MAVICKAR Environmental Engineering Consultants
Environmental Engineers & Planners

P.O. Box 62046
Harrisburg, PA 17106-2046

Phone: **717-574-1618**

June 22, 2023

Roger Ballas, Solid Waste Program Manager
Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre PA 18701-1915

RE: Natural Soil Products
Gore composting system
Municipal Waste Minor Permit Modification
Frailey Township
Schuylkill County, PA.

Dear Mr. Ballas,

Kindly find enclosed a digital version of Natural Soil Products' Minor Permit Modification request for the construction and operation of the Gore composting system.

As you agreed to with Matt Ackerly, we found a need to update the Gore construction drawings, being completed by SCS Engineers of Suffern, New York, which we will immediately forward to you as soon as the drawings are updated and professionally sealed.

By separate USPS mailing we have sent you a cheque, [# 2693] in the amount of $300.00 to cover the minor permit modification application fee.

Should you have any questions, kindly let us know. Thank you.

Sincerely,

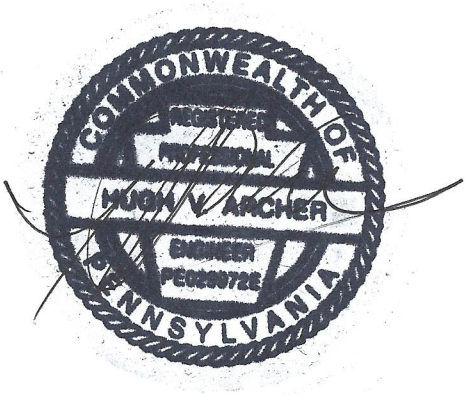
Hugh V. Archer

SOLID WASTE MANAGEMENT MINOR PERMIT MODIFICATION

NATURAL SOIL PRODUCTS

2286 East Center Street
Tremont, PA
Frailey Township, Schuylkill County

I. D. No. 101628



PREPARED BY:

MAVICKAR Environmental Engineering Consultants
Environmental Engineers & Planners

2000 Bonita Court
Harrisburg, PA 17110

MAY 2023

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TABLE OF CONTENTS

MUNICIPAL BIOSOLIDS COMPOSTING
MINOR PERMIT MODIFICATION
GORE Aerated Static Pile System

PERMIT No. 101628

Natural Soil Products

Frailey Township, Schuylkill County

General Information Form

USGS Map

Project Narrative

Public & Municipal Notices

Form A _ Application for Municipal Waste Permit

Forms B & B1 _ Professional Certifications

Form C1 _ Compliance History Certification

Form I _ Soil Erosion & Sedimentation Controls

Form N _ Composting Facilities

Form R1 _ Waste Analysis & Classification

Appendices

Appendix A

Gore System - Site Construction Drawings

Appendix B

Gore System – NSP Demonstration/Pilot Project

Appendix C

Gore System – USEPA Certification

Appendix D

NSP – Incoming Biosolids & Final Compost Characteristics

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

CHECKLIST – MINOR MODIFICATION TO A MUNICIPAL OR RESIDUAL WASTE COMPOSTING PERMIT

This checklist is to assist the Department and the Applicant in assuring that all the forms, notices, documentation and fees required for an application for a minor modification to a municipal or residual waste composting permit have been addressed. This checklist should be signed by the Applicant and submitted to the Department as part of the application package. Failure to do so may cause the application to be administratively incomplete and ineligible for Permit Decision Guarantee (PDG).[1]

This checklist will be utilized by the Department and Applicant during the pre-application meeting to indicate the forms and other information which must be included in the application and public notifications that are needed. The Department will check the appropriate box in the first two columns to indicate the forms and information required ("Req") or not applicable ("N/A"). The Applicant will then ensure the required forms and information are included in the application by checking the corresponding box in the third column.

In cases where no pre-application meeting is held, the Applicant will indicate what forms are included in the application by checking the appropriate boxes in the third column.

The most current version of the forms found on the Department's online eLibrary should be utilized.

