519
5. Private Water Supply Monitoring	\$330,634
6. Gas Monitoring	\$84,221
7. Gas Collection and Maintenance	\$573,641
8. Other Monitoring	\$192,063
9. Leachate Management	\$2,030,066
10. Borrow Area Closure	\$26,499
11. Maintenance Costs	\$1,098,642
12. Other Costs <sup>1</sup>	
13. Other Costs <sup>1</sup>	
<b>Subtotal</b>	<b>\$9,027,238</b>

***Inflation***

14. Inflation rate (projected inflation for the next three years based on the inflation for the prior three years).	6.00%
15. Inflation cost for facility (subtotal x line 14)	\$541,634

***Contingency and administrative fees***

16. Administrative fees (5%) (Subtotal x 0.05)	\$451,362
17. Project Management (5%) (Subtotal x 0.05)	\$451,362
18. Contingency fee amount (Subtotal x rate of contingency fee from Table 1)	\$644,329
<b>Total</b> (subtotal + line 15 + line 16 + line 17 + line 18)	<b>\$11,115,925</b>

**Line A-4 (Cost to Dispose Waste)**

---

	400 tons	
@	50 tons/hour	
=	8 hours	
X	300 \$/hour (2 pcs. equipment + operators)	
=	\$2,400	
/	400 tons	
=	\$6.00 \$/ton	
+	\$6.25 /ton; PaDEP disposal fees	
=	\$12.25 \$/ton	

**Line A-10 (Cost to Cover Waste)**

Assumptions

2 Operators; 3 pieces of equipment			
Excavator and D350 to move soil			
Dozer to place soil			
Operator/ Equipment cost	\$200	per hour (per each operator/equip.)	
Removal rate of soil cover	200	cu. yds. per hour	
Placement rate of soil cover	200	cu. yds. per hour	
Move Soil	so: 500	cu.yds. soil required	
	@ 200	cu. yds. per hour	
	= 3	hours to move soil	
	@ \$200	per hour (per each operator/equip.)	
	= \$1,000		
Place Soil	500	cu.yds.	
	@ 200	cu. yds. per hour	
	= 3	hours to place	
	@ \$200	per hour (per each operator/equip.)	
	= \$1,000		
Seed	= \$1,524	per Kinsley's 2010 Cell 6/Phase 4 Cap Cc	
		escalated annually for bonding p	
Total =	\$3,524		
	/ 500	cu.yds.	
	= \$7.05	\$/cu.yd.	

**Line C-7 (cost to purge/sample)**

1 field technicians  
@ \$35.00 /hr 2020 ALSI field services rate  
X 14 hours  
= \$490  
/ 19 locations  
= \$26 \$/location

**Line C-9 (cost to analyze)**

6 hours data review  
@ \$85.00 /hr (staff engineer/scientist)  
= \$510  
+ 2 hour (admin; complete Forms 19)  
@ \$45.00 /hr  
= \$90.00  
+ 2 hour review; project engineer  
@ \$95.00 /hr  
= \$190.00  
+ 0.5 hour review; senior engineer  
@ 130 \$/hr  
= \$65.00  
= \$855.00 \$/hr  
/ 20 locations  
= \$42.75 \$/location



**Line E-2 (cost to sample)**

	1 field technicians	
@	35.00 \$/hr	2020 ALSI field services rate
X	8 hours	
=	\$280	
/	10 locations	
=	\$28 \$/location	

**Line E-4 (cost to analyze)**

	3 hours data review	
@	85 \$/hr (staff engineer/scientist)	
=	\$255 \$/hr	
+	1.5 hour (admin; complete Forms 52)	
@	45 \$/hr	
=	\$68 \$/hr	
+	1 hour review; project engineer	
@	95 \$/hr	
=	\$95 \$/hr	
=	\$418 \$/hr	
/	10 locations	
=	\$42 \$/location	

LFG Monitoring Costs

3.5 hrs./monitoring event  
X \$55.00 \$/hr  
/ 30 wells  
= \$6.42 \$/well

Surface Monitoring Costs

3.5 hrs./monitoring event  
X \$55.00 \$/hr  
= \$192.50

LFG Probe Monitoring Costs (Worksheet F)

3.5 hrs./monitoring event  
X \$55.00 \$/hr  
= \$192.50  
# probes 8  
= \$24.06 /probe

**Line H-3 (Host Agreement)**


---

	2 hours data review
@	85 \$/hr (staff engineer/scientist)
=	\$170
+	1 hours (admin; complete forms)
@	45 \$/hr
=	\$45
+	1 hour; senior engineer
@	130 \$/hr
=	\$130
+	\$55 admin. supplies
=	\$400 / quarter
=	\$1,600 / year

**Line H-5 (Annual Report)**


---

	8 hours data review
@	85 \$/hr (staff engineer/scientist)
=	\$680
	\$8 hours CADD operator
@	85 \$/hr (staff engineer/scientist)
	\$680
+	2 hours (admin; complete forms)
@	45 \$/hr
=	\$90
+	1 hour; senior engineer
@	130 \$/hr
=	\$130
+	\$2,800 annual report fee
+	\$75 admin. supplies
=	\$4,455

**Line H-6 (AIMS)**


---

	18 hours data review
@	85 \$/hr (staff engineer/scientist)
=	\$1,530
+	4 hours (admin; complete forms)
@	45 \$/hr
=	\$180
+	2 hours; senior engineer
@	130 \$/hr
=	\$260
+	\$75 admin. supplies
=	\$2,045

4 hours data review  
 @ 85 \$/hr (staff engineer/scientist)  
 = \$340  
 + 1 hours (admin; complete forms)  
 @ 45 \$/hr  
 = \$45  
 + 1 hour; senior engineer  
 @ 130 \$/hr  
 = \$130  
 + \$25 admin. supplies  
 = \$540 / event  
 = \$1,080 / year

---

**Line H-8 (LASA Report)**

3 hours data review  
 @ 85 \$/hr (staff engineer/scientist)  
 = \$255  
 + 1.5 hours (admin; complete forms)  
 @ 45 \$/hr  
 = \$68  
 + 1 hour; senior engineer  
 @ 130 \$/hr  
 = \$130  
 + \$136 LASA parameters lab test  
 = \$589 / event  
 X 4 (quarterly)  
 + 1 LASA sampling event  
 @ \$350  
 = \$2,704 / year

---

**Line H-9 (LASA Chapter 94 Report)**

12 hours data review  
 @ 85 \$/hr (staff engineer/scientist)  
 = \$1,020  
 + 2 hours (admin; complete forms)  
 @ 45 \$/hr  
 = \$90  
 + 1 hour; senior engineer  
 @ 130 \$/hr  
 = \$130  
 = \$0 / year

---

**Line H-9 (Other; SRBC)**

3 hours data review / quarter  
 @ 85 \$/hr (staff engineer/scientist)

= \$255  
+ 1 hours (admin; complete forms) / quarter  
@ 45 \$/hr  
= \$45  
+ 1 hour; senior engineer / quarter  
@ 130 \$/hr  
= \$130  
= \$430 /quarter  
= \$1,720 /year

---

***Line H-9 (Other; Act 220 Report)***

4 hours data review  
@ 85 \$/hr (staff engineer/scientist)  
= \$340  
+ 1 hours (admin; complete forms)  
@ 45 \$/hr  
= \$45  
+ 1 hour; senior engineer  
@ 130 \$/hr  
= \$130  
= \$515 / year

**Line I-4 (Unit Cost)**

19,453 gallons per day  
 591,696 gallons per month

LASA Rates      \$102.36 first 21,500 gallons      } LASA rates  
                          \$1.80 /1,000 gallons; from 21,501 to 31,500 gallons  
                          \$4.50 /1,000 gallons; from 31,501 to 1,531,500 gallons  
                          \$3.79 /1,000 gallons; from 1,531,501 to 4,531,500 gallons  
                          \$3.26 /1,000 gallons; any over 4,531,500 gallons

so      \$102.36 first 21,500 gallons  
 +      \$18.00  
 +      \$2,521 from 31,501 to 1,531,500  
 +      remaining gallons  
 =      \$2,641.24 LASA fees

Pumping costs      440 gpm pump rate  
 =      22 hours  
 @      \$2.25 /hour pump costs  
 =      \$50.43 pump costs  
 with      1 LASA parameters lab test  
 @      \$136.00  
 and      1 staff engineer  
 @      85 \$/hr  
 X      1 hours  
 =      \$85

= Total Costs      \$2,822.00 per month  
 /      591,696 gallons  
 =      \$0.0048 \$/gallon  
 or      \$4.77 per thousand gallons

7,100,353 gal/yr

=      \$33,864 est. \$/yr  
 +      \$12,000 est. \$/yr (surcharges)  
 =      \$45,864 total \$/yr  
 =      \$0.0065 est. \$/gal.

**Attachment 4**

**CERTIFICATES OF INSURANCE**



# CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)  
02/25/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Aon Risk Services Central, Inc. Chicago IL Office 200 East Randolph Chicago IL 60601 USA	<b>CONTACT NAME:</b> PHONE (A/C. No. Ext): (866) 283-7122      FAX (A/C. No.): (800) 363-0105	
	<b>E-MAIL ADDRESS:</b>	
<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURED</b> Lancaster County Solid Waste Management Authority 1299 Harrisburg Ave. Lancaster PA 176032515 USA	INSURER A: Zurich American Ins Co	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

Holder Identifier :

**COVERAGES**      **CERTIFICATE NUMBER:** 570086140514      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.      **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			GLO437324513	04/01/2021	04/01/2022	EACH OCCURRENCE	\$2,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$500,000
							MED EXP (Any one person)	\$10,000
							PERSONAL & ADV INJURY	\$2,000,000
							GENERAL AGGREGATE	\$4,000,000
							PRODUCTS - COMP/OP AGG	\$4,000,000
A	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY			BAP 4373246-13	04/01/2021	04/01/2022	COMBINED SINGLE LIMIT (Ea accident)	\$2,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
	<input type="checkbox"/> <b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION						EACH OCCURRENCE	
							AGGREGATE	
A	<input checked="" type="checkbox"/> <b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			WC437324413	04/01/2021	04/01/2022	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT	\$1,000,000
							E.L. DISEASE-EA EMPLOYEE	\$1,000,000
							E.L. DISEASE-POLICY LIMIT	\$1,000,000

Certificate No : 570086140514

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

RE: Creswell Landfill Permit #100008, Manor Township, Lancaster County, PA, Frey Farm Landfill Permit #101389, Manor Township, Lancaster County, PA, Transfer Station Permit #10009, Manheim Township, Lancaster County, PA, Resource Recovery Facility, Permit #400592, Conoy Township, Lancaster County, PA, Frey Farm Landfill Treatment Plant, Permit #301317, Manor Township, Lancaster County, PA, SRMC City of Harrisburg Permit #100758, SRMC Ash Landfill A City of Harrisburg Permit #100759, SRMC Ash Landfill B City of Harrisburg/Dauphin County Permit #100992. Certificate Holder is included as Additional Insured in accordance with the policy provisions of the general liability policy.

**CERTIFICATE HOLDER****CANCELLATION**

PA Dept of Environmental Protection Bureau of Waste Management PO Box 8471, 14th Floor Rachel Carson State Office Building Harrisburg PA 17105-8471 USA	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	<b>AUTHORIZED REPRESENTATIVE</b>  <i>Aon Risk Services Central, Inc.</i>





## **Attachment 5**

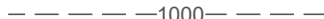



















### **TOPOGRAPHIC MAPS AND DRAWINGS**

1. ***Topographic Map Update***  
Enclosed are Drawings titled: "2019 Topographic Survey" and "2020 Topographic Survey", which displays the topography of the landfill at the beginning and end of calendar year 2019 and 2020.
2. ***Isopach Drawing***  
Enclosed is Drawing titled: "Isopach", which indicates the cut or fill to reach final permitted elevation of the landfill on a 50' grid.
3. ***Cross Sections***  
Enclosed is Drawing titled: "Cross Sections" (four sheets), which show top of protective cover, grades at the beginning and end of the report period, and permitted final cover grades at 50 foot intervals across areas of the landfill that were active during calendar year 2020.

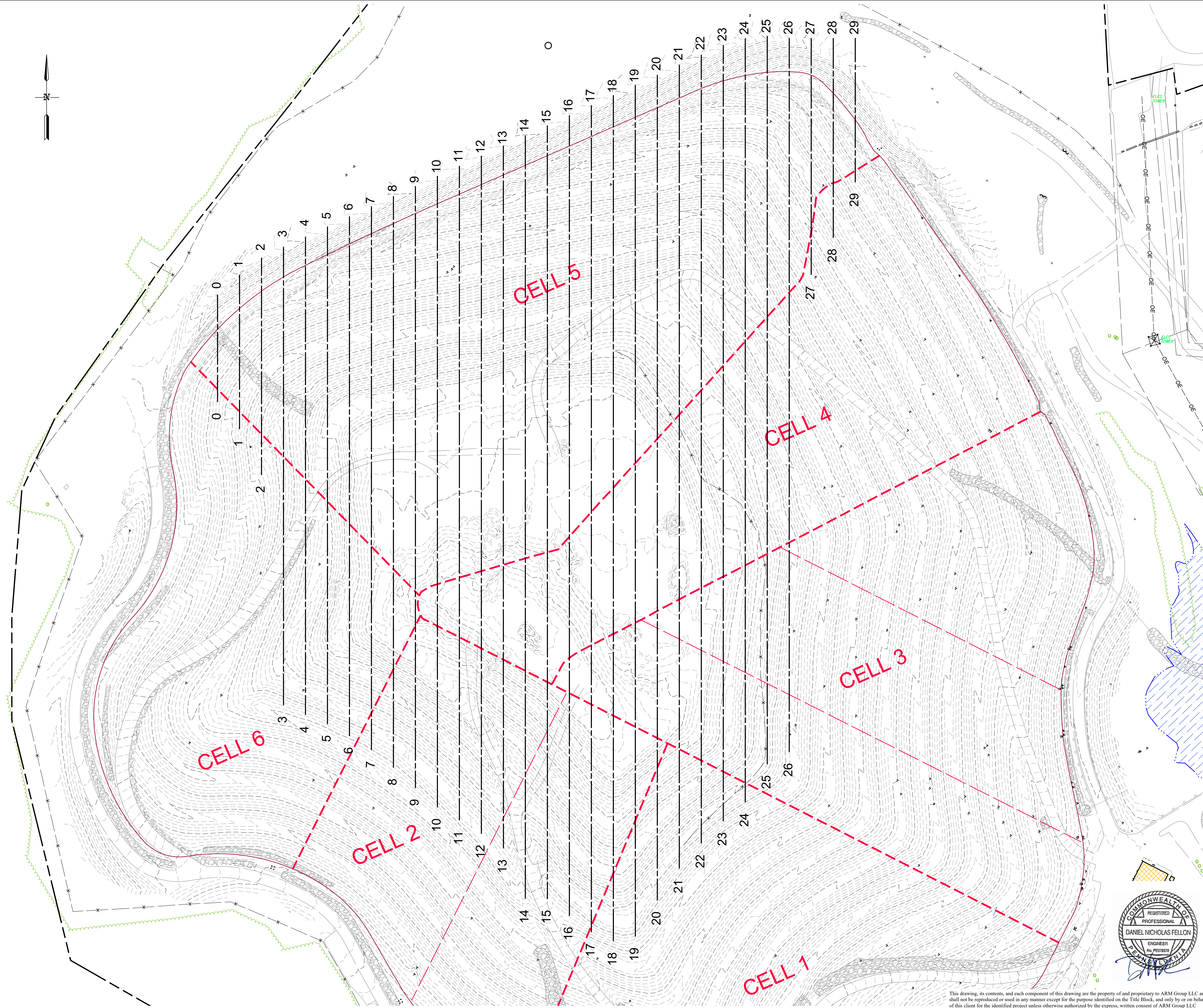
**NOTES:**


- EXISTING TOPOGRAPHY HAS BEEN CREATED FROM AN AERIAL SURVEY PROVIDED BY WALLACE MONTGOMERY, DATED: 2/10/2020.
- THIS SHEET WAS ORIGINALLY PRODUCED AS A COLOR DRAWING. NON-COLOR REPRODUCTIONS DO NOT SUFFICIENTLY DIFFERENTIATE AMONG FEATURES DEPICTED ON THIS DRAWING.

**LEGEND**

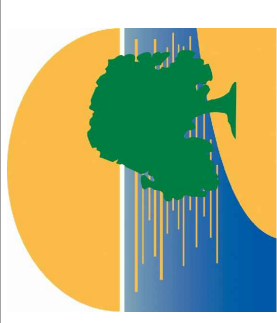
-  1000' ——— EXISTING GROUND SURFACE ELEVATION CONTOURS (FT.)
-  ——— EXISTING PROPERTY BOUNDARY
-  - - - - - EXISTING LANDFILL CELL BOUNDARY
-  ——— EXISTING PAVED ROAD
-  - - - - - EXISTING UNPAVED ROAD
-   EXISTING BUILDING / STRUCTURE
-  ○ EXISTING POWERLINE TOWER
-   EXISTING SEDIMENT BASIN
-  ○ EXISTING UTILITY POLE
-  — OE — OE — EXISTING OVERHEAD ELECTRIC
-  — UE — UE — EXISTING UNDERGROUND ELECTRIC
-  - x - x - EXISTING FENCELINE
-  - x - x - EXISTING GUIDERAIL
-  - - - - - EXISTING TREELINE
-  - x - x - EXISTING CULVERT (SHOWN WITH APRON)
-  - - - - - EXISTING RIP-RAP
-  - - - - - EXISTING ANCHOR TRENCH
-  - - - - - LANDFILL CROSS-SECTION

12



<b>2019 TOPOGRAPHIC SURVEY</b>		1" = 100'
ARM	Date: 06/22/2021	 SCALE IN FEET
DNF	Project No: 21010514	
VK	Issued For Review: 6/23/2021	No. 1
<b>2020 ANNUAL OPERATIONS REPORT</b>		By: ARM
LANCASTER COUNTY SOLID WASTE	MANOR TOWNSHIP	Date: 6/23/2021
MANAGEMENT AUTHORITY	LANCASTER COUNTY, PENNSYLVANIA	Revision: 1

**ARM Group LLC**  
Engineers and Scientists  
[www.armgroup.net](http://www.armgroup.net)

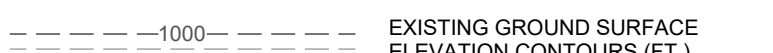
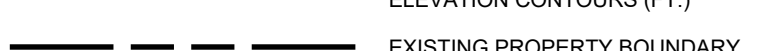
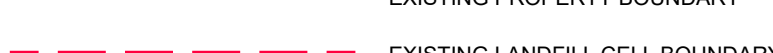
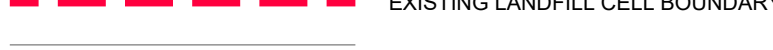







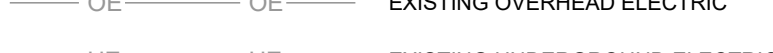




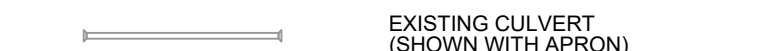
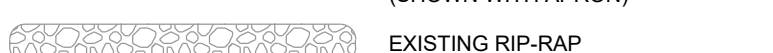


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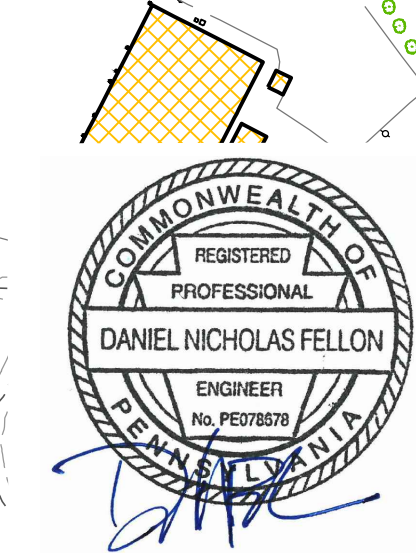
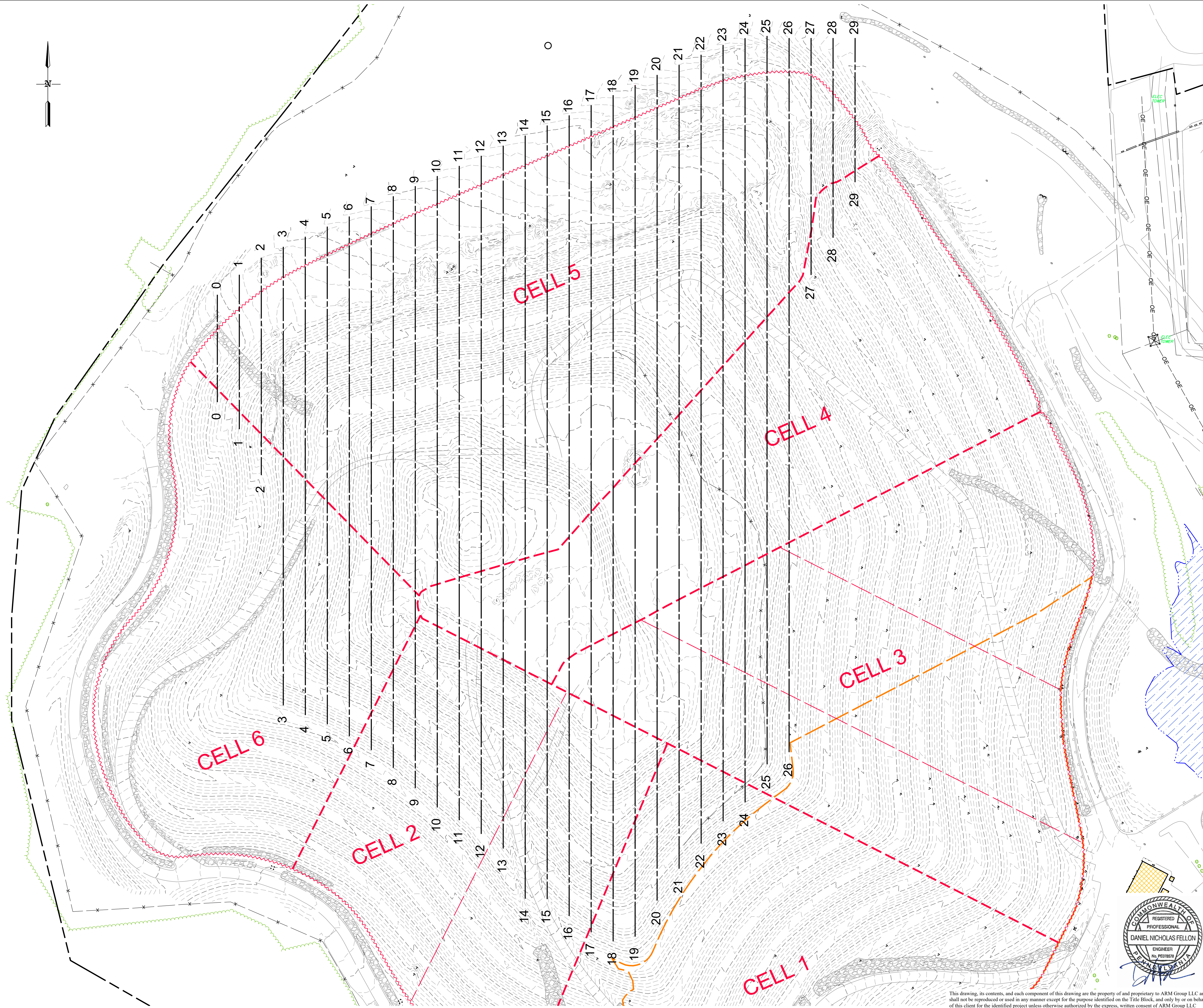
**NOTES:**

- EXISTING TOPOGRAPHY HAS BEEN CREATED FROM AN AERIAL SURVEY PROVIDED BY DAVID MILLER ASSOCIATES, INC., DATED: 12/29/2020.
- THIS SHEET WAS ORIGINALLY PRODUCED AS A COLOR DRAWING. NON-COLOR REPRODUCTIONS DO NOT SUFFICIENTLY DIFFERENTIATE AMONG FEATURES DEPICTED ON THIS DRAWING.

**LEGEND**

-  1000 --- EXISTING GROUND SURFACE ELEVATION CONTOURS (FT.)
-  --- EXISTING PROPERTY BOUNDARY
-  --- EXISTING LANDFILL CELL BOUNDARY
-  --- EXISTING PAVED ROAD
-  --- EXISTING UNPAVED ROAD
-  --- EXISTING BUILDING / STRUCTURE
-  --- EXISTING POWERLINE TOWER
-  --- EXISTING SEDIMENT BASIN
-  --- EXISTING UTILITY POLE
-  OE --- EXISTING OVERHEAD ELECTRIC
-  UE --- EXISTING UNDERGROUND ELECTRIC
-  --- EXISTING FENCELINE
-  --- EXISTING GUIDERAIL
-  --- EXISTING TREELINE
-  --- EXISTING CULVERT (SHOWN WITH APRON)
-  --- EXISTING RIP-RAP
-  --- EXISTING ANCHOR TRENCH
-  --- LANDFILL CROSS-SECTION

12

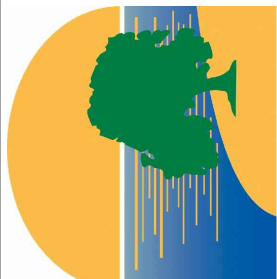


2020 TOPOGRAPHIC SURVEY  
 2020 ANNUAL OPERATIONS REPORT  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA

DESIGNED	ARM	SCALE	1" = 100'
CHECKED	DNF	DATE	06/22/2021
DRAWN	VK	PROJECT NO.	21010514
DATE		ISSUED FOR REVIEW	6/23/2021
BY	ARM	REVISION	

Sheet **2**

**ARM Group LLC**  
 Engineers and Scientists  
 www.armgroup.net



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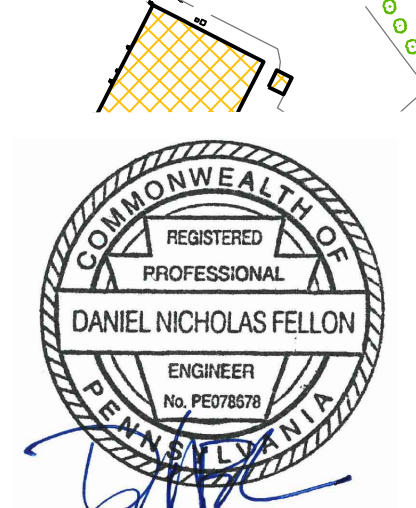
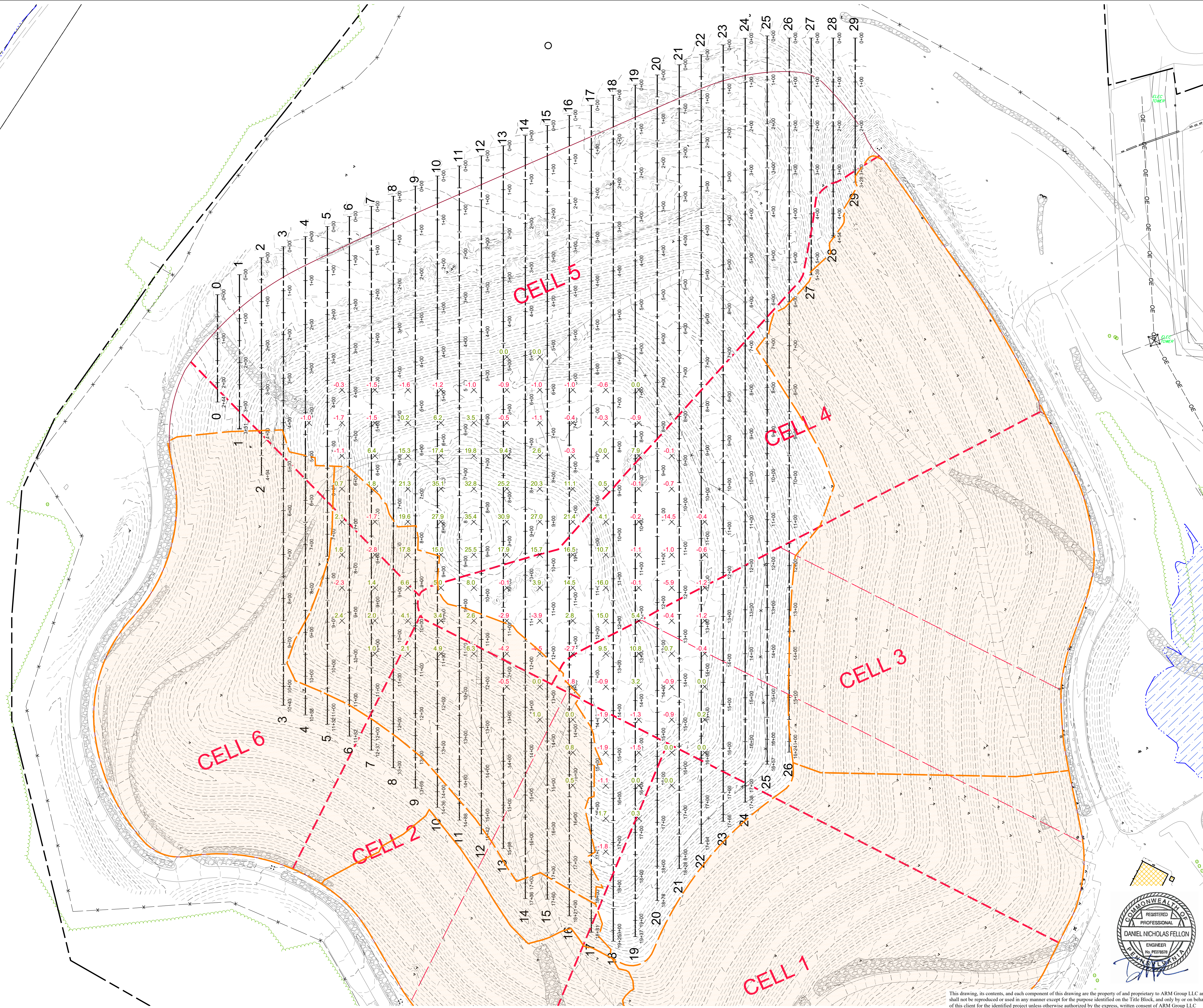
**NOTES:**

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**LEGEND**

- 1000 --- EXISTING GROUND SURFACE ELEVATION CONTOURS (FT.)
  - EXISTING PROPERTY BOUNDARY
  - EXISTING LANDFILL CELL BOUNDARY
  - EXISTING PAVED ROAD
  - EXISTING UNPAVED ROAD
  - EXISTING BUILDING / STRUCTURE
  - EXISTING POWERLINE TOWER
  - EXISTING SEDIMENT BASIN
  - EXISTING UTILITY POLE
  - EXISTING OVERHEAD ELECTRIC
  - EXISTING UNDERGROUND ELECTRIC
  - EXISTING FENCELINE
  - EXISTING GUIDERAIL
  - EXISTING TREELINE
  - EXISTING CULVERT (SHOWN WITH APRON)
  - EXISTING RIP-RAP
  - EXISTING ANCHOR TRENCH
  - LANDFILL CROSS-SECTION
  - EXISTING CAPPED AREAS
- DEPTH OF FEET OF FILL BETWEEN THE PREVIOUS EXISTING GROUND SURVEY (2/10/2020) AND THE CURRENT EXISTING GROUND SURVEY (12/29/2020)
- 12** --- 15.3

12/29/2020

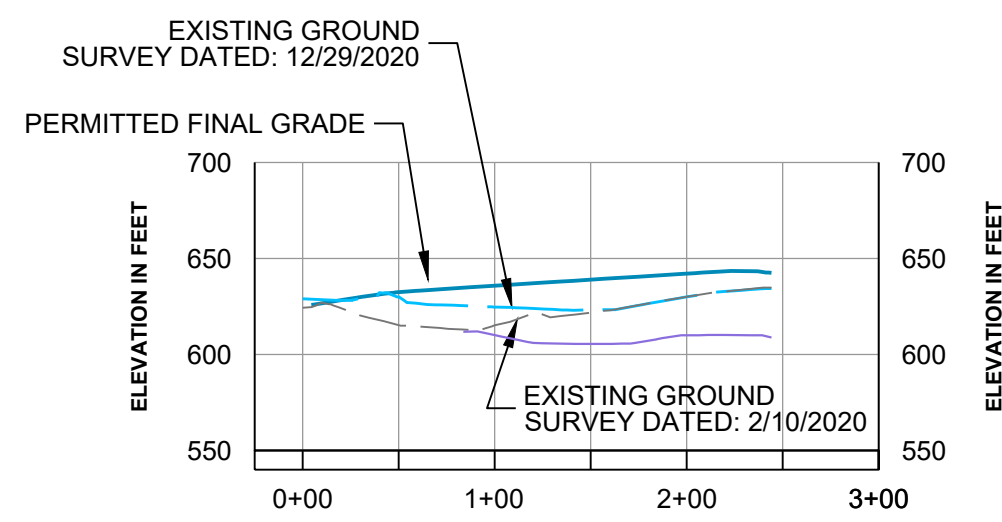


Sheet <b>3</b>	ISOPACH 2020 ANNUAL OPERATIONS REPORT		MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA
	MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA	MANAGEMENT AUTHORITY	LANCASTER COUNTY, PENNSYLVANIA
DATE: 06/22/2021	ISSUED FOR REVIEW	NO. 1	BY: ARM
PROJECT NO. 21010514	REVISION	DATE	BY

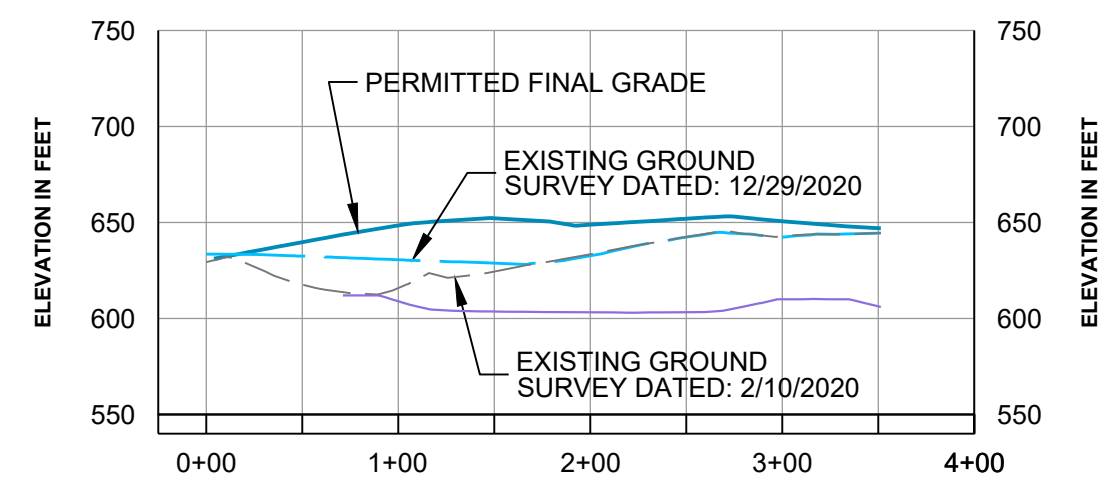
ARM Group LLC  
Engineers and Scientists  
www.armgroup.net

1" = 100'  
SCALE IN FEET

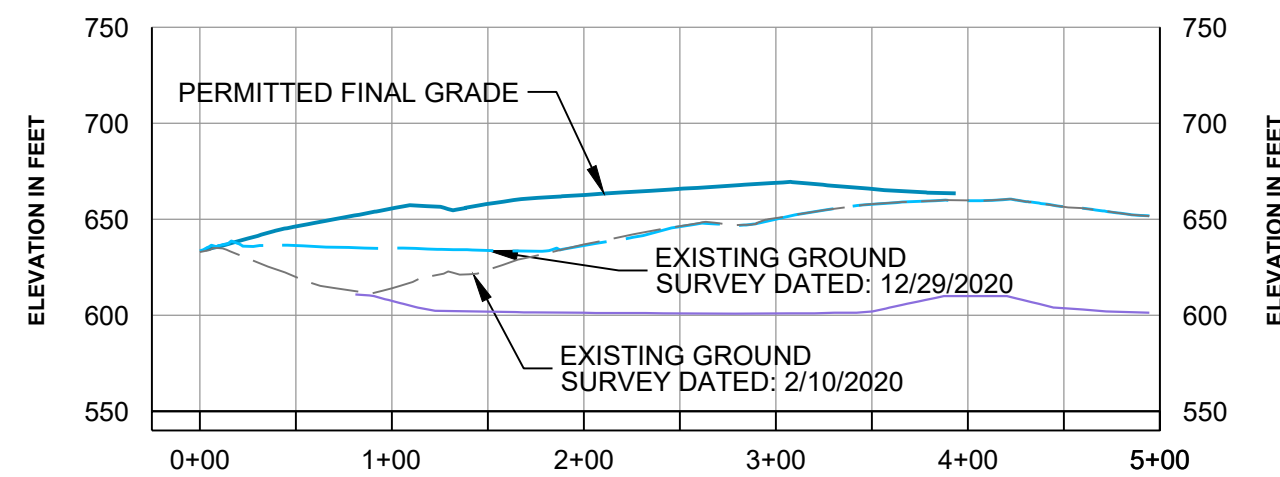
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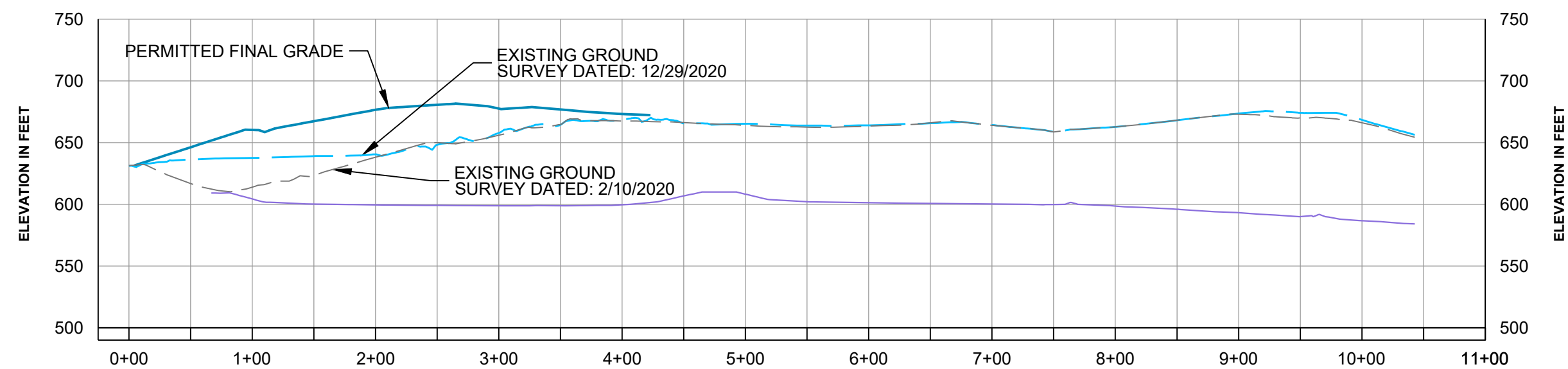
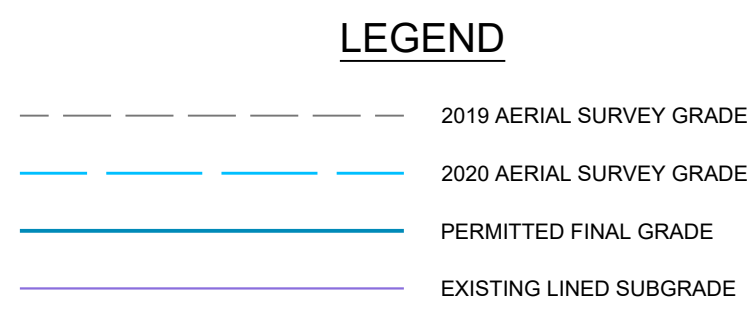
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VERTICAL SCALE: 1"=100'