Name of Applicant or Permittee Natural Soil Products **Permit No. (if applicable)** 101628

Links to the Department Website for All Permit Application Forms:

Municipal Waste	http://www.portal.state.pa.us/portal/server.pt?open=514&objID=589662&mode=2
Residual Waste	http://www.portal.state.pa.us/portal/server.pt?open=514&objID=589687&mode=2

Standard Permit Forms

Req.	N/A	√	Name	Form No. (Municipal)	Form No. (Residual)
☒	☐	☐	GIF - General Information Form	1300-PM-BIT0001	1300-PM-BIT0001
☒	☐	☐	Form A - Application	2540-PM-BWM0357	2540-PM-BWM0357
☒	☐	☐	Form B - Professional Certification	2540-PM-BWM0358	2540-PM-BWM0358
☒	☐	☐	Form B1 - Application for Certification	2540-PM-BWM0359	2540-PM-BWM0359

[1]DISCLAIMER: The process and procedures outlined in this Checklist are intended to supplement existing requirements. Nothing in the Checklist shall affect regulatory requirements.

The process, procedures and interpretations herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in this Checklist that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

DEP reserves the right to supplement the list of forms and information included on this Checklist at any time during the permit review process. This Checklist should not be construed as an exhaustive list of forms and information to be submitted by the Applicant.

Standard Permit Forms (cont.)

Req.	N/A	√	Name	Form No. (Municipal)	Form No. (Residual)
☒	☐	☐	Form C1 - Compliance History Certification[2]	2540-PM-BWM0351	2540-PM-BWM0351
☐	☐	☐	Form HW-C - Compliance History[2]	2540-FM-BWM0058	2540-FM-BWM0058

[2]Either Form C1 OR Form HW-C should be submitted depending on the modification requested.

Additional Forms Required Based on the Modification Requested

Req.	N/A	√	Name	Form No. (Municipal)	Form No. (Residual)
☐	☒	☐	Form G (A) - Air Resource Protection	2540-FM-BWM0391a	2540-FM-BWM0391a
☒	☐	☐	Form I - Soil Erosion and Sedimentation Control	2540-PM-BWM0390	2540-PM-BWM0390
☐	☒	☐	Form J - Soils Phase II	2540-PM-BWM0376	2540-PM-BWM0376
☐	☐	☐	Form L - Contingency Plan	2540-PM-BWM0384	2540-PM-BWM0384
☒	☐	☐	Form N - Composting Facilities	2540-PM-BWM0381	2540-PM-BWM0381
☐	☐	☐	Form R - Waste Analyses/Classification	2540-PM-BWM0396	2540-PM-BWM0396
☒	☐	☐	Form R1 - Waste Analysis and Classification	2540-PM-BWM0001	2540-PM-BWM0001
☐	☒	☐	Form X - Radiation Protection Action Plan	2500-FM-BWM0430	2500-FM-BWM0430
☐	☐	☐	Form 5 - Map Requirements	2540-PM-BWM0154	
☐	☐	☐	Form 5R - Map Requirements		2540-PM-BWM0363
☐	☒	☐	Form 8 - Baseline Groundwater Analysis, Phase I	2540-PM-BWM0178	
☐	☐	☐	Form 8R - Baseline Groundwater Analysis		2540-PM-BWM0367
☐	☐	☐	Form 12R - Operation Plan		2540-PM-BWM0081
☒	☐	☐	Form 14 - Operation Plan	2540-PM-BWM0011	
☐	☐	☐	Form 18R - Closure-Post Closure Land Use Plan		2540-PM-BWM0385
☐	☐	☐	Form 23R - Control Plans		2540-PM-BWM0392
☐	☐	☐	Form 25R - Source Reduction Strategy		2540-PM-BWM0349
☐	☒	☐	Form 28 - Closure-Post Closure Land Use Plan	2540-PM-BWM0153	

Bonding Worksheets

Req.	N/A	√	Name	Form No. (Municipal)	Form No. (Residual)
☐	☐	☐	Bonding Worksheet Instructions	2540-FM-BWM0580	2540-FM-BWM0580
☐	☒	☐	Composting Facilities	2540-FM-BWM0585	2540-FM-BWM0585

Confidential Information under 25 Pa. Code Chapters 271.5 and 287.5, and the Bureau of Waste Management's "Procedures for Handling Confidential Information Requests" document.

Req.	N/A	√	Description
☐	☒	☐	If proposed by the applicant, a demonstration that application information satisfies the regulatory requirements for confidentiality.