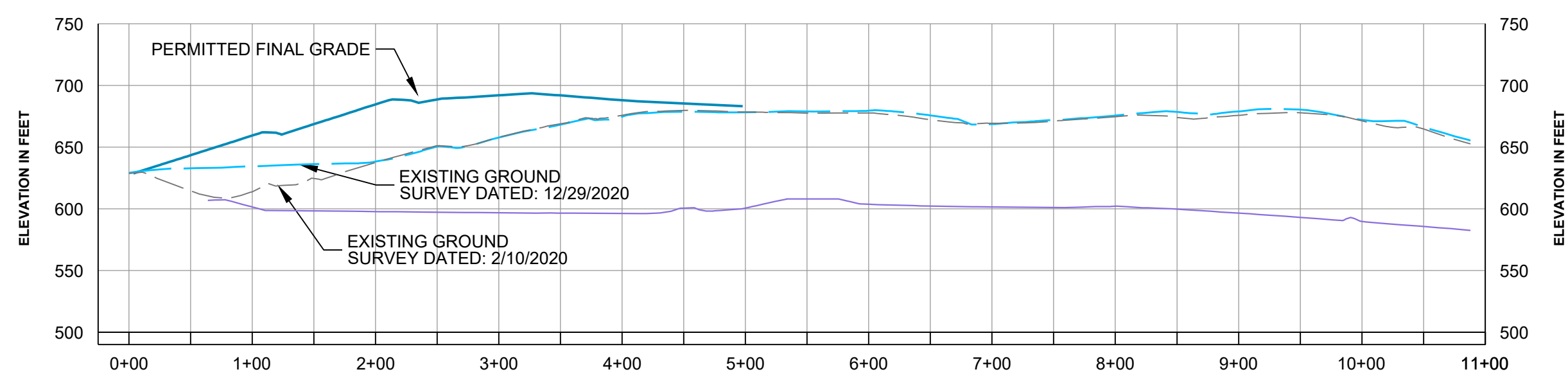
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VERTICAL SCALE: 1"=100'



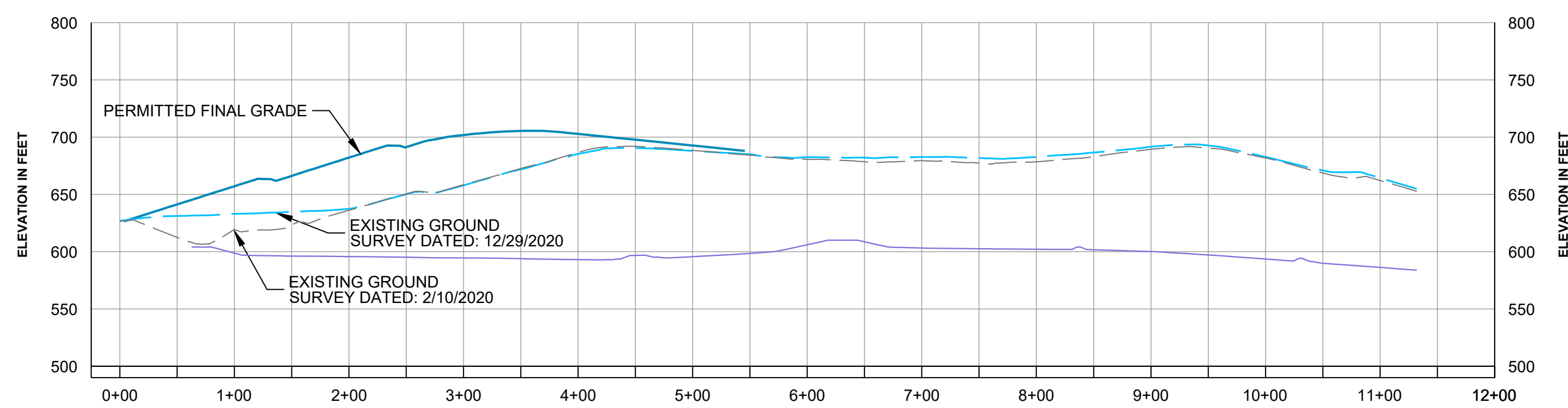
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HORIZONTAL SCALE: 1"=100'  
VERTICAL SCALE: 1"=100'



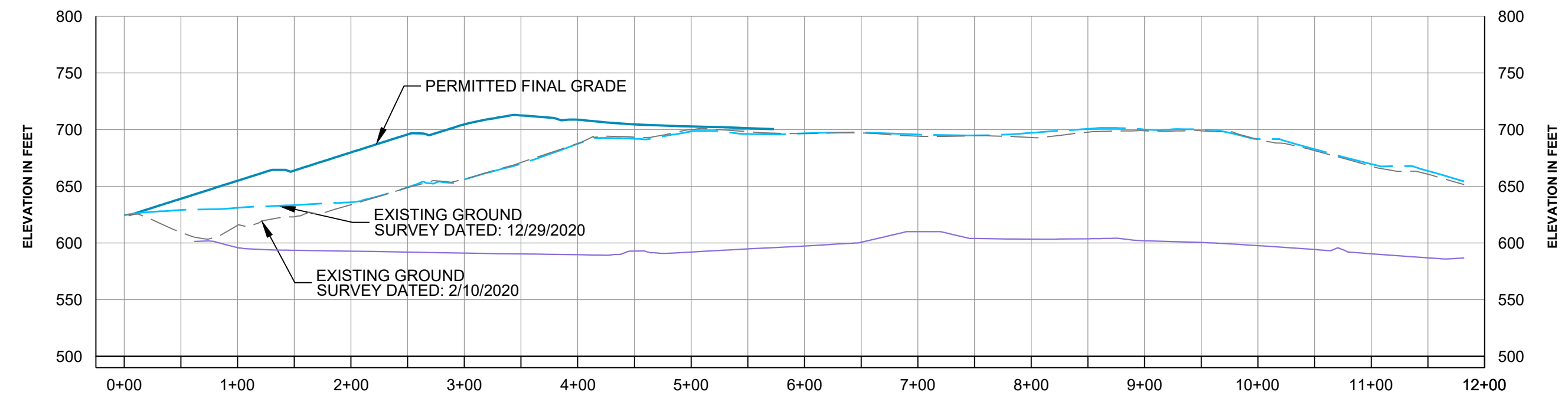
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VERTICAL SCALE: 1"=100'



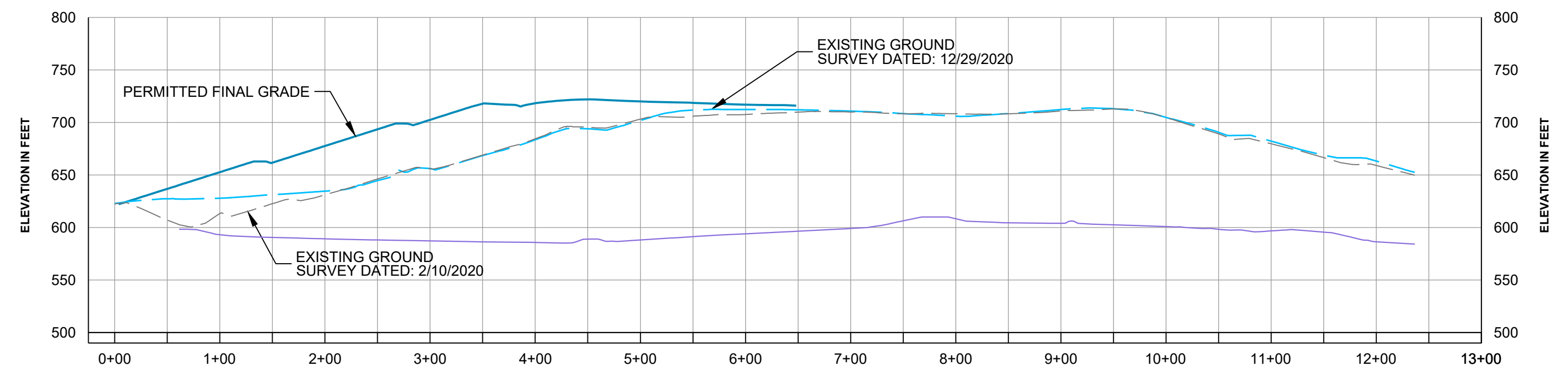
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VERTICAL SCALE: 1"=100'



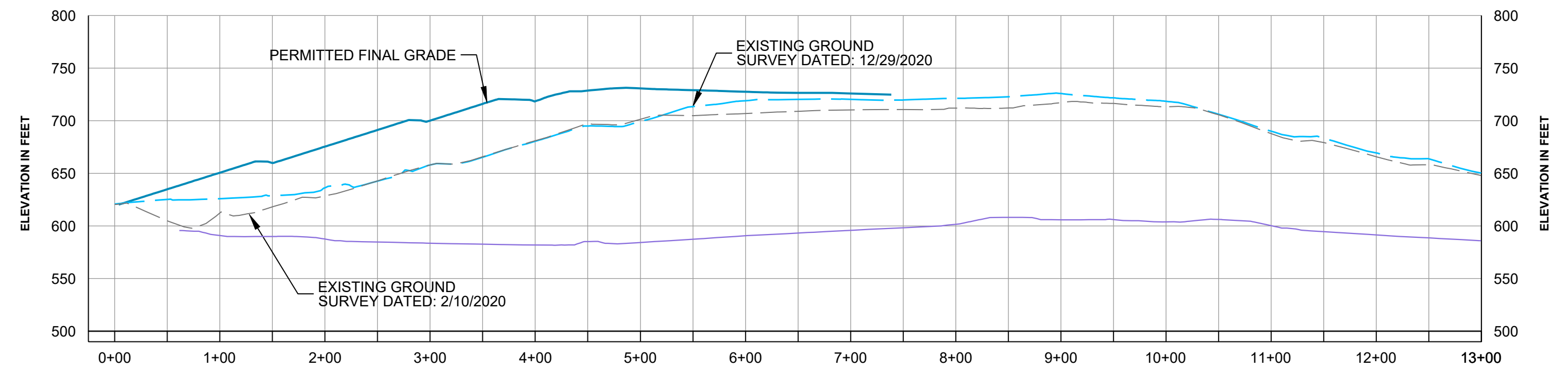
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VERTICAL SCALE: 1"=100'



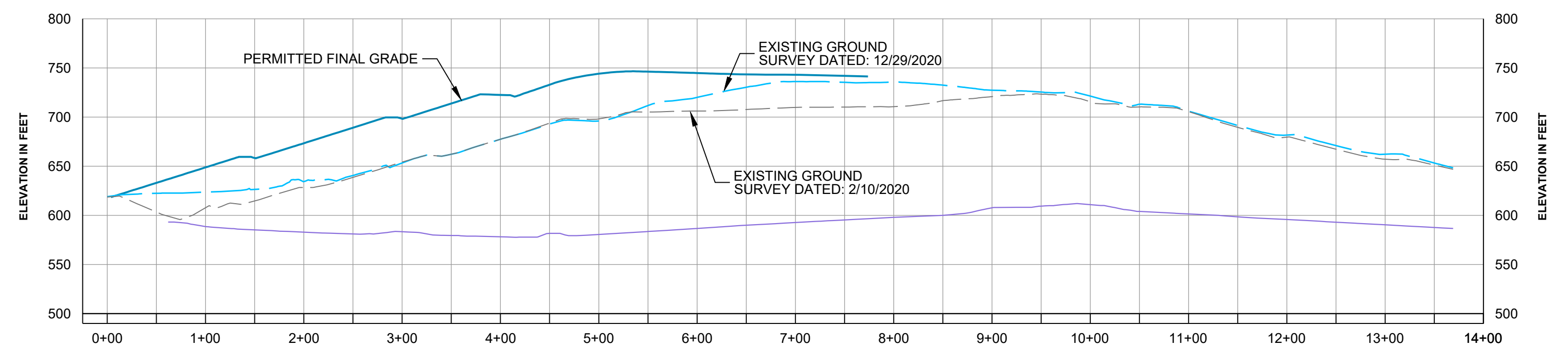
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HORIZONTAL SCALE: 1"=100'  
VERTICAL SCALE: 1"=100'



**Cross Section 7**  
HORIZONTAL SCALE: 1"=100'  
VERTICAL SCALE: 1"=100'



**Cross Section 8**  
HORIZONTAL SCALE: 1"=100'  
VERTICAL SCALE: 1"=100'



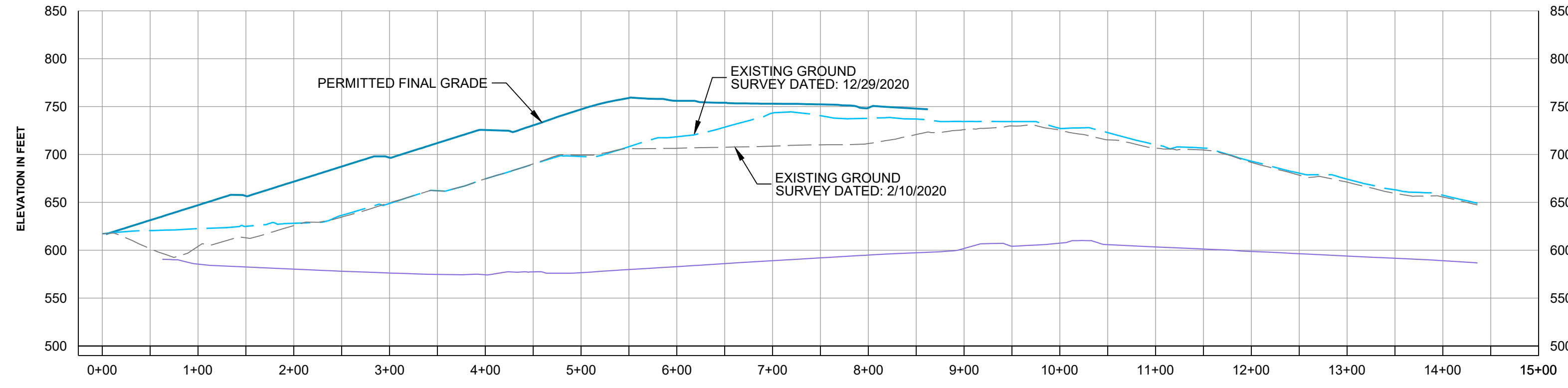
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VERTICAL SCALE: 1"=100'



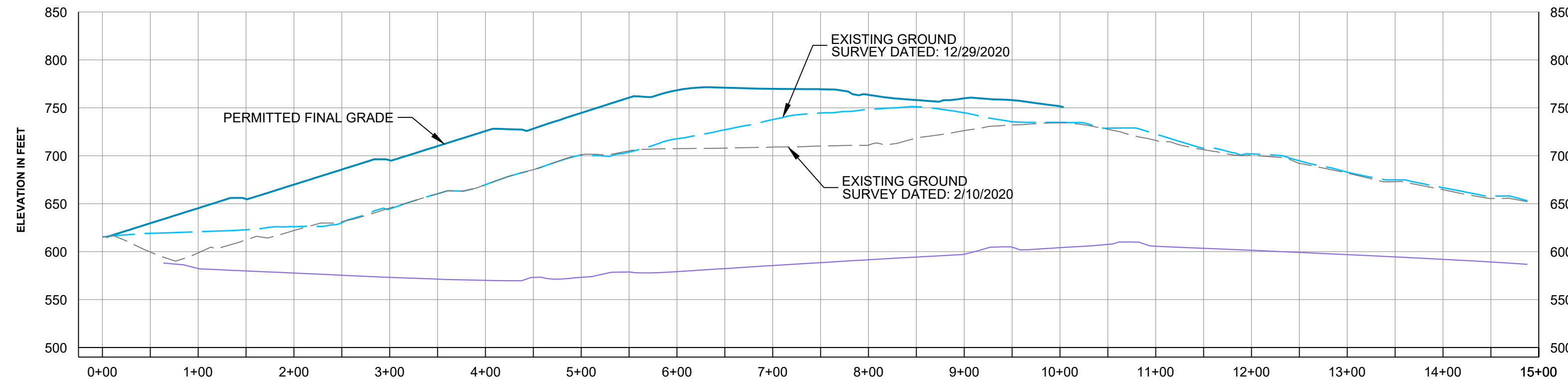
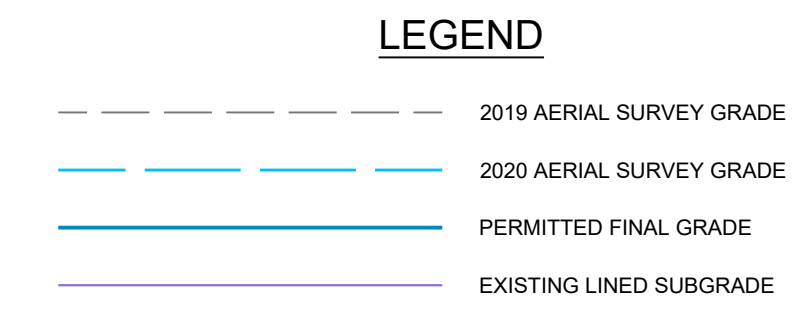
Checked by	ARM DNF	AS NOTED
Drawn by	VK	06/22/2021
Project No.	21010514	
Issued For Review		6/23/2021
Revision		
No.	1	
Date		

CROSS SECTIONS (SHEET 1 OF 6)  
**2020 ANNUAL OPERATIONS REPORT**  
MANOR TOWNSHIP  
LANCASTER COUNTY SOLID WASTE  
MANAGEMENT AUTHORITY  
LANCASTER COUNTY, PENNSYLVANIA

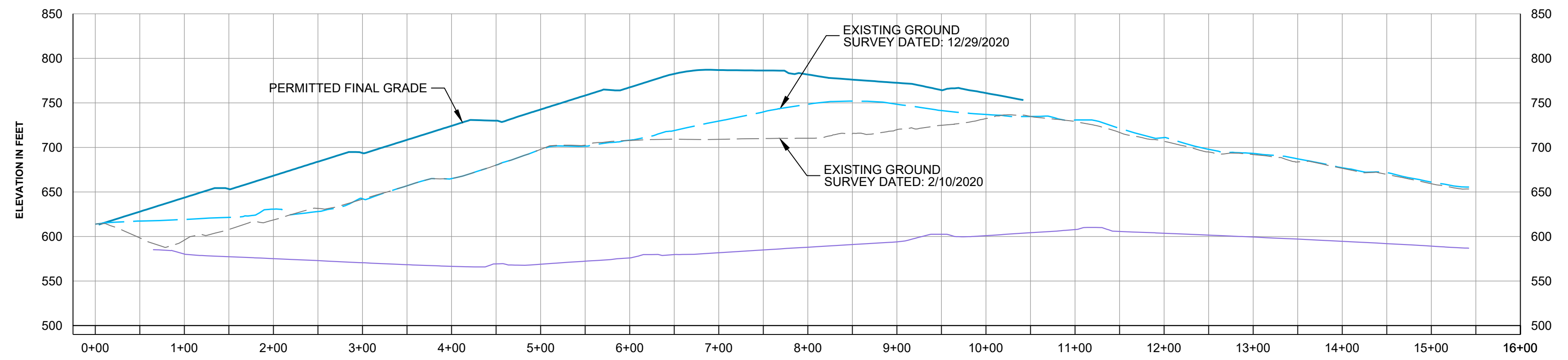
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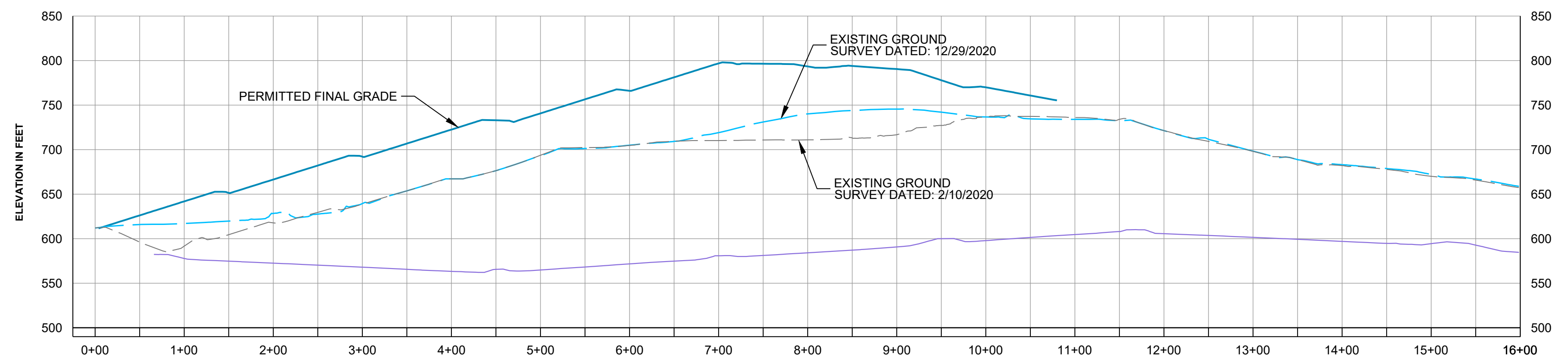
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 VERTICAL SCALE: 1"=100'



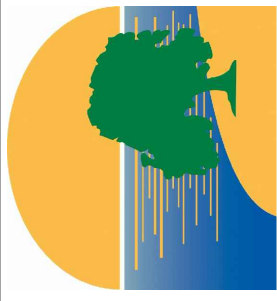
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 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 12**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 13**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'

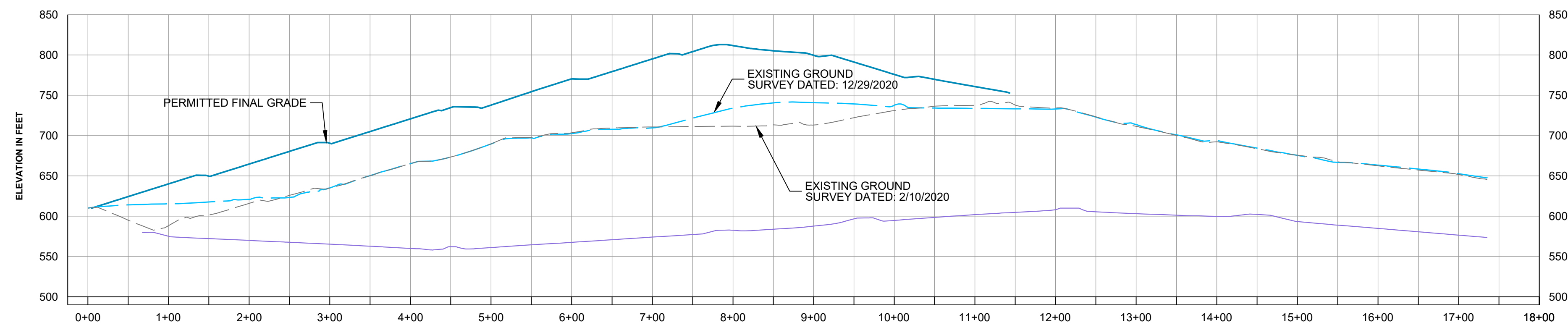


No.	1	ISSUED FOR REVIEW	ARM	By
Revision				Date
				6/23/2021

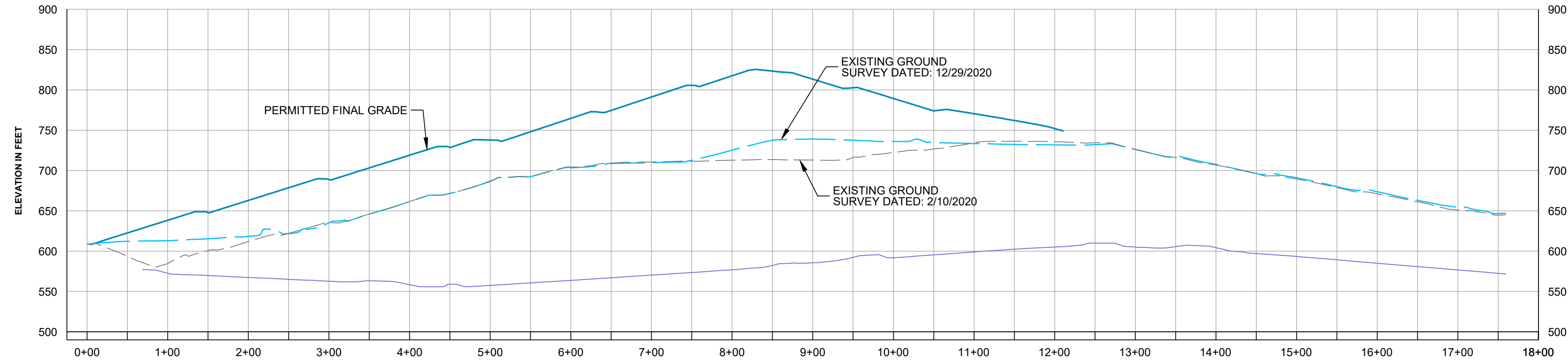
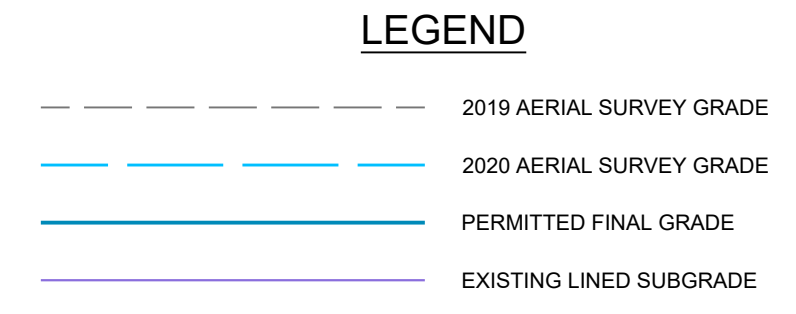
As noted	AS NOTED
ARM	ARM
DNF	06/22/2021
VK	21010514

**CROSS SECTIONS (SHEET 2 OF 6)**  
**2020 ANNUAL OPERATIONS REPORT**  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA

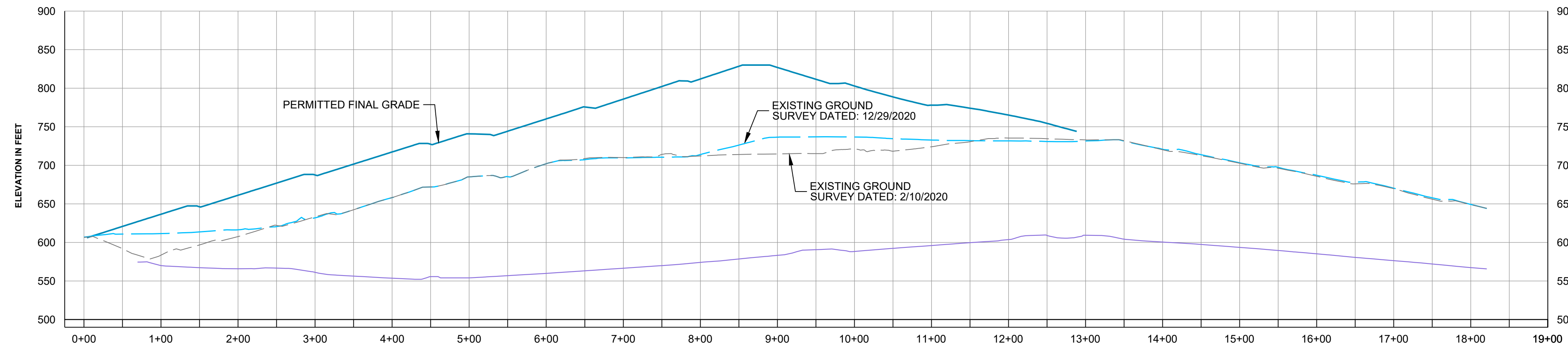
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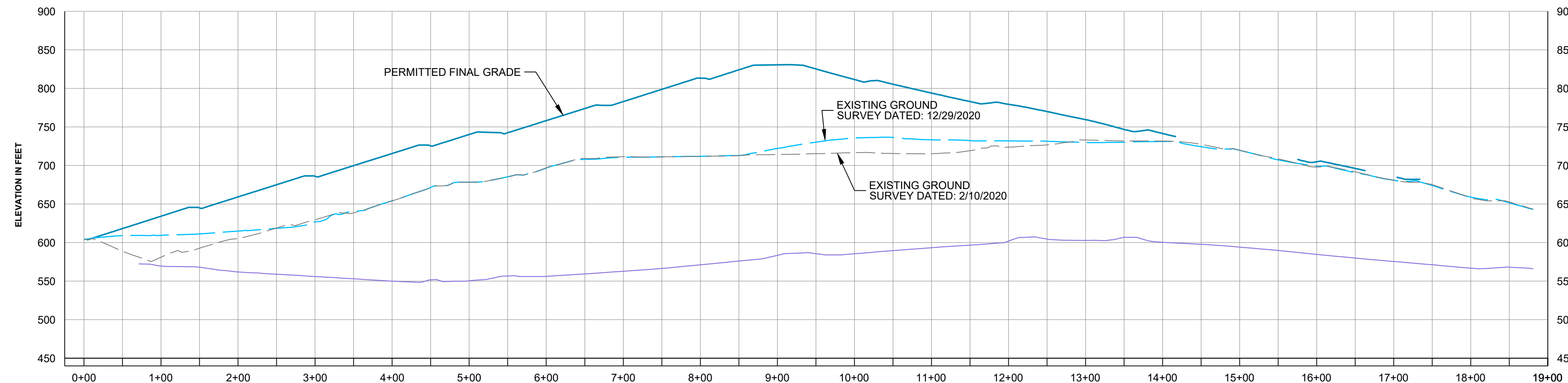
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 VERTICAL SCALE: 1"=100'



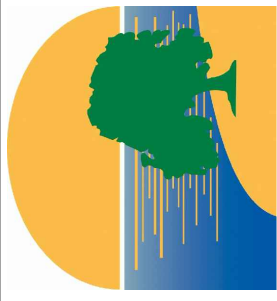
**Cross Section 15**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 16**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 17**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'

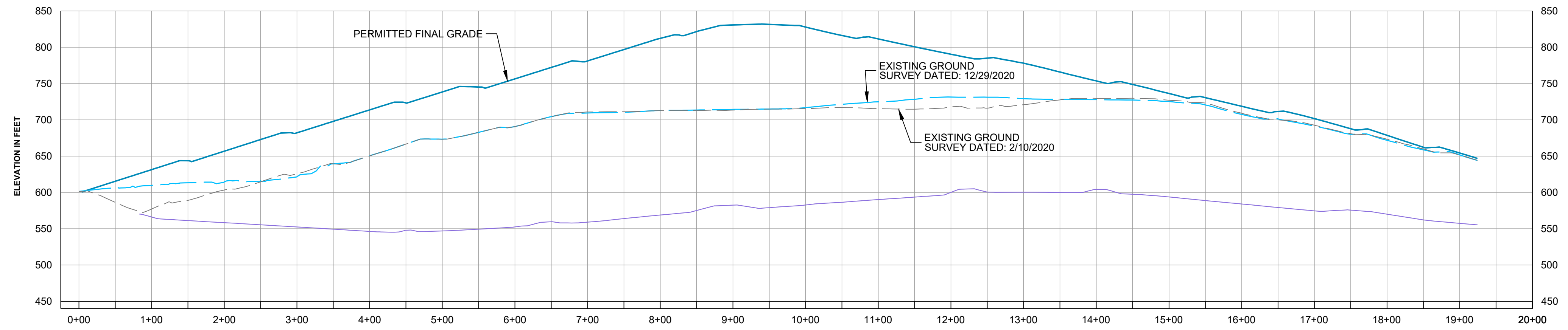


No.	1	ISSUED FOR REVIEW	ARM	By
Revision				
Date	6/23/2021			

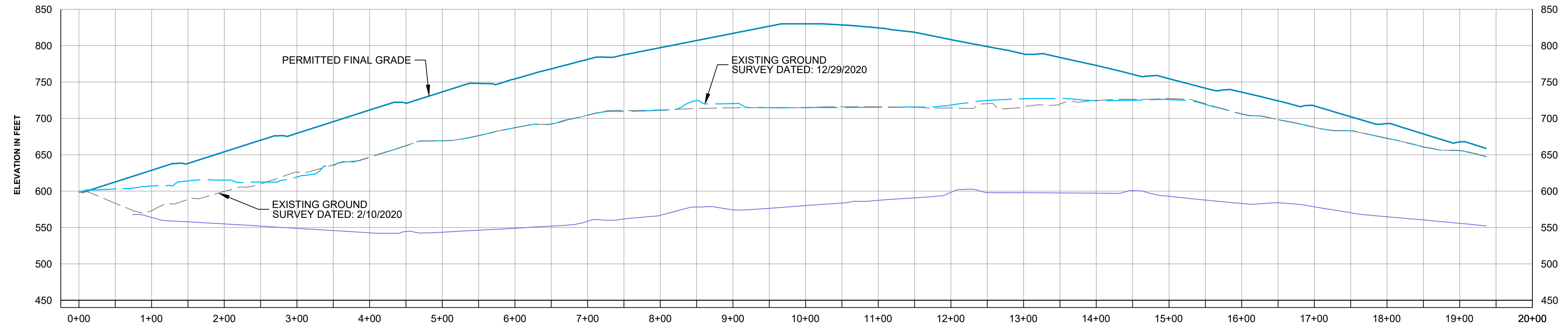
Designed	ARM	AS NOTED
Checked	DNF	Date 06/22/2021
Drawn	VK	Project No. 21010514
Graphic scale		

**CROSS SECTIONS (SHEET 3 OF 6)**  
**2020 ANNUAL OPERATIONS REPORT**  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA

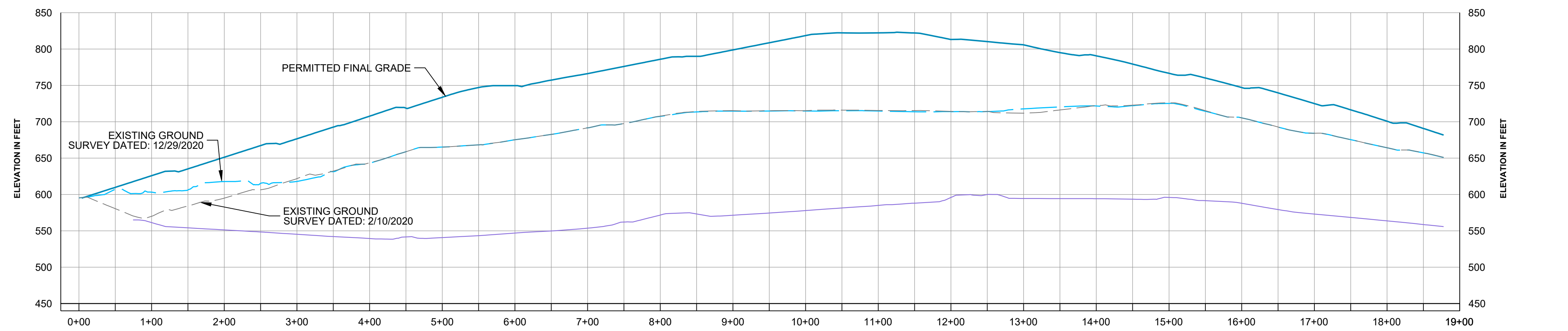
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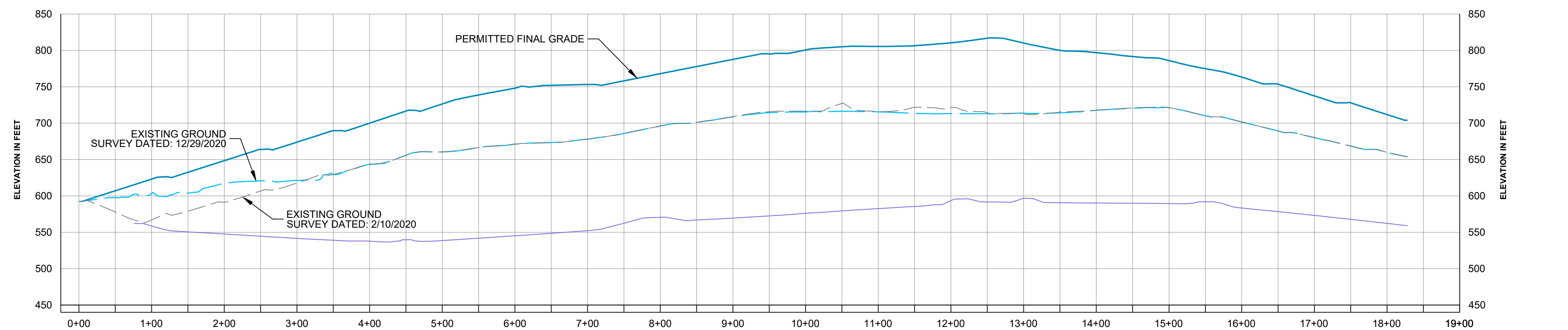
**Cross Section 18**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



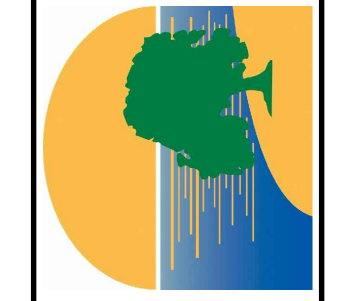
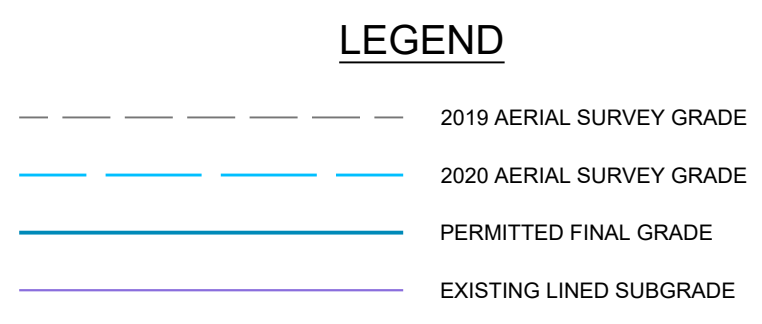
**Cross Section 19**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 20**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 21**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