Registration with Pennsylvania Department of State

Req.	√	Name	Form No.
☐	☐	Pennsylvania Enterprise Registration	PA-100

Application Fee

Required	√	Authorization Type	Amount
	☒	Minor Modification	$300

Additional Application Copies

Req.	N/A	√	
☐	☐	☒	One original and 2 additional copies of the application

Notes/Additional Comments

Signature of Applicant or Authorized Representative: _____ Date: 4-20-2023

Printed Name: Hugh V. Archer Title: Principal Engineer

GENERAL INFORMATION

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM -- AUTHORIZATION APPLICATION APPLICANT'S CHECKLIST

This final checklist is to assist the applicant in assuring that all requests for responses, contacts, additional documentation, etc. have been addressed. Please check the following list to make sure that you have included all the required information. Failure to provide all of the requested information will delay the processing of the application and may result in the application being placed on hold with no action, or will be considered withdrawn and the application file closed. This applicant's checklist need not be returned to DEP with your completed application.

		REQUIREMENTS
☐	1.	**ATTACHMENTS.** The completion of the GIF may require the submission of some or all of the following. Where appropriate, include the appropriate attachment(s) with the completed GIF.
	☒	**a) Site Information, Written Directions to Site** – Attach additional sheets as necessary.
	☒	**b) Facility Information, Latitude/Longitude** – Attach additional sheets as necessary.
	☒	**c) Project Information, Project Description** – Attach additional sheets as necessary.
	☒	**d) Project Information, Time Schedules** -- Attach additional sheets as necessary.
	☐	**e) Land Use Information** – Please attached completed County and Municipal Land Use Letters. If County and Municipal Land Use Letters are not included, please attach documentation indicating zoning approval (for early opt-out option), or certified mail receipts indicating that requests for County and Municipal Land Use Letters were sent to the county and municipality. For more information, see GIF Instructions and the Department's Policy for Consideration of Local Comprehensive Plans and Zoning Ordinances in DEP Review of Authorizations for Facilities and Infrastructure – Document ID: 012-0200-001.
	☐	**f) Coordination Information** - If land is disturbed, it may be the applicant's responsibility to also notify the PA Historical and Museum Commission, Bureau of Historic Preservation, 400 North Street, Floor 2, Harrisburg, PA 17120-0093, (717) 787-3362.
		PHMC notification is required for construction activities that have not been exempted under DEP's Policy for PHMC and DEP Coordination During Permit Application Review and Evaluation of Historic Resources:
		For additional information, see Project Review Form instructions to determine whether submission of information to PHMC is required for this permit application.
	☐	**g) Coordination Information, Question 9.0.1** – Attach copy – Act 537 Approval Letter. Note: Approval required prior to 105/NPDES approval.
	☐	**h) Coordination Information, Question 16.0.2** – Attach copy – Public Water Supplier's Agreement Letter to Serve the Project.
☒	2.	**CONTACTS MADE.** According to information provided in the Coordination Information section, the appropriate DEP office may need to be contacted; as well as some agencies outside DEP. See the Instructions document for appropriate contact per coordination question.
		In addition to contacts referenced above, prior to proceeding with any project, DEP encourages applicants to be in touch with municipal and county governments to get information on and secure, if possible, any local permits or approvals that might be required for the project. By doing so, potential conflicts at the local level can be resolved prior to application submission to DEP.
☒	3.	**BEFORE YOU DIG -- CONTACT.** Pennsylvania One Call System at 1-800-242-1776.
☒	4.	**APPLICATION SUBMITTED.** Application has been completed and properly signed according to instructions and type codes; and will be submitted to the appropriate DEP office.

0210-PM-PIO0001 Rev. 10/2020
Application

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This form is used by the Department of Environmental Protection (DEP) to inform our programs regarding what other DEP permits or authorizations may be needed for the proposed project or activity. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the DEP.