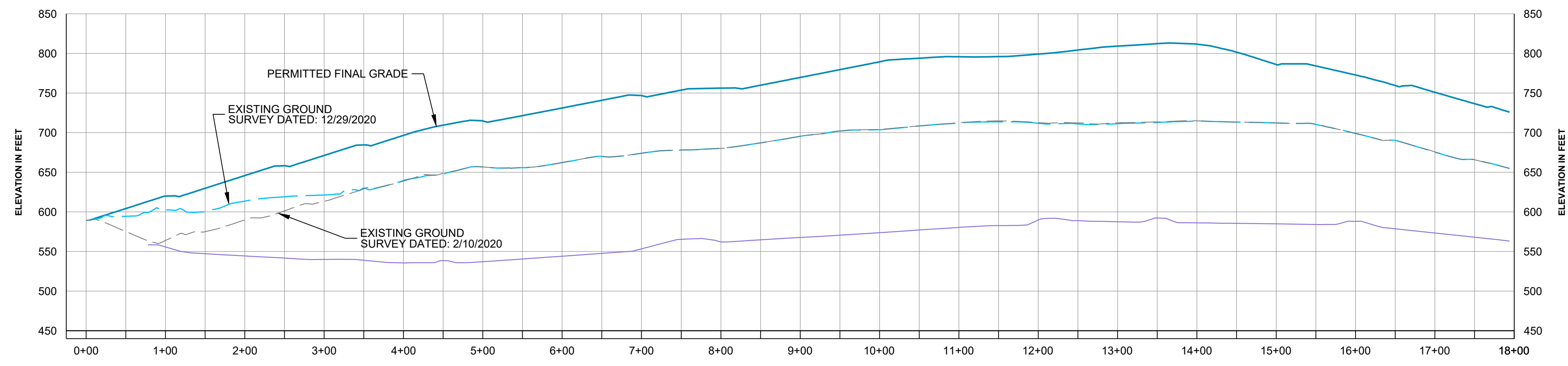
No.	Revision	Date	ARM	By
1	ISSUED FOR REVIEW	6/23/2021	ARM	ARM

As Noted	AS NOTED
ARM	ARM
DNF	06/22/2021
VK	21010514

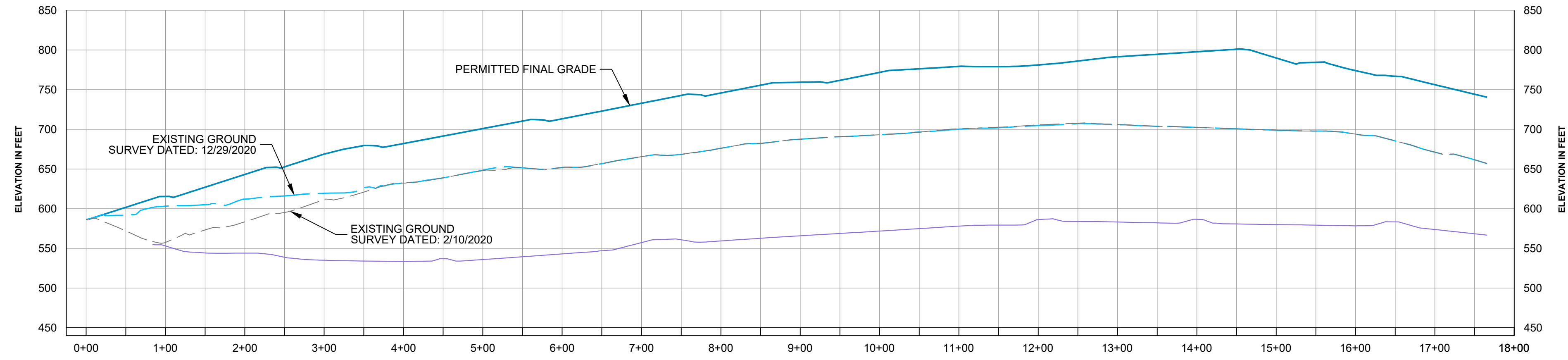
**CROSS SECTIONS (SHEET 4 OF 6)**  
**2020 ANNUAL OPERATIONS REPORT**  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA

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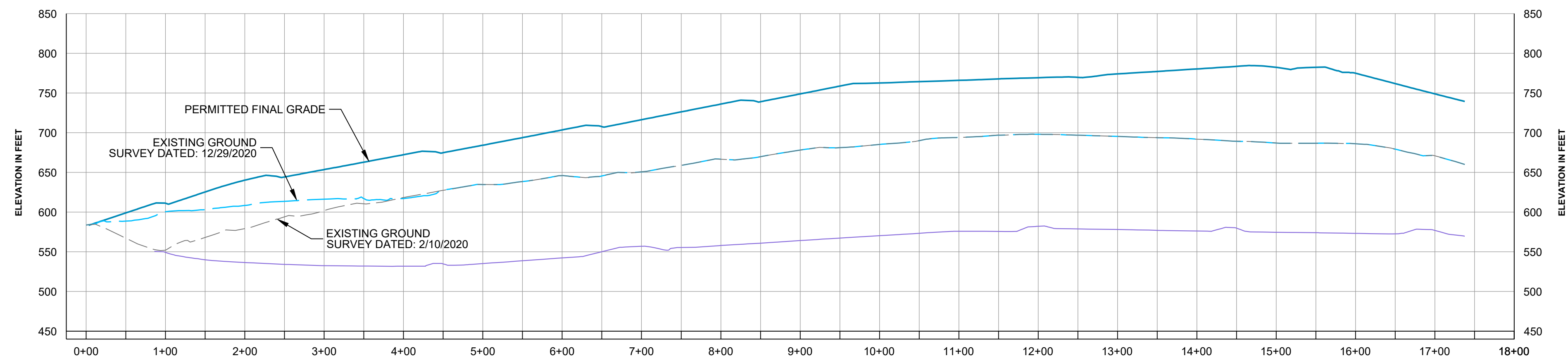




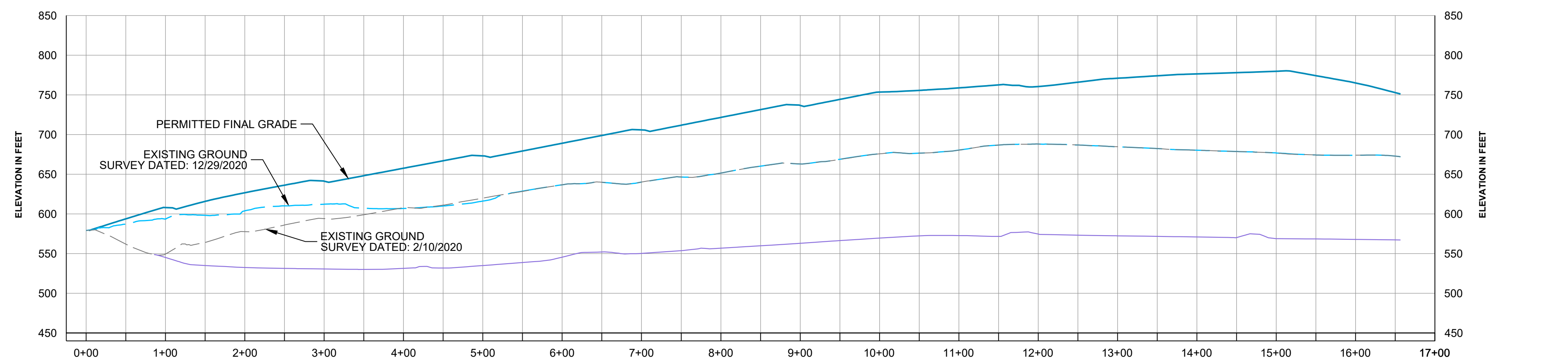
**Cross Section 22**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 23**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



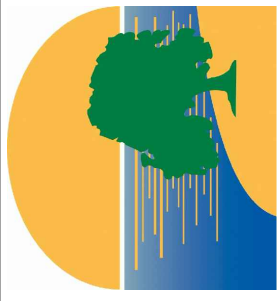
**Cross Section 24**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 25**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'

**LEGEND**

--- (dashed light blue)	2019 AERIAL SURVEY GRADE
- - - (dashed cyan)	2020 AERIAL SURVEY GRADE
— (solid blue)	PERMITTED FINAL GRADE
— (solid purple)	EXISTING LINED SUBGRADE



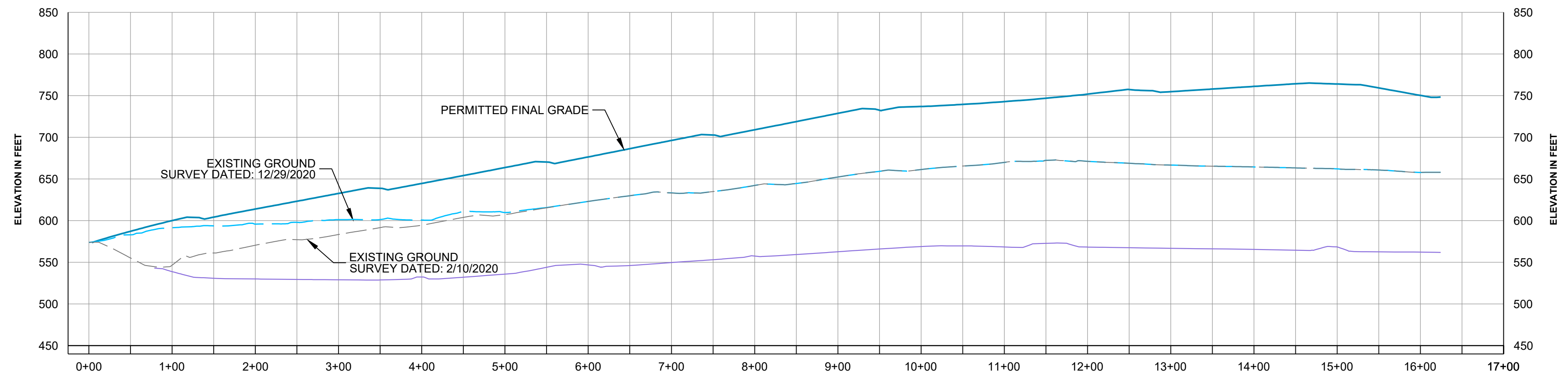
Issued For Review	1	No.
Revision		
Date	6/23/2021	ARM
By		ARM

As Noted	AS NOTED
Date	06/22/2021
Project No.	21010514
Checked	ARM DNF
Drawn	VK
Graphic Scale	

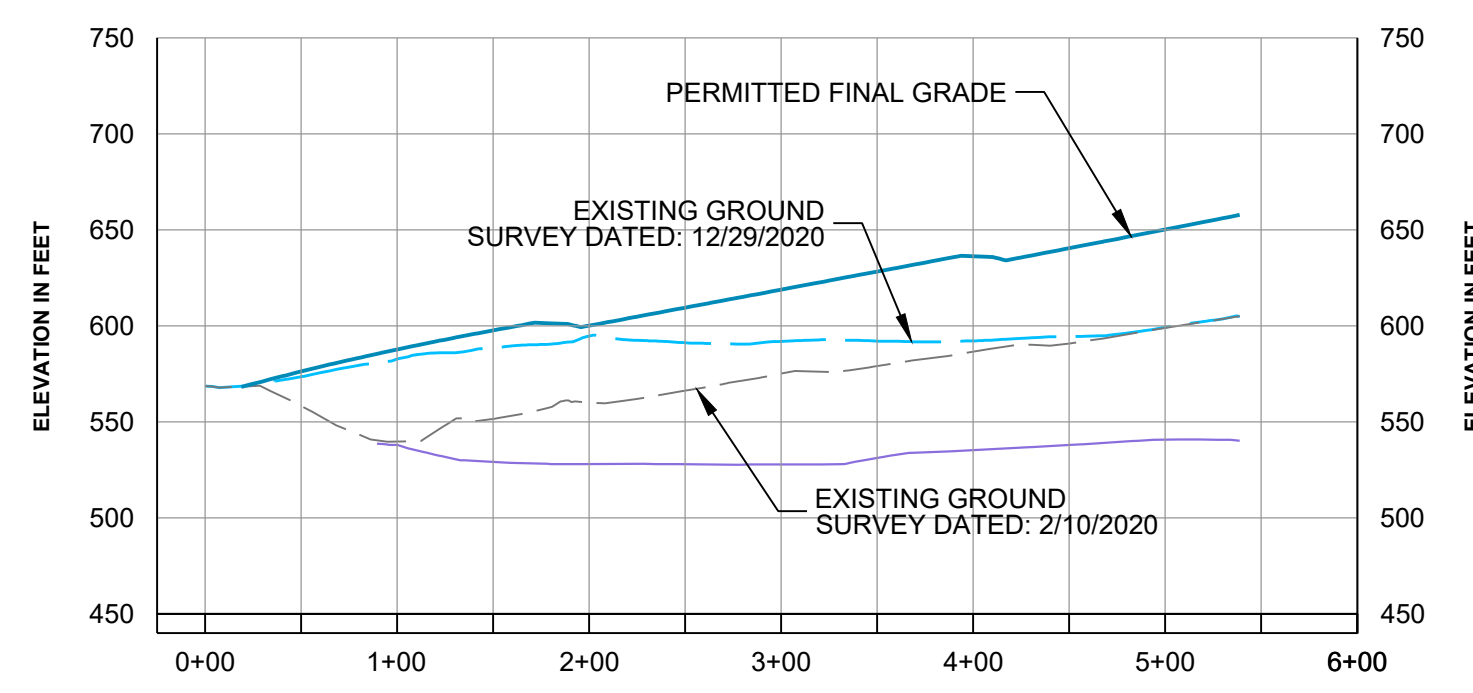
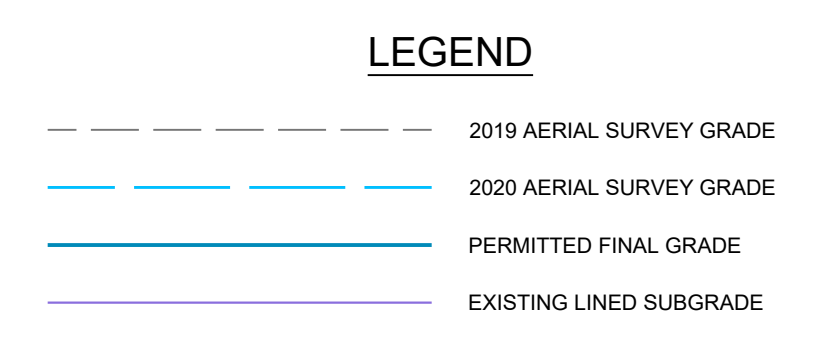
**CROSS SECTIONS (SHEET 5 OF 6)**  
**2020 ANNUAL OPERATIONS REPORT**  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA



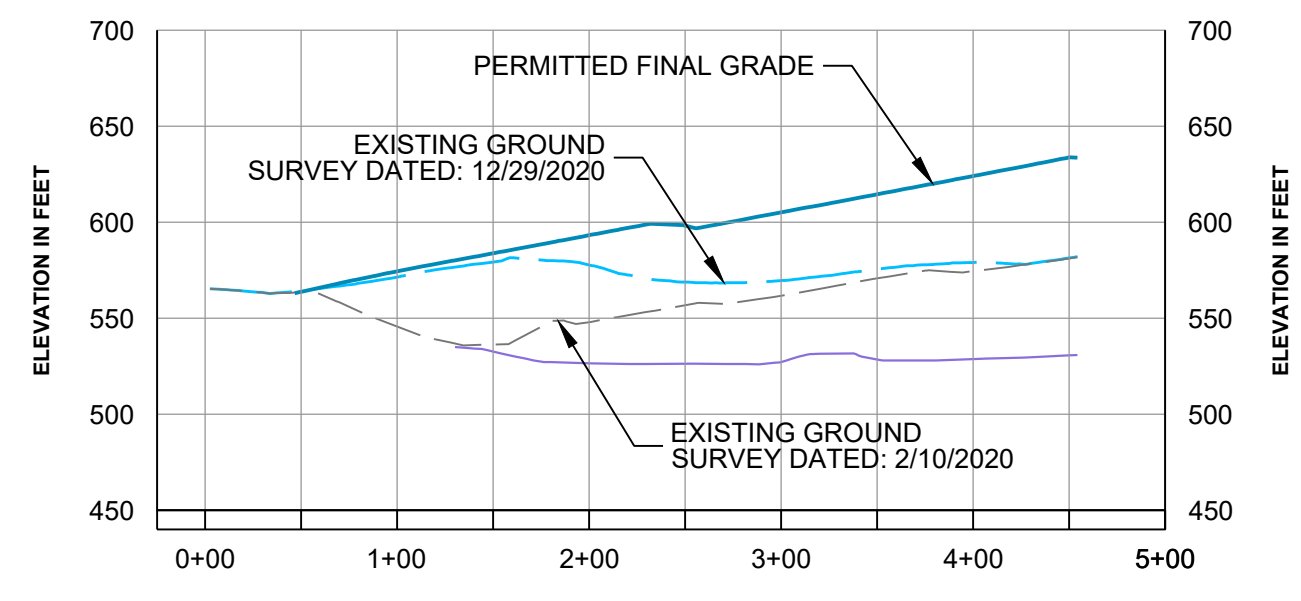
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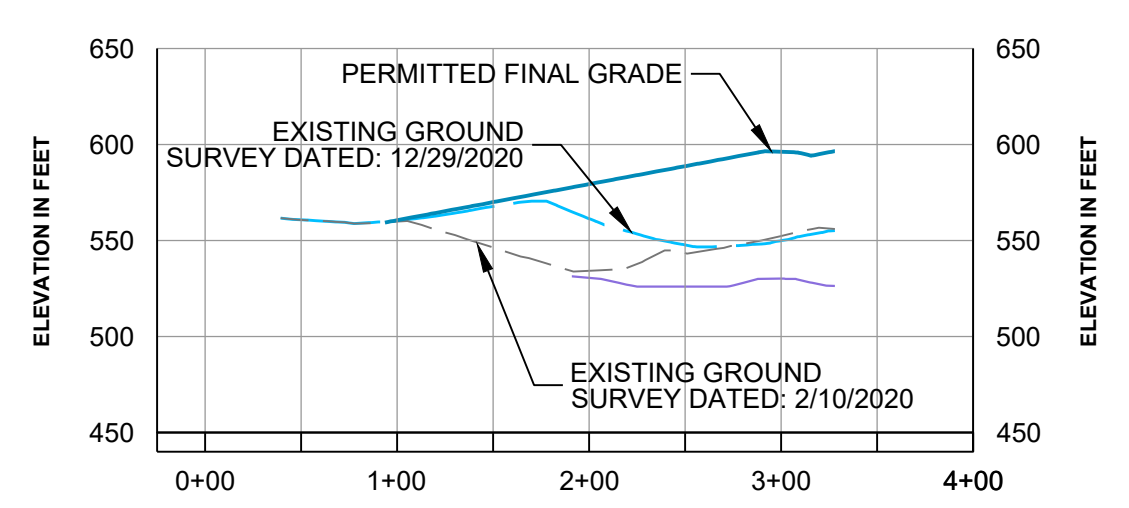
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 VERTICAL SCALE: 1"=100'



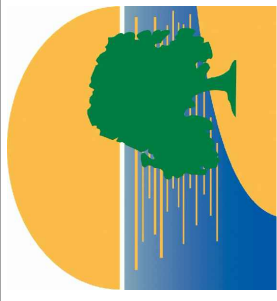
**Cross Section 27**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 28**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



**Cross Section 29**  
 HORIZONTAL SCALE: 1"=100'  
 VERTICAL SCALE: 1"=100'



By	ARM
Date	6/23/2021
Revision	ISSUED FOR REVIEW
No.	1

As noted	AS NOTED
Checked	06/22/2021
Drawn	VK
Project No.	21010514

**CROSS SECTIONS (SHEET 6 OF 6)**  
**2020 ANNUAL OPERATIONS REPORT**  
 MANOR TOWNSHIP  
 LANCASTER COUNTY SOLID WASTE  
 MANAGEMENT AUTHORITY  
 LANCASTER COUNTY, PENNSYLVANIA

Sheet  
**9**

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**Attachment 6**

**Annual MSE Berm Inspection Report**

# 2020 ANNUAL MSE BERM REPORT

## FREY FARM LANDFILL

*Prepared for:*



Lancaster County Solid Waste Management Authority  
1299 Harrisburg Pike  
Lancaster, PA 17603

*Prepared By:*



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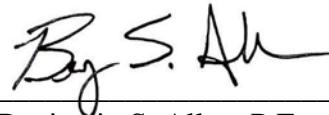
December 2020

ARM Project 190632



Respectfully submitted:

ARM Group LLC

A handwritten signature in black ink that reads 'Ben S. Allen'.

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Benjamin S. Allen, P.E.  
Project Manager

## INTRODUCTION

On July 26, 2017 the Pennsylvania Department of Environmental Protection (PADEP) issued an approval of the Lancaster County Solid Waste Management Authority's (LCSWMA's) Major Permit Modification for the Vertical Expansion of the Frey Farm Landfill (i.e., the FFVE). As part of the approved FFVE, a mechanically stabilized earth (MSE) berm is to be constructed around the northern, eastern, and southern perimeter of the existing Frey Farm Landfill (FFLF). Per the PADEP Permit, Permit Condition 5 requires an annual inspection report of the MSE berm to be completed by a Pennsylvania-licensed Professional Engineer and submitted with the Annual Operations Report. This report satisfies Permit Condition 5.

In addition to Permit Condition 5, the FFLF Operation Plan (i.e., Form 14) outlines the inspection and monitoring requirements for the MSE berm. The inspection and monitoring requirements include the following items:

- Annual inspection by a Professional Engineer meeting the minimum experience requirements;
- Completion of the approved MSE Berm Inspection Form;
- Photographic documentation of the annual inspection; and
- Evaluation of survey control point data to determine displacement.

The report included herein satisfies all of the inspection and monitoring requirements outlined within the PADEP Permit and the FFLF Operations Plan.

In 2017-2018, LCSWMA constructed the FFVE Stage 1 MSE berm. The FFVE Stage 1 MSE berm consisted of 2,188 linear feet of MSE berm, primarily located along the northern perimeter of the existing FFLF. During this stage of construction, the maximum height of the berm (at the face of the berm) was approximately 35 feet. The information included herein is related to the FFVE Stage 1 MSE berm, which is the only portion of MSE berm constructed to date.

## INSPECTION

On December 21, 2020, Benjamin S. Allen, P.E. of ARM Group LLC (ARM) completed the annual inspection of the FFVE Stage 1 MSE berm. Mr. Allen is a Professional Engineer licensed in the Commonwealth of Pennsylvania who specializes in geotechnical engineering and the design and construction of MSE berms. Mr. Allen has over 10 years of experience in the field of geotechnical engineering and with MSE berms. Additionally, Mr. Allen was one of the Engineers-of-Record for the FFVE Major Permit Modification that was submitted to and approved by PADEP.

During the inspection, Mr. Allen walked along the top of the MSE berm and along the toe of the MSE berm to evaluate the performance of the berm and determine if maintenance is required. In particular, the inspection assessed/evaluated the following items:

- Stormwater management controls
- Erosion
- Vegetation
- Biaxial geogrid
- MSE Berm penetrations (posts)



- Road surface
- Safety fence and guiderail

In addition to assessing/evaluating the items listed above, the inspection also looked for the presence of the following items, which could require remedial action if discovered:

- Tension cracks
- Toe heaving
- Bulging/sagging
- Animal damage
- Vandalism

While conducting the inspection, the MSE Berm Inspection Form was completed and photographs were taken. The completed form is included in Attachment A. A photo log documenting the condition of the MSE berm at the time of the inspection is included in Attachment B. Overall, the FFVE Stage 1 MSE berm is in good condition. The vegetation on the face of the berm was dormant during the time of the inspection; however, the vegetation appears to provide adequate shading for the biaxial geogrid. The biaxial geogrid appears to be intact with no damage or degradation. No signs of instability or any items requiring remedial action were observed during the inspection.

## MONITORING DATA

Several survey monitoring points have been installed along the FFVE Stage 1 MSE berm. A series of survey monitoring points are generally installed every 200 feet along the length of the berm. At each location, the control monuments are typically installed at the toe of the MSE berm, the top outside edge of the MSE berm, and at the top of the berm along the stormwater channel. Additionally, at one location where the berm height exceeds 30 feet, a survey monitoring point was installed within the face of the MSE berm, between the top outside edge and toe monitoring points. In total, the FFVE Stage 1 MSE berm has 37 monitoring points. A plan view showing the location of the monitoring points is included in Attachment C.

The monitoring points are surveyed on an annual basis. To date, three survey events have been completed by David Miller/Associates, Inc. (DMA). The initial survey was completed on May 5, 2019. The second survey was completed on January 10, 2020 and the third survey was completed on December 22, 2020. ARM has reviewed the monitoring point surveys and has calculated the change in elevation at each point and the magnitude of total lateral displacement between the surveys.

In general, the lateral displacement displayed by the monitoring points is very minimal. The maximum lateral displacement observed between the January 10, 2020 survey and the December 22, 2020 survey is 1.32 inches at toe of MSE berm station 8+00. Overall, the lateral displacement at this monitoring point (i.e., station 8+00, toe of MSE berm) is 2.06 inches, as surveyed on May 5, 2019 and December 22, 2020. The average lateral displacement of the monitoring points observed between the two most recent surveys is 0.56 inches. Based on the survey data, the lateral displacement observed at the monitoring points is minimal and is not indicative of any type of instability. The magnitude of lateral displacement at each



monitoring point between the two most recent surveys (i.e., January 10, 2020 and December 22, 2020) is provided in Table 1, below.

Additionally, the change in elevation observed at each monitoring point is relatively minimal. The observed changes in elevation varied between 2.84 inches and -0.52 inches, with an average change in elevation of 0.17 inches between the most recent survey dates. To date, the observed changes in elevation are relatively minor and are not indicative of any type of instability. The change in elevation at each monitoring point is provided in Table 1, below.

**Table 1: FFVE Stage 1 Monitoring Point Displacement Summary Table**

STA	Location	Original Elevation	Elevation Change (in)	Magnitude of Plan View Movement (in)
06+02	toe	618.16	-0.13	0.40
06+68	toe	615.44	0.17	0.66
06+68	top, outside	631.68	-0.10	0.47
06+90	top, inside	630.68	-0.04	0.61
08+00	toe	613.19	0.14	1.32
08+00	top, outside	627.20	-0.10	0.06
08+00	top, inside	625.93	-0.56	0.56
10+00	toe	607.20	-0.04	0.26
10+00	top, outside	619.74	-0.06	0.35
10+00	top, inside	618.29	0.14	0.47
12+00	toe	601.53	-0.10	0.79
12+00	top, outside	613.64	-0.04	0.38
12+00	top, inside	612.04	0.25	0.41
14+00	toe	593.01	0.06	1.02
14+00	top, outside	607.03	-0.13	0.77
14+00	top, inside	605.63	0.54	0.74
16+00	toe	584.08	-0.08	0.20
16+00	top, outside	597.14	-0.52	0.87
16+00	top, inside	595.90	0.06	0.62
18+00	toe	575.19	-0.22	0.34
18+00	top, outside	587.07	-0.06	0.89
18+00	top, inside	585.69	0.19	0.31
20+00	toe	563.22	-0.02	0.33
20+00	top, outside	573.18	0.23	0.87
20+00	top, inside	571.52	0.47	0.74
22+00	toe	546.41	2.84	0.58
22+00	top, outside	559.05	0.68	0.58
22+00	top, inside	558.01	0.50	0.73
23+75	top, inside	554.01	0.90	0.46
24+00	toe	524.11	-0.02	0.22
24+00	MSE face	539.14	0.12	1.22



24+00	top, outside	554.66	0.06	0.47
26+00	toe	516.79	-0.10	0.17
26+00	top, outside	539.80	0.01	0.33
27+50	toe	512.51	0.02	0.50
27+50	top, outside	523.67	0.01	0.33
27+80	top, outside	511.54	-0.07	0.63
		<b>Maximum</b>	<b>2.84</b>	<b>1.32</b>
		<b>Minimum</b>	<b>-0.52</b>	<b>0.06</b>
		<b>Average</b>	<b>0.17</b>	<b>0.56</b>

### CONCLUSIONS

After completing the annual inspection and reviewing the available monitoring point survey data on the FFVE Stage 1 MSE berm, ARM has not observed any current data or trends indicative of instability. The MSE berm appears to be in good condition and does not require any remedial or maintenance actions at this time.





# **ATTACHMENT A**

## **MSE Berm Inspection Form**





# ARM Group LLC

## Engineers and Scientists

P.O. Box 797, 1129 West Governor Road, Hershey, PA 17033-0797  
Phone (717) 533-8600 Fax (717) 533-8605 www.armgroup.net

### MSE Berm Inspection Form

Site Location: Frey Farm Landfill Inspector: Benjamin S. Allen, P.E.  
Berm Segment: FFVE Stage 1 Inspection Date: 12/21/2020

#### Stormwater Management Evaluation

1. Is stormwater overtopping the face of the MSE berm?

YES  NO

If YES, immediately notify the Engineer-of-Record.

2. Are all inlets and/or drains unclogged and functioning properly?

YES  NO

If NO, immediately notify Maintenance for immediate corrective action.

Please note which inlets and/or drains are not functioning properly:

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3. Evaluate the condition of stormwater channels on top of the MSE berm.

a) Is there damage to the channel lining?

YES  NO

b) Can water enter into either the reinforced or unreinforced zone of the MSE berm?

YES  NO

c) Is there deposition of material along the length of the channels or changes in the channel profile due to erosion, subsoil migration, and depositional features?

YES  NO

d) Is there evidence of degraded or dysfunctional stormwater channels?

YES  NO

If YES, immediately notify the Engineer-of-Record.

If any questions under Part 3 of this section were answered with YES, please describe the deficiencies and note the location of the deficiencies: Not applicable.

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**Erosion Assessment**

1. Is there evidence of erosion on the exterior or interim (if applicable) face of the MSE berm?

YES  NO

If YES, immediately notify the Engineer-of-Record.

Please identify the areas where erosion appears to be occurring:

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2. Is there excessive erosion at pipe or utility penetrations?

YES  NO

If YES, notify the Engineer-of-Record.

Please identify the areas where erosion appears to be occurring:

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3. Is there evidence of soil migration and/or deposition at the toe or on the horizontal shelves of the MSE berm?

YES  NO

If YES, notify the Engineer-of-Record.

Please identify the areas of soil migration and/or deposition:

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**Vegetation Inspection**

1. Is vegetation on the face of the MSE berm lacking after two (2) growing seasons?

YES  NO

If YES, notify the Engineer-of-Record.

Locations/

Comments: Vegetation is providing adequate shading for the biaxial geogrid.

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2. Has any of the vegetation grown to a size that poses a threat to collapse under wind, ice, or snow loading or does any vegetation exhibit woody bark or complex root systems?

YES  NO

If YES, notify Maintenance for removal.

3. On portions of the MSE berm facing comprised of aggregate (if applicable):

Is the biaxial geogrid facing wrap intact and retaining the aggregate?

a)  YES  NO

If NO, please note the locations: Not applicable.

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b) Are the geogrid apertures distorted or otherwise incompatible with the size of the retained aggregate?

YES  NO

If YES, please note the locations: Not applicable.

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c) Are there sizeable void spaces behind the geogrid or signs of aggregate loss?

YES  NO

If YES, please note the locations: Not applicable.

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If NO to question 3a or YES to questions 3b or 3c under Part 3 of this section, notify the Engineer-of-Record.

### ***Tension Crack Evaluation***

1. Is there any evidence of tension cracks along the top of the berm?

YES  NO

If YES, immediately notify the Engineer-of-Record.

2. Are there tension cracks within the paved access road on top of the MSE berm?

YES  NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any evidence of tension cracks:

*Not applicable.*

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### ***Toe Heaving Inspection***

1. Is there any evidence of toe heaving?

YES       NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any evidence of toe heaving:

*Not applicable.*

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### ***Geogrid Assessment***

1. To the extent possible, evaluate the condition of the biaxial geogrid at the face of the MSE berm.

*The biaxial geogrid is intact and in good condition. Vegetation is providing adequate shading to prevent UV degradation of the biaxial geogrid.*

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2. Note the location of any severe degradation or extensive damage to the biaxial geogrid.

*None.*

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### ***Bulging/Sagging Evaluation***

1. Is there evidence of excessive bulging or sagging (i.e., greater than 2 inches) at any point along the outer face of the MSE berm?

YES       NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any excessive bulging or sagging:

*Not applicable.*

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### ***Top Surface Penetration Inspection***

1. Is there evidence of gaps opening around penetrations (e.g., guiderail posts, fence posts, etc.) or tilting or settlement of such features?

YES       NO

If YES, notify the Engineer-of-Record.

Please note the locations:

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### ***Road Surface Inspection***

1. Is there any deterioration of the road surface at the top of the MSE berm (i.e., cracking, erosion, settlement, undulations, exposure of geogrid, etc.)?

YES       NO

If YES, notify the Engineer-of-Record.

Please note the locations:

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### ***Guide Rail and Safety Fence Assessment***

1. Are the guide rail and safety fence intact, undamaged, fully functional, and continuous throughout the originally installed length?

YES       NO

If NO, notify Maintenance for repair.

Please note the locations:

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Note: Any obvious changes to the profile of the horizontal components of the fencing or guide railing shall be reported to the Engineer-of-Record.



# **ATTACHMENT B**

## **Photo Log**







**PHOTO 1**



**PHOTO 2**





*PHOTO 3*



*PHOTO 4*





*PHOTO 5*



*PHOTO 6*





*PHOTO 7*



*PHOTO 8*





*PHOTO 9*



*PHOTO 10*





*PHOTO 11*



*PHOTO 12*





*PHOTO 13*



*PHOTO 14*





*PHOTO 15*



*PHOTO 16*







*PHOTO 17*



*PHOTO 18*





*PHOTO 19*



*PHOTO 20*





*PHOTO 21*



*PHOTO 22*





*PHOTO 23*



*PHOTO 24*





*PHOTO 25*



*PHOTO 26*





*PHOTO 27*



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*PHOTO 31*



*PHOTO 32*







*PHOTO 33*



*PHOTO 34*





*PHOTO 35*



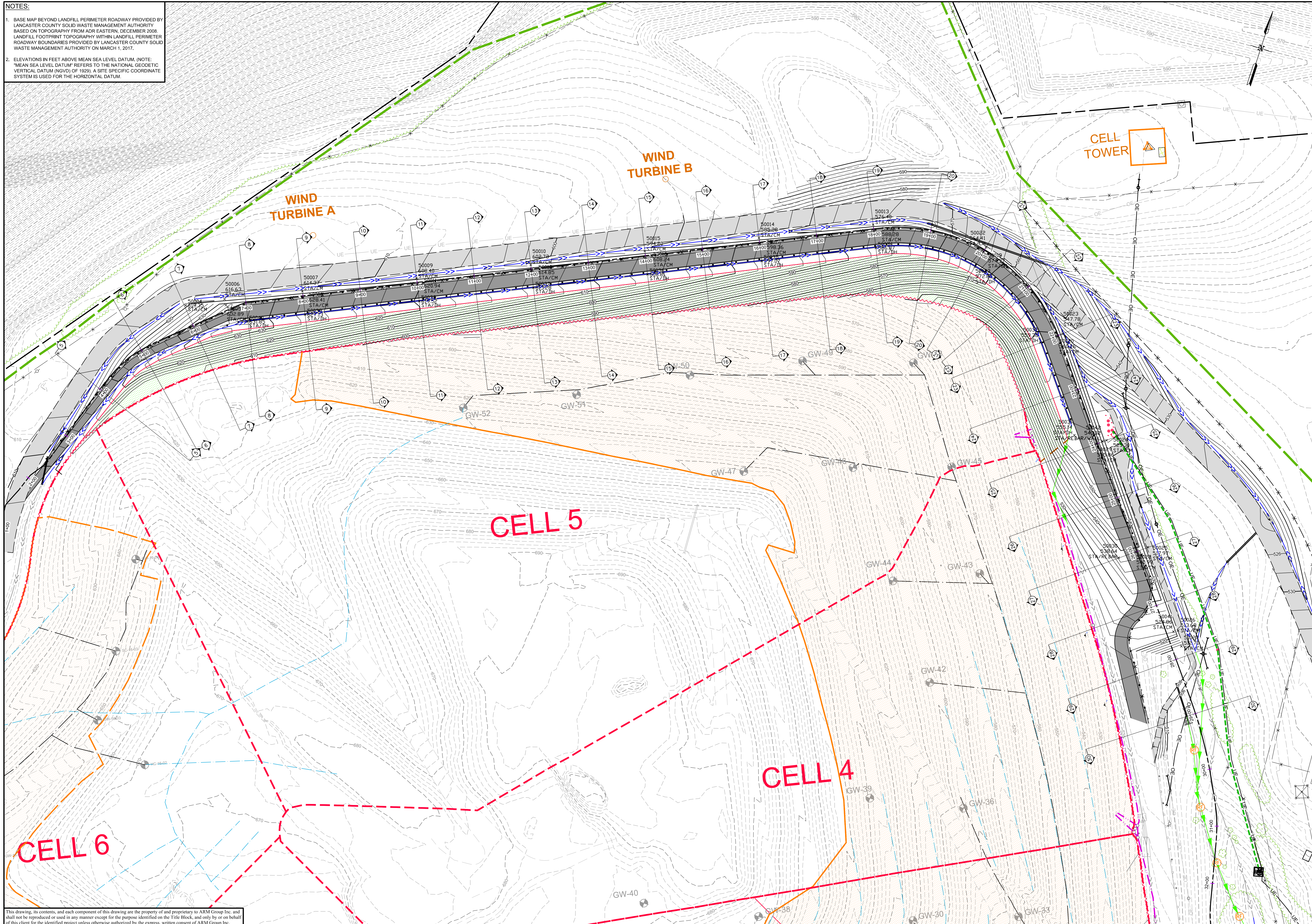
# **ATTACHMENT C**

## **MSE Berm Control Points**


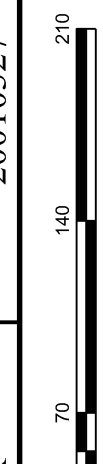


**NOTES:**

1. BASE MAP BEYOND LANDFILL PERIMETER ROADWAY PROVIDED BY LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY. BASED ON TOPOGRAPHY FROM ADR EASTERN, DECEMBER 2008. LANDFILL FOOTPRINT TOPOGRAPHY WITHIN LANDFILL PERIMETER ROADWAY BOUNDARIES PROVIDED BY LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY ON MARCH 1, 2017.
2. ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL DATUM. (NOTE: "MEAN SEA LEVEL DATUM" REFERS TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929). A SITE SPECIFIC COORDINATE SYSTEM IS USED FOR THE HORIZONTAL DATUM.