Related ID#s (If Known)

Client ID# _____ **APS ID#** _____
Site ID# _____ **Auth ID#** _____
Facility ID# 101628

DEP USE ONLY
Date Received & General Notes

CLIENT INFORMATION

DEP Client ID#
Client Type / Code NPACO
Dun & Bradstreet ID#

Legal Organization Name or Registered Fictitious Name
Natural Soil Products

Employer ID# (EIN) 23-2708742
Is the EIN a SSN? ☐ Yes ☒ NO

State of Incorporation or Registration of Fictious Name
PA

☐ Corporation ☐ LLC ☐ Partnership ☐ LLP ☐ LP
☐ Sole Proprietorship ☐ Association/Organization
☐ Estate/Trust ☒ Other Company

Individual Last Name **First Name** **MI** **Suffix**

Additional Individual Last Name **First Name** **MI** **Suffix**

Mailing Address Line 1
2286 East Center Street

Mailing Address Line 2
P.O. Box 283

Address Last Line – City
Tremont

State PA
ZIP+4 17981
Country U.S.A

Client Contact Last Name
Valiga

First Name
Richard

MI
E

Suffix

Client Contact Title
General Manager

Phone
570-695-2525

Ext

Cell Phone
-917

Email Address
rvaliga@tullyenvironmental.com

FAX
570-695-2568

SITE INFORMATION

DEP Site ID#
Site Name
NSP

EPA ID#
Estimated Number of Employees to be Present at Site 12

Description of Site
Municipal Biosolids Composting Facility

Tax Parcel ID(s):

County Name(s)	Municipality(ies)	City	Boro	Twp	State
Schuylkill	Frailey Township	☐	☐	☒	PA
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

Site Location Line 1
2286 East Center Street

Site Location Line 2
P.O. Box 283

Site Location Last Line – City
Tremont

State PA
ZIP+4 17981

Detailed Written Directions to Site
Interstate 81 south to the Tremont exit (Exit 107). Take SR 209 north into Tremont Borough. At the traffic light make a left and take SR 125 north for approximately 5 miles. The NSP site sits on the right of SR 125.

Site Contact Last Name	First Name	MI	Suffix
Valiga	Richard	E	

Site Contact Title	Site Contact Firm
General Manager	Tully Environmental

Mailing Address Line 1	Mailing Address Line 2
2286 East Center Street	P.O. Box 283

Mailing Address Last Line – City	State	ZIP+4
Tremont	PA	17981

Phone	Ext	FAX	Email Address
570-695-2525		570-695-2568	rvaliga@tullyenvironmental.com

NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)
562	56221

Client to Site Relationship
Owner

FACILITY INFORMATION

Modification of Existing Facility

		Yes	No
1.	**Will this project modify an existing facility, system, or activity?**	☒	☐
2.	**Will this project involve an addition to an existing facility, system, or activity?**	☒	☐

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	Mine Drainage Treatment / Land Recycling Project Location	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	101628
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☐	Water Pollution Control Facility	
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
USGS Tremont Quad	40	38	6	76	26	52

Horizontal Accuracy Measure Feet --or-- Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet --or-- Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet
--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
Natural Soil Products

Project Description
Modification/change of the existing Windrow composting operation to an aerated stastic pile operation

Project Consultant Last Name	**First Name**	**MI**	**Suffix**
Archer	Hugh	V	

Project Consultant Title	**Consulting Firm**
Principal Engineer	Mavickar Environmental Consultants

Mailing Address Line 1	**Mailing Address Line 2**
2000 Bonita Court	

Address Last Line – City	**State**	**ZIP+4**
Harrisburg	PA	17110-3572

Phone	**Ext**	**FAX**	**Email Address**
717-574-1618			harcher@mavickar.com

Time Schedules	**Project Milestone (Optional)**
6 months	Construction of the GORE Aerated Stastic Pile System

1. **Is the project located in or within a 0.5-mile radius of an Environmental Justice community as defined by DEP?** ☐ Yes ☒ No

   To determine if the project is located in or within a 0.5-mile radius of an environmental justice community, please use the online Environmental Justice Areas Viewer.

2. **Have you informed the surrounding community prior to submitting the application to the Department?** ☒ Yes ☐ No

   Method of notification: Act 14 Notifications

3. **Have you addressed community concerns that were identified?** ☒ Yes ☐ No ☐ N/A

   If no, please briefly describe the community concerns that have been expressed and not addressed.

4. **Is your project funded by state or federal grants?** ☐ Yes ☒ No

   Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.

   Aspect of Project Related to Grant
   Grant Source: _____
   Grant Contact Person: _____
   Grant Expiration Date: _____

5. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** ☐ Yes ☒ No

   Note: If "No" to Question 5, the application is not subject to the Land Use Policy.
   If "Yes" to Question 5, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

Note: Applicants should submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1.	**Is there an adopted county or multi-county comprehensive plan?**	☐	Yes	☐	No
2.	**Is there a county stormwater management plan?**	☐	Yes	☐	No
3.	**Is there an adopted municipal or multi-municipal comprehensive plan?**	☐	Yes	☐	No
4.	**Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?**	☐	Yes	☐	No
	Note: If the Applicant answers "No" to either Questions 1, 3 or 4, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 5 and 6 below. If the Applicant answers "Yes" to questions 1, 3 and 4, the Applicant should respond to questions 5 and 6 below.				
5.	**Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation.	☐	Yes	☐	No
6.	**Have you attached Municipal and County Land Use Letters for the project?**	☐	Yes	☐	No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 utilizing the Project Review Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?**	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?**	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?**	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?**	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	☐	Yes	☐	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?**	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?**	☐	Yes	☐	No

2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?**	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?**	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*.	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage.	☒	Yes	☐	No
	4.0.1 **Total Disturbed Acreage** 5 acres				
	4.0.2 **Will the project discharge or drain to a special protection water (EV or HQ) or an EV wetland?**	☐	Yes	☒	No
	4.0.3 **Will the project involve a construction activity that results in earth disturbance in the area of the earth disturbance that are contaminated at levels exceeding residential or non-residential medium-specific concentrations (MSCs) in 25 Pa. Code Chapter 250 at residential or non-residential construction sites, respectively?**	☐	Yes	☒	No
5.0	**Does the project involve any of the following: water obstruction and/or encroachment, wetland impacts, or floodplain project by the Commonwealth/political subdivision or public utility?** If "Yes", respond to 5.1-5.7. If "No", skip to Question 6.0.	☐	Yes	☒	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?**	☐	Yes	☐	No
5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?**	☐	Yes	☐	No
5.3	**Floodplain Projects by the Commonwealth, a Political Subdivision of the Commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?**	☐	Yes	☐	No
5.4	**Is your project an interstate transmission natural gas pipeline?**	☐	Yes	☐	No

5.5	**Does your project consist of linear construction activities which result in earth disturbance in two or more DEP regions AND three or more counties?**	☐	Yes	☐	No
5.6	**Does your project utilize Floodplain Restoration as a best management practice for Post Construction Stormwater Management?**	☐	Yes	☐	No
5.7	**Does your project utilize Class V Gravity / Injection Wells as a best management practice for Post Construction Stormwater Management?**	☐	Yes	☐	No
6.0	**Will the project involve discharge of construction related stormwater to a dry swale, surface water, ground water or separate storm water system?**	☐	Yes	☒	No
6.1	**Will the project involve discharge of industrial waste stormwater or wastewater from an industrial activity or sewage to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?**	☐	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☐	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. **8.0.1 Estimated Proposed Flow (gal/day)**	☐	Yes	☒	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?**	☐	Yes	☒	No
	9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	☐	Yes	☐	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)** Approximately 100,000 dry/tons/year	☒	Yes	☐	No
11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam. **11.0.1 Dam Name**	☐	Yes	☒	No
12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam. **12.0.1 Dam Name**	☐	Yes	☒	No
13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?**	☐	Yes	☒	No
	13.0.1 If "Yes", is the operation subject to the agricultural exemption in 35 P.S. § 4004.1?	☐	Yes	☐	No
	13.0.2 If the answer to 13.0.1 is "No", identify each type of emission followed by the estimated amount of that emission. **Enter all types & amounts of emissions; separate each set with semicolons.**				

14.0	**Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities.	☐	Yes	☒	No
	14.0.1 Number of Persons Served				
	14.0.2 Number of Employee/Guests				
	14.0.3 Number of Connections				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub Fac: Transmission Main	☐	Yes	☐	No
	14.0.9 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?**	☐	Yes	☒	No
16.0	**Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	☐	Yes	☒	No
	16.0.1 Supplier's Name				
	16.0.2 Letter of Approval from Supplier is Attached	☐	Yes	☐	No
17.0	**Will this project be served by on-lot drinking water wells?**	☐	Yes	☐	No
18.0	**Will this project involve a new or increased drinking water withdrawal from a river, stream, spring, lake, well or other water bod(ies)?** If "Yes", reference Safe Drinking Water Program.	☐	Yes	☒	No
	18.0.1 Source Name				
19.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	☒	Yes	☐	No
	19.0.1 Type & Amount Municipal Biosolids/350 tons/day				
20.0	**Will your project involve the removal of coal, minerals, contaminated media, or solid waste as part of any earth disturbance activities?**	☐	Yes	☒	No
21.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
22.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	22.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
23.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	23.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

24.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **24.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No

NOTE: If the project includes the installation of a regulated storage tank system, including diesel emergency generator systems, the project may require the use of a Department Certified Tank Handler. For a full list of regulated storage tanks and substances, please go to www.dep.pa.gov search term storage tanks

25.0	**Will the intended activity involve the use of a radiation source?**	☐	Yes	☐	No

CERTIFICATION

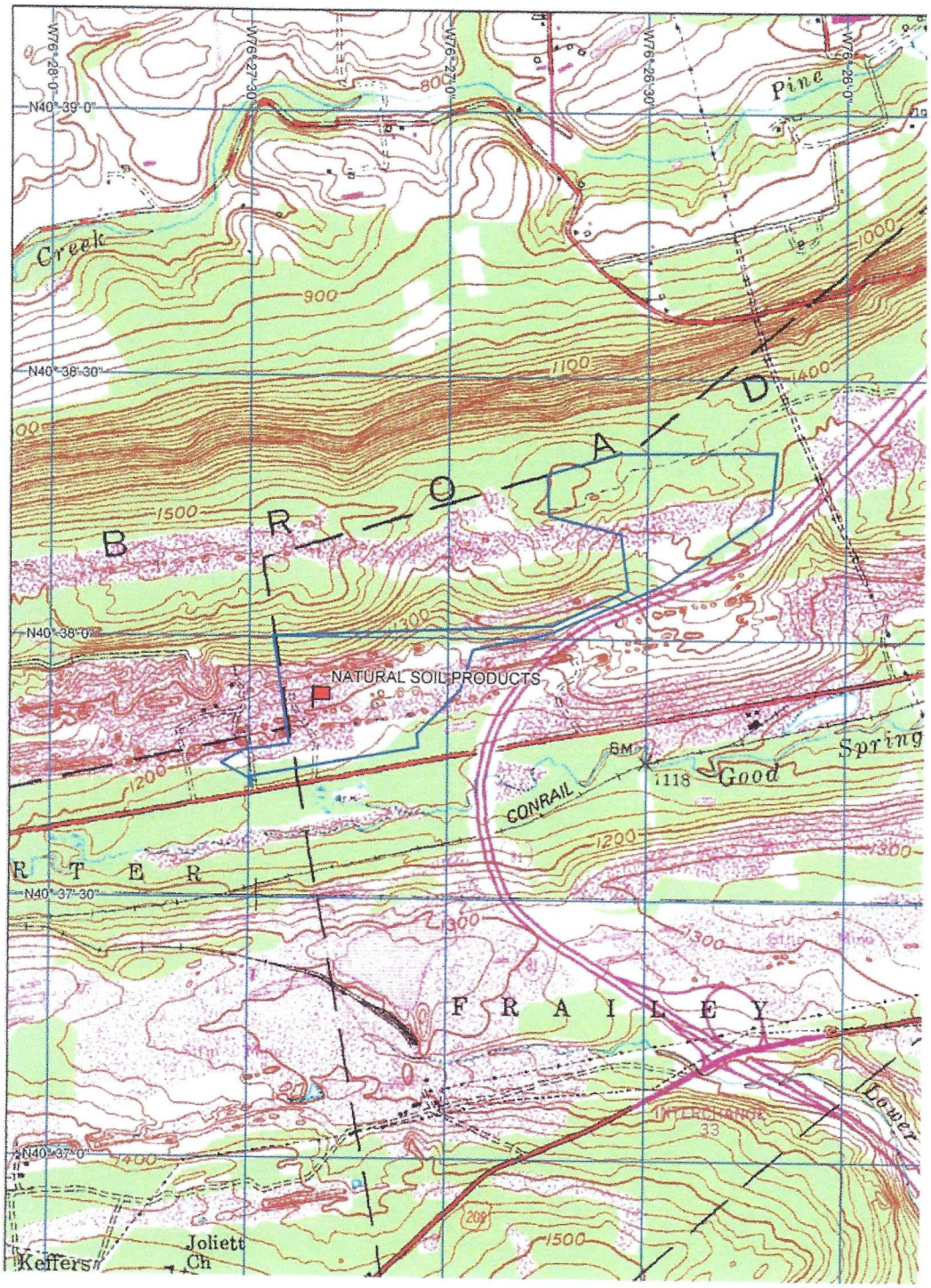
I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

For applicants supplying an EIN number: I am applying for a permit or authorization from the Pennsylvania Department of Environmental Protection (DEP). As part of this application, I will provide DEP with an accurate EIN number for the applicant entity. By filing this application with DEP, I hereby authorize DEP to confirm the accuracy of the EIN number provided with the Pennsylvania Department of Revenue. As applicant, I further consent to the Department of Revenue discussing the same with DEP prior to issuance of the Commonwealth permit or authorization.

Type or Print Name Hugh V. Archer

	Principal Engineer	5/3/2023
Signature	**Title**	**Date**

USGS MAP



USGS QUAD NAME:
TREMONT

NATURAL SOIL PRODUCTS
BIOSOLIDS COMPOSTING
FACILITIES

FRAILEY TOWNSHIP
SCHUYLKILL COUNTY

LATITUDE: 40^0 38' 06"

LONGITUDE: 76^0 26' 52"

Scale 1:24,000

MAVICKAR Environmental Consultants
Environmental Engineers & Planners

5925 Stevenson Avenue
Harrisburg, PA 17112-1794

NATURAL SOIL PRODUCTS

PROJECT NARRATIVE

MUNICIPAL BIOSOLIDS COMPOSTING
MINOR PERMIT MODIFICATION

PROJECT NARRATIVE

NATURAL SOIL PRODUCTS
FRAILEY TOWNSHIP, SCHUYLKILL COUNTY

This permit application is submitted in keeping with the provisions of the Pennsylvania Municipal Waste Regulations at 25 Pa Code Chapters 271 and 281 relating to Composting Facilities. Natural Soil Products (NSP) is submitting this minor permit modification application in compliance with Condition 10(a) of Municipal Waste Processing Permit No. 101628, reissued to Natural Soil Products in February of 2017 with an expiration date of April 15, 2027.

25 Pa code Chapter 271 § 271.222 requires that a permittee that plans to make a change in the municipal waste operational plan different from the plan contained in the application upon which the permit was issued shall file a complete permit modification application with the Pennsylvania Department of Environmental Protection (DEP) prior to making any operational change.

The existing Natural Soil Products' municipal biosolids composting facility is located on approximately 106.5 acres in both Frailey and Porter Townships, Schuylkill County, Pennsylvania. The permitted site which comprises approximately 97.5 acres, lies totally within Frailey Township.

The facility, which began composting operations primarily as a leaf composting facility, now produces an Exceptional Quality biosolids end-product, using the Windrow composting process, with the end-product at present being used for mine land reclamation and general agricultural crops, such as corn grain. The NSP end-product beneficial use is authorized under Water Quality Management General Permit PAG – 072202 issued by DEP on May 16, 2005, for a permit period of five years, expiring in May of 2010.

The Exceptional Quality Biosolids Beneficial Use permit authorizes NSP to sell, give away, or otherwise distribute the composted biosolids in a bag or other container, and to beneficially use the end-product by land reclamation. Section 4.j. of General Permit PAG – 072202 delists the end-product from being regulated as a waste when used in compliance with the conditions and stipulations of the General Permit.

Municipal biosolids, accepted for composting at the NSP facility have been authorized by DEP, (in response to Form 43 requests) by Form No. 13-A "Modification to Solid Waste Disposal and/or Processing Permit" approvals.
The Form 13-A approval(s) stipulates the following compost mix volumetric ratios be maintained at all times to ensure proper composting and an Exceptional Quality end-product:

21.88% biosolids, 46.88% leaves and 31.25% woodchips

Bulking agent(s) (woodchips and leaves