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 <p><b>ARM Group LLC</b> Engineers and Scientists www.armgroup.net</p>	<p>Scale: 1" = 70'</p>	
	<p>ARM BSA TMR</p>	<p>DATE: DECEMBER 2020 PROJECT NO: 20010327</p>
	<p>SCALE IN FEET</p> 	
<p><b>MSE BERM MONITORING POINTS</b> 2020 ANNUAL MSE BERM REPORT</p>		
<p>VERTICAL EXPANSION FREY FARM LANDFILL</p>		
<p>MANOR TOWNSHIP LANCASTER COUNTY, PA</p>		
<p>Sheet <b>1</b></p>	<p>DATE: DECEMBER 2020 PROJECT NO: 20010327</p>	

P:\LANCASTER\Vertical Expansion\Reports\2020 Annual MSE BERM Report\Vertical Expansion - Frey Farm Landfill.dwg, April 18, 2021

**Attachment 7**

**Visual Landscape Synthesis Plan Annual Report**

April 30, 2021

# **Frey Farm Landfill**

## **Stage 1 Visual Landscape Synthesis Plan**

**Manor Township Lancaster County, Pennsylvania**

### **Introduction**

The Frey Farm Landfill (FFLF) is a Municipal Solid Waste (MSW) disposal facility operated by Lancaster County Solid Waste Management Authority (LCSWMA), located along River Road in Manor Township, Lancaster County, Pennsylvania.

Construction of the Frey Farm Landfill (FFLF) Visual Landscape Synthesis Plan (VLSP) Stage 1 began in 2019 and consisted of planting a combination of 158 native-species trees and shrubs, and natural succession seed mix over approximately 30.2 acres of final cap. Stage 1 was the only stage completed in 2019.

For a detailed map please see (Exhibit One).

The VLSP is designed to achieve the following core objectives:

1. Achieve an enhanced and more natural appearance that blends into the surrounding landscape, over time, of the Frey Farm Landfill (FFLF) from neighboring viewpoints by mitigating potential visual impacts associated with the FFVE and improving the long-term appearance of the FFLF when compared to the mowed vegetative cover that is traditionally used post-closure at landfills;
2. Achieve a sustainable vegetative ecosystem for the long-term success that also reduces the need for traditional maintenance activities to support vegetation (fertilization, lime application, mowing, etc.); and
3. Minimize interference from landscaping with ongoing landfilling operations, and promote the continued safe operation of the FFLF in compliance with PADEP regulations.

### **Summary of 2020 Implementation Activities**

Initial implementation efforts began in the fall of 2019 and continued in 2020.

Due to the Covid19 Pandemic activities were limited mainly to inspections and the replacement of plant material that was no longer living. The replacement plant material was completed / replaced during November 2020. In total thirty-

seven pieces of plant material were replaced. (See list attached to this report for specifics).

## **2020 Maintenance**

2020 efforts were mainly related to weed suppression around maturing plant material and deer guard protection. In a few instances support stakes were set to protect immature plant material from wind stress. No fertilizers or irrigation efforts were used in 2020.

## **Monitoring**

LCSWMA is continuing a bi-weekly monitoring of Stage 1 (see attached monitoring reports). LCSWMA will continue its practice to conduct inspections of the plantings after significant weather events such as large storms where wind gusts above 50 mph may have occurred. Action items will be taken on an as needed basis following the discovery or observation of a potential issue.

LCSWMA will continue onsite observations of the soil and plants along with past photographic records will continue to be used to monitor this aspect of the study.

There were a few trees that did receive insect damage, during 2020, likely from spider mites. The honey locust population seemed to be the most susceptible to this condition. We will monitor repeat occurrences / susceptibility during the course of the 2021 growing season.

The population of plant material continues to sustain deer damage mainly during the fall rut. Additional more robust "buck rub" mitigate efforts are being discussed to limit deer damage before this years fall rut (Likely to occur in October, November 2021).

Weed growth has become more of a maintenance item as the mulch layer begins to break down into a soil blanket. This condition is normal and was expected to occur. Weed growth will be monitored and where needed cut back or "weed whacked" to thwart excessive competition with the tree and shrub population.

## **Proposed Modifications or Revisions to the Plan**

Currently there are no plans to modify any portion of the plan. Overall the first stage is meeting performance expectations and is beginning to yield important insights on the survivability of the different plant material / population. These insights will allow us to modify plant specifications in future stages to continue to tailor the best plant material for the site and overall success. We're still a bit early in the process of monitoring and judging plant specific performance. However by the end of 2021 we should have a fairly good idea on the best

performers in the Stage 1 planting area. These observations are important to note and understand as we move into larger planting efforts in Stage 2 and beyond.

The natural succession area continues to perform well and continues to “soften” the engineered appearance of the landfill (benching). The visual softening and textural diversity observed in 2020 seems to be increasing over time. The result is a more natural appearance to the landfill slopes that blends into the surrounding landscape. No additional modifications or revisions are planned for the Stage 1 succession areas.

## **Planned 2021 Activities**

Monitoring will be performed bi-weekly by (FFLF) staff and seasonally by Kaufman Engineering, Inc. or as needed.

A determination will likely be made in the coming months if Stage 2 can be implemented in 2021. The Covid-19 pandemic unfortunately will not allow LCSWMA to unveil a definitive plan at this time. LCSWMA plans to communicate with PADEP as the situation unfolds. We have illustrated the approximate boundary of the Stage 2 planting area in the map exhibits for reference.

### **Other Meetings / Notes:**

A Spring Inspection was completed on 5/13/2020 by Kaufman Engineering, Inc.

#### **Attendees:**

Katie Sandoe, LCSWMA  
Jeff Musser, LCSWMA  
Dwight Yoder, Gibbel Kraybill & Hess  
Brian Kaufman, Kaufman Engineering, Inc.

A Fall inspection and walk through was completed on 10/27/2020 by Kaufman Engineering, Inc.

#### **Attendees:**

Michelle Marsh, LCSWMA  
Jeff Musser, LCSWMA  
Dwight Yoder, Gibbel Kraybill & Hess  
Ted Evgeniadis, Lower Susquehanna Riverkeeper Association



Plants Removed By Contractor and Replacements (Completed October 2020)

Number	Plant	Northing	Easting	Replacement Plant	Planted Size 4' Ht.
1	Smooth Alder	228962.2	2331269.1	White Pine	4' Ht.
2	Smooth Alder	228956.5	2331284.1	Black Gum	1.5"C-9'
3	Smooth Alder	228962.9	2331281.0	Black Gum	.75"C-6'
4	Red Maple	228958.5	2331314.5	Red Maple	1.5"C-9'
10	Speckled/Gray Alder	228895.8	2331342.4	Black Gum	.75"C-6'
16	Thornless Honeylocust	228861.3	2331380.5	White Pine	4' Ht.
23	Tulip Poplar	228815.3	2331402.0	Tulip Poplar	6-7'
26	Black-haw Viburnum	228793.1	2331426.0	Black Gum	1.5"C-9'
29	Tulip Poplar	228708.3	2331496.0	Tulip Poplar	6-7'
31	Red Maple	228689.0	2331530.5	Red Maple	1.5"C-10'
32	Arrowwood Viburnum	228675.9	2331532.0	Arrowwood Viburnum	2-3' From Octoraro Nursery
33	Arrowwood Viburnum	228685.9	2331543.0	Arrowwood Viburnum	2-3' From Octoraro Nursery

Recommended Replacement List - End of First Year Replacement List (To Be Planted - Estimated November 2020)

Number	Plant	Northing	Easting	Replacement Plant	Planted Size	Notes:
12	Eastern Red-Cedar	228859.0	2331308.5	White Pine	4' Ht.	Pot or B&B
18	Bayberry	228801.6	2331332.6	White Pine	4' Ht.	Pot or B&B
52	Tulip Poplar	228431.0	2331841.5	White Pine	4' Ht.	Pot or B&B
61	American Basswood	228412.5	2331983.3	White Pine	4' Ht.	Pot or B&B
66	Thornless Honeylocust	228441.9	2331967.6	Black Locust	.75"C-6'	Pot or B&B
67	Thornless Honeylocust	228453.1	2331951.5	Black Locust	.75"C-6'	Pot or B&B
72	Thornless Honeylocust	228545.3	2331873.0	Black Locust	.75"C-6'	Pot or B&B
87	Eastern Redbud	228655.3	2331717.4	White Pine	4' Ht.	Pot or B&B
97	Spicebush	228698.6	2331840.4	Arrowwood Viburnum	2-3' From Octoraro Nursery	Pot
98	Pin Cherry	228708.5	2331841.0	White Pine	4' Ht.	Pot or B&B
100	Allegheny Serviceberry	228764.0	2331878.0	Arrowwood Viburnum	2-3' From Octoraro Nursery	Pot
101	Gray Birch	228771.6	2331889.1	River Birch	6'	Pot or B&B
102	Common Serviceberry	228771.4	2331904.0	Arrowwood Viburnum	2-3' From Octoraro Nursery	Pot
103	Gray Birch	228786.9	2331902.8	River Birch	6'	Pot or B&B
114	Chokecherry	228975.7	2332039.2	Arrowwood Viburnum	2-3' From Octoraro Nursery	Pot
116	Red Chokeberry	229051.2	2332130.3	Black Locust	.75"C-6'	Pot or B&B
119	Red Maple	229060.0	2332141.8	Red Maple	.75"C-6'	Pot or B&B
120	Red Chokeberry	229065.2	2332156.3	Black Locust	.75"C-6'	Pot or B&B
133	Speckled/Gray Alder	229025.5	2332257.0	Black Gum	.75"C-6'	Pot or B&B
136	Red Maple	228997.0	2332220.8	Red Maple	.75"C-6'	Pot or B&B
142	Spicebush	228947.2	2332149.7	Black Gum	.75"C-6'	Pot or B&B
148	Speckled/Gray Alder	228930.5	2332266.5	Black Gum	.75"C-6'	Pot or B&B
149	Black-haw Viburnum	228942.1	2332257.9	Black Gum	.75"C-6'	Pot or B&B
153	Speckled/Gray Alder	228958.6	2332323.2	Black Gum	.75"C-6'	Pot or B&B
154	Speckled/Gray Alder	228976.0	2332318.0	Black Gum	.75"C-6'	Pot or B&B

Above list of plant material was installed during November, 2020

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Stage 1

Date: 5/13/20

Name of Inspector: Brian W. Kaufman - Kaufman Engineering, Inc.

Weather Conditions: Sunny 64°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	Slopes moisture appeared even and uniform
	*	
	*	
	*	
	*	
	*	Ideal Spring Conditions Observed
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	Ground Hog holes were flagged and communicated to Jeff Musser - orange cones were placed for mitigation
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "identification stakes"?
- 10 Other - Explain

Yes	No	Comments
*		New deer browse was noted on a few smooth alders. Fall 2019 buck rubs noted on 14,23,29,52,56,67,100,101,123,133,135,136
	*	
	*	Ground Hogs holes were in natural succession area away from plantings near plant 141
	*	
	*	Root balls are all secure and properly placed. Some plants leaning due to prevailing wind pressures - monitor for potential staking
*		New growth noted on all plant material
	*	N/A
	*	
	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
*		All 158 plants photographed. Other site and context photos as well.

**Additional Notes or Comments:**

First inspection and walk through was completed with Dwight Yoder, Jeff Musser and Katie Sandoe. Plant material wintered well. New growth observed on all plant material except 3,18,23,29,133,148 (or 3.8% of 1st planting). These plants will be replaced during 2020. Some deer damage on larger plant material as noted above.

Deer (buck) seemed to mainly target tulip poplar and red maple. However, deer damage was observed on other species as well. Deer guards and garlic sticks should help to provide partial mitigation. It will be likely be difficult to mitigate all deer damage.

Natural succession zone averaging 12" - 18" in height with many areas exceeding that average. Slopes appear full with grasses thriving. Visual softening of benching and greater visual appeal very apparent when contrasted with mowed slopes. Some natural succession of locust and cherry noted in natural secession area.

Other notes: Several birds were observed in trees and utilizing bird houses.

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Stage 1

Date: 10/27/20

Name of Inspector: Brian W. Kaufman - Kaufman Engineering, Inc.

Weather Conditions: Sunny 60°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	✓	Slopes moisture appeared even and uniform
	✓	
	✓	
	✓	
	✓	
	✓	Ideal Season For Even Moisture
	✓	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
✓		Deer (buck rubs), several honey locust with mite or honeylocust plant bug damage.
	✓	
	✓	
	✓	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "identification stakes"?
- 10 Other - Explain

Yes	No	Comments
✓		Deer browse and buck rubs noted.
✓		It is believed the honey locust population has been damaged by mites or honeylocust plant bugs. It may be prudent to replace future plantings with other.
	✓	Yes, deer browse and buck rub damage observed.
	✓	Several riverbirch have had wind damage. All root balls appear to be in good position. Expectation plants will recover and add new growth in 2021.
	✓	Root balls are all secure and properly placed. Some plants leaning due to prevailing wind pressures - monitor for potential staking
✓		Honey Locust population is weak due to insect damage. Buck rubs are visible on most tulip poplars and larger caliper trees. Several are heavily damaged and will be replaced with other
	✓	N/A
	✓	See below - under notes.
	✓	Stakes are holding up. Recommended painting tops for easier visibility on future inspections and marking numbers that have faded in sun.
	✓	Weed growth is aggressive around the base of many trees and shrubs. Recommend weed control around base of plants to allow plants to thrive .

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
✓		The majority of plants have been photographed. Natural succession and context photos taken as well.

**Additional Notes or Comments:**

Second inspection and walk through was completed with Dwight Yoder, Ted Evgeniadis, Jeff Musser and Michelle Marsh. Most plant material doing well. Most first year plants spend energy establishing to the site (spend energy on root development and not canopy / vertical growth). Based on what we learned at the Alliance site, most plants are adapting to site conditions in this manner / observing same.

Deer (buck) seemed to mainly target tulip poplar and red maple. However, deer damage was observed on other species as well. Deer guards and garlic sticks should help to provide partial mitigation. It will be likely be difficult to mitigate all deer damage. We may need to consider wrapping select trees in 2021 if damage continues to be issue.

Natural succession zone ranging 12" - 60" in height with many areas. Slopes appear full with grasses thriving. Visual softening of benching and greater visual appeal extremely apparent when contrasted with mowed slopes. Some natural succession of locust and cherry noted in these areas. Expect year 2 - 3 to start seeing these "natural succession trees" adding additional texture and color to the natural succession areas. Some select mowing, weed control or removal of invasive plants will be assessed in spring of 2021. This was discussed with Jeff Musser of LCSWMA.

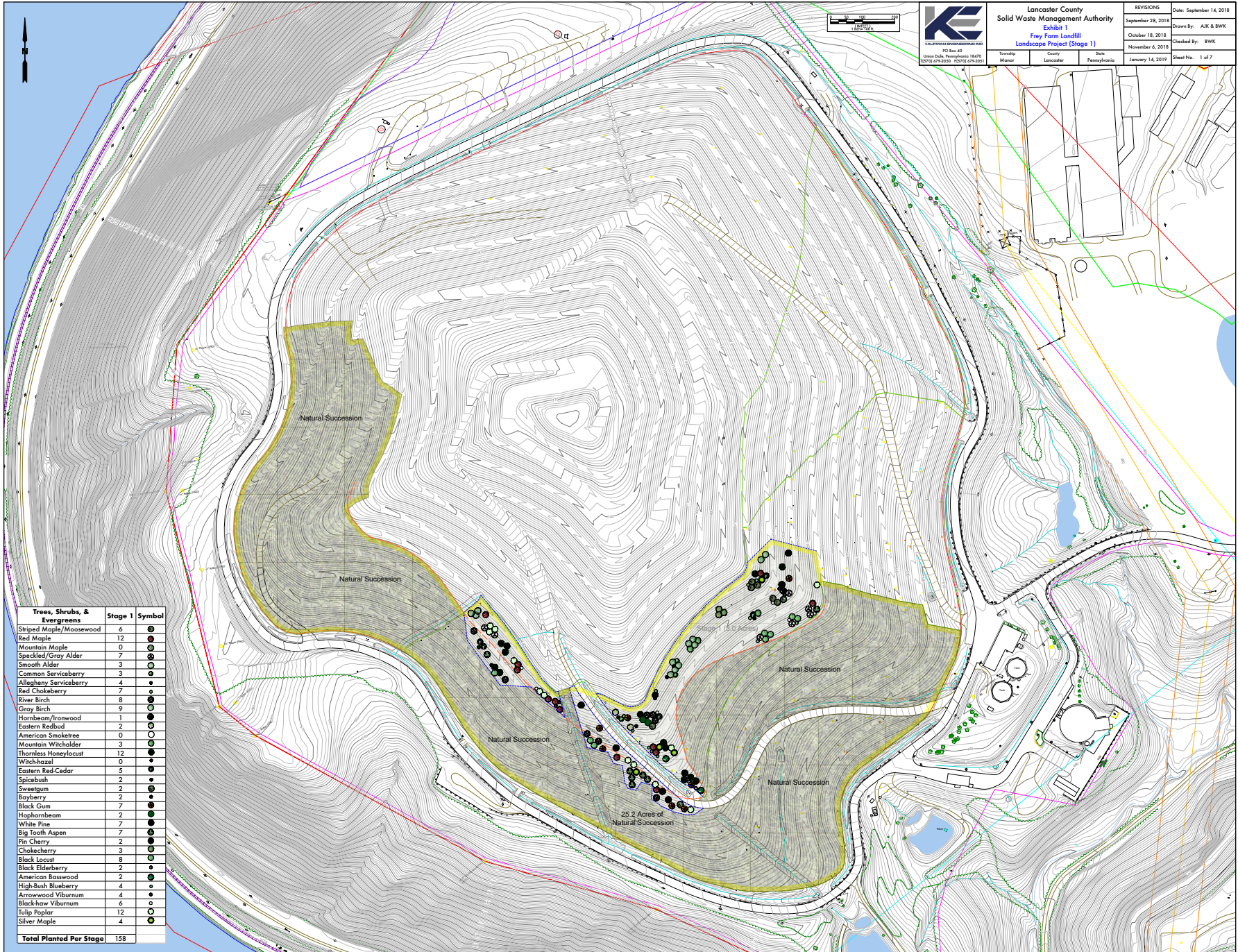
Other notes: Several birds were observed in trees (mainly blue birds and hawks). A large buck was also observed on the tour.

Recommend replacing plants #12, 18, 52, 61, 66, 67, 72, 87, 97, 98, 100, 101, 102, 103, 114, 116, 119, 120, 133, 136, 142, 148, 149, 153, 154 (A separate list and recommended replacements are attached).

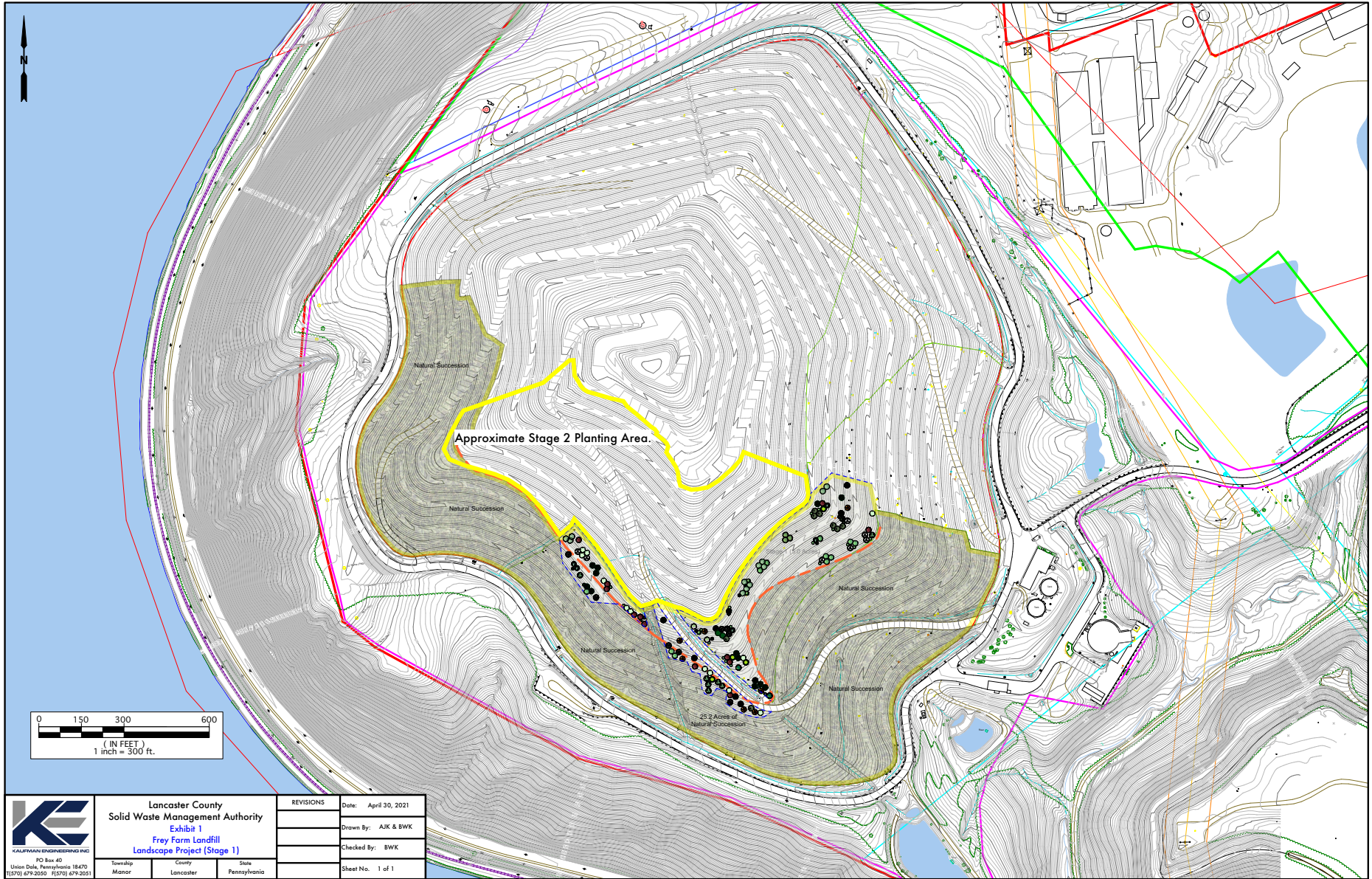
Population survival rates are approximately 84%. This will be mitigated after the replacement plant material has been implemented in the last months of 2020 (currently estimated late November 2020).

During Early October - Site Contractors, in an effort to cap the area directly above the northwestern edge of "Stage One" had unavoidable impact on plants 1, 2, 3, 4, 10, 16, 23, 26, 29, 31, 32, 33. In order to complete the proper capping and grading of this area, these plants were removed. LCSWMA used this opportunity to replace and mitigate the lost plant material with plant material of a larger size and caliper and with species thought to be thriving in our first year of analysis. (A list of effected plant material and replaced plant material is attached). The replacement plants were implemented during October 2020 and observed during this inspection.

Stage One  
Plant Location Exhibits and Photos



Stage One Overview Map



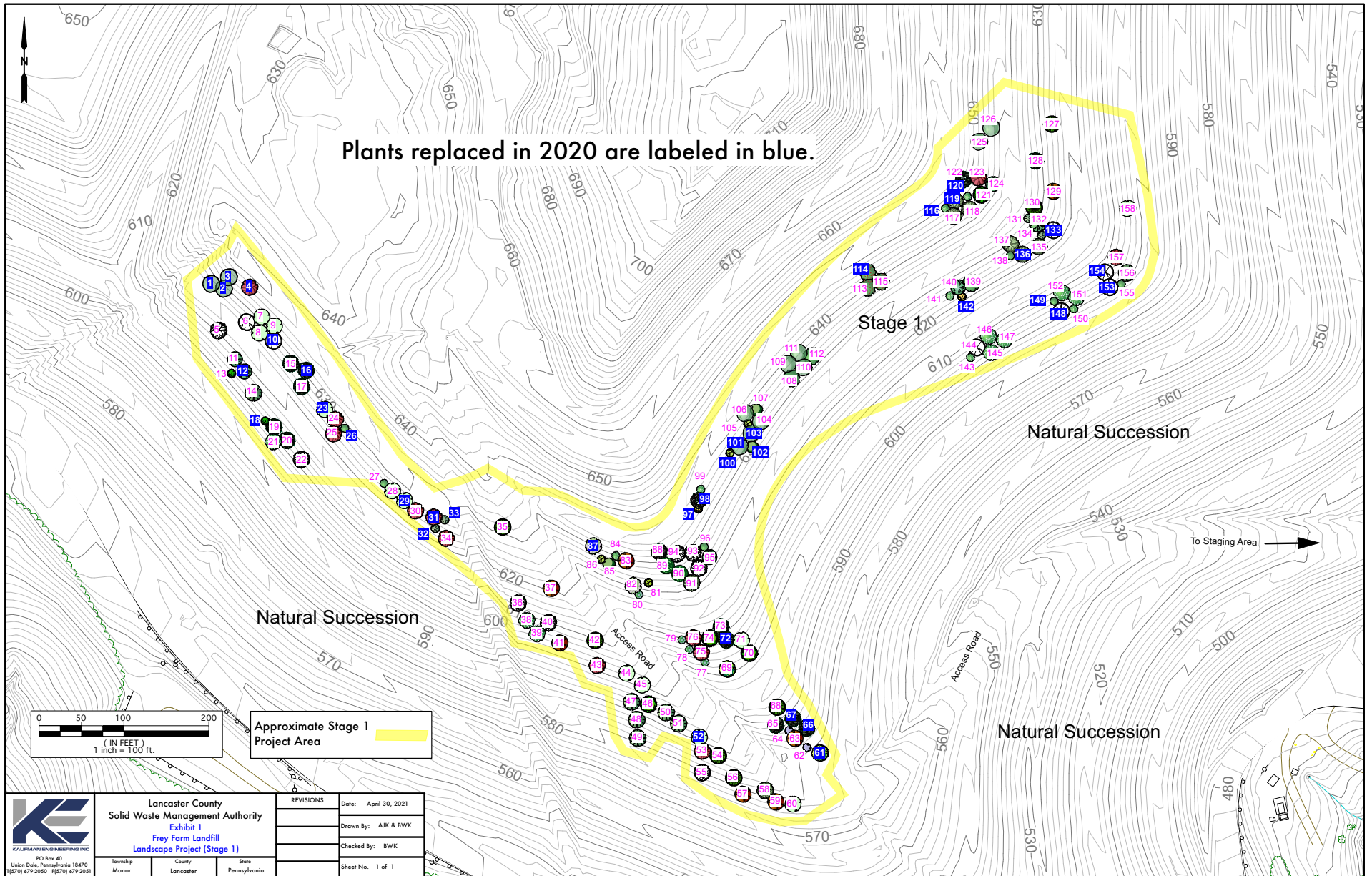
Lancaster County  
 Solid Waste Management Authority  
 Exhibit 1  
 Frey Farm Landfill  
 Landscape Project (Stage 1)

100 East 40  
 Union Dale, Pennsylvania 18470  
 (1570) 679-2050 (1570) 679-2051

Township	County	State
Manor	Lancaster	Pennsylvania

REVISIONS	Date:
	April 30, 2021
	Drawn By: AJK & BWK
	Checked By: BWK
	Sheet No. 1 of 1

Stage One Overview - With Planned Stage Two Highlighted



Stage One Overview - Plant Numbers (Plants Shown in Blue Were Replaced in 2020)



Lancaster County  
Solid Waste Management Authority  
Exhibit 1  
Frey Farm Landfill  
Landscape Project (Stage 1)

REVISIONS

Date: April 30, 2021  
Drawn By: AJK & BWK  
Checked By: BWK  
Sheet No. 1 of 1

KAUFMAN ENGINEERING INC.  
PO Box 40  
Union Dale, Pennsylvania 18470  
(610) 679-2050 (610) 679-2051

Township: Lancaster  
County: Lancaster  
State: Pennsylvania

Fall 2019



**Photo 1** – Crown Excavating installed mounds of topsoil in the surveyed Phase 1 locations.



**Photo 2** – Tomlinson Bomberger performing planting of the Phase 1 trees.  
All trees were planted with hand tools and monitored for planting depth by ARM.

Fall 2019



**Photo 3** – Day 1 planting observation progress picture.



**Photo 4** – Day 2 planting observation progress picture.



Fall 2019



**Photo 5** – Day 3 planting observation progress picture. The larger plant material was planted on Day 3.



**Photo 6** – Crown Excavating completed mulching around planted trees.

Spring 2020



**Photo 7** – A Black Gum tree. Mulch has faded becoming more natural. Note deer protection and tree identification stakes.

Spring 2020

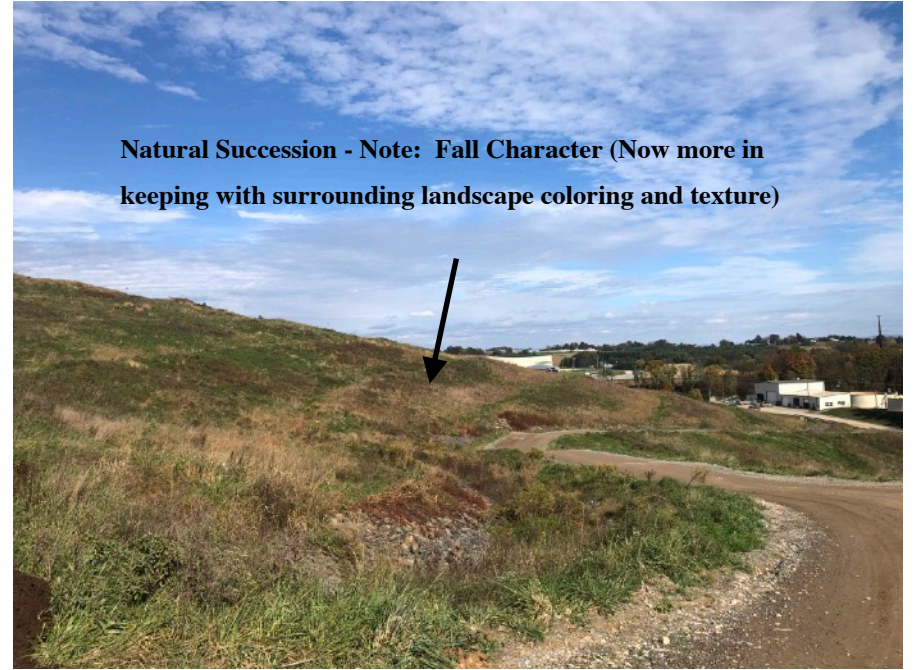


**Photo 8**– Frequently observed many birds utilizing new habitat.

Spring 2020



**Photo 9** – Natural Succession beginning to soften engineered appearance of landfill benching.



**Photos 10-14 - Fall 2020 - Replacement Plant Material (In Progress Photos)**



# 2020 Inspection Reports

## By: Site Management

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 1/3/20

Name of Inspector Ashley Gichuki

Weather Conditions: rainy, dark

### Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
*		
	*	
	*	
	*	
	*	
	*	

### Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
*		
	*	
	*	
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	*	

### Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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	*	

### Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

### Additional Notes or Comments:

In addition to any documentation of damage in previous inspections, the following trees have rubbing or damage : #'s 56, 133, 135, 136. #136 has been tipped over exposing the roots. Please see pictures.

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Date: 1/17/20

Name of Inspector Ashley Gichuki

Weather Conditions: cloudy 33°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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	*	
	*	
	*	
	*	
	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

No new areas of concern since the last inspection.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 1/31/20

Name of Inspector Ashley Gichuki

Weather Conditions: overcast, calm

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
*		Please see pictures
	*	
	*	
	*	
	*	
	*	

Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

Additional Notes or Comments:

In addition to any damage noted on previous inspections, the following trees have wind blow : #154, 156. These trees are fairly loose in the ground and may require a little support.

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Date: 2/14/20

Name of Inspector Ashley Gichuki

Weather Conditions: windy, cold, sunny

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	
	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:** \_\_\_\_\_

Upon today's visual inspection, there have been no changes since the last inspection.

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Date: 2/28/20

Name of Inspector Ashley Gichuki

Weather Conditions: windy, cold

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
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	*	
	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
	*	

Additional Notes or Comments:

Since the last inspection, there has been no new damage to the trees from wind or animals.

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Date: 3/13/20

Name of Inspector Ashley Gichuki

Weather Conditions: calm, sunny

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
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	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

*There have been no changes since the last inspection*

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Date: 3/26/20

Name of Inspector Jeff Musser

Weather Conditions: calm, sunny

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
	*	

Additional Notes or Comments:

There have been no changes since the last inspection

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Date: 4/10/20

Name of Inspector Jeff Musser

Weather Conditions: calm, sunny

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

*There have been no changes since the last inspection*

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Date: 4/24/20

Name of Inspector Ashley Gichuki

Weather Conditions: rainy

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
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	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
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Photos

- 1 Did you take photos today?

Yes	No	Comments
	*	

Additional Notes or Comments:

Upon today's inspection, there are no changes to report.

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Date: 5/8/20

Name of Inspector Ashley Gichuki

Weather Conditions: calm, sunny 58 degrees

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

There have been no changes since the last inspection

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Date: 5/22/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny 79 degrees F

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
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	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

As of today, there have been no changes since the annual inspection on May 13, 2020.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 6/5/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny, humid 74 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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	*	
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
*		Tree #41 - see under Additional Notes or Comments

Additional Notes or Comments:

During the bi-weekly inspection, it was observed that tree #41 is bowed over. There is also a large poison hemlock plant that is in close proximity, which the top of tree #41 was laying on, but not tangled up with.

Please see attached pictures.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 6/19/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny, humid 79 degrees

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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*		Two of the trees (pictures) have new growth that has died

Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

Additional Notes or Comments:

During the bi-weekly inspection, it was observed that the new growth on tree #'s 67 and 72 has died. Also on tree #66, there is no new growth. Pictures are attached.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 7/3/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny, partly cloudy 78 degrees

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
*		Tree #129 - Please see photos

Additional Notes or Comments:

During the bi-weekly inspection, it was observed that tree #129 is bowed over. This is a tree that was staked previously.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 7/17/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny 82°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

Additional Notes or Comments:

During the bi-weekly inspection, it was observed that tree #103 has new growth which has died, and tree #119 does not have any suckers, or new growth. Photos are attached.

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Date: 8/7/20

Name of Inspector Ashley Gichuki

Weather Conditions: cloudy 77°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
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	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
*		

**Additional Notes or Comments:**

During today's inspection, there were a few trees that looked like their new growth had either died or does not seem to have any new growth. These were tree #'s 61, 101, 103, 136, and 137.

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Date: 8/21/20

Name of Inspector Ashley Gichuki

Weather Conditions: sunny 79°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
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	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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	*	
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	*	
	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
*		

**Additional Notes or Comments:**

During today's inspection, I found just one tree with damage. The top of the tree is snapped off. Please see the attached photos.

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Date: 9/4/20

Name of Inspector Ashley Gichuki

Weather Conditions: partly cloudy 86°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

*During today's inspection, there were no changes to any of the trees.*

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 9/18/20

Name of Inspector Ashley Gichuki

Weather Conditions: mostly cloudy 68°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	
	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
*		Please see attached photos
	*	
	*	
	*	
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Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

Additional Notes or Comments:

During the August inspection, I had noted that tree #61 had either died or had no new growth. During my inspection today, I observed that the tree itself has snapped off from the base (which I'm not able to see). Please see the attached pictures.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 10/2/20

Name of Inspector Ashley Gichuki

Weather Conditions: mostly cloudy 65°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
	*	

Additional Notes or Comments:

During today's inspection, there were no new significant changes since the last inspection was completed.

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Date: 10/16/20

Name of Inspector: Ashley Gichuki

Weather Conditions: light rain 65°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
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**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
*		
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
*		
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**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

Between October 2nd and October 9th, unavoidable impacts occurred. Trees that were located in the area directly above the northwestern edge of "Stage one" were removed to ensure that capping and grading was executed properly. The trees that were removed were #s 1, 2, 3, 4, 10, 16, 23, 26, 29, 31, 32, and 33. This became an opportunity to replace this plant material with material of a larger size and caliper thought to be thriving in the first year of analysis. The replacement of these trees is scheduled to take place on Oct. 22, 2020. Also during this inspection, several trees were observed with signs of damage from buckrubs. Garlic clips were placed on tree #s 39, 43, 45, 55, 57, 58, and 59 in an effort to deter any further rubbing.

The replacement of these trees is scheduled to take place on Oct. 22, 2020. Also during this inspection, several trees were observed with signs of damage from buckrubs. Garlic clips were placed on tree #s 39, 43, 45, 55, 57, 58, and 59 in an effort to deter any further rubbing.



Date: 10/30/20

Name of Inspector Ashley Gichuki

Weather Conditions: cloudy 47°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
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**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
*		
	*	
*		There is buck rub
	*	
	*	
	*	
	*	
	*	
	*	
	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
*		

**Additional Notes or Comments:**

During today's inspection, it was observed that there are a few more trees that have damage from buck rub. The newly affected trees are #s 8, 23, and 28. During different days over the last two weeks, the wind gusts have been a little on the high side. The trees seem to be tolerating this quite well. The tree leaves are also starting to change color with the change of the season, which makes for some beautiful views.

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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Phase 1

Date: 11/13/20

Name of Inspector Ashley Gichuki

Weather Conditions: mostly sunny 53°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	

Photos

- 1 Did you take photos today?

Yes	No	Comments
	*	

Additional Notes or Comments:

During today's inspection, there were no new areas of concern since the last inspection. In an effort to deter the buck rub on the trees, garlic clips have been placed on tree #s 1-34 as this particular area seems to be affected the most during this time of the year.

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Date: 11/27/20

Name of Inspector Ashley Gichuki

Weather Conditions: mostly sunny 56°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
*		
	*	
	*	
	*	
	*	

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
*		Buck rub
	*	
*		
	*	
	*	
	*	
	*	
	*	
	*	

Photos

- 1 Did you take photos today?

Yes	No	Comments
*		

Additional Notes or Comments:

During today's inspection, it was observed that trees have been damaged by deer (bucks rubbing their horns on the trees). As stated in the last inspection, garlic clips had been placed on the trees to try and deter this. The following trees have sustained damage : #4,7,9,23,28,37,38,53,55,56,57,58,59,60,63,66,68,73,87,91, and 98. There is a folder with photos within the VMP file.

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Date: 12/11/20

Name of Inspector Ashley Gichuki

Weather Conditions: foggy 47°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
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	*	
	*	
	*	
	*	
	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

During today's inspection, there were no new areas of concern since the last inspection.

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Date: 12/24/20

Name of Inspector Ashley Gichuki

Weather Conditions: rainy 59°

**Water**

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	

**Animals**

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	

**Vegetation**

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	
	*	

**Photos**

- 1 Did you take photos today?

Yes	No	Comments
	*	

**Additional Notes or Comments:**

During today's inspection, there were no new areas of concern since the last inspection.

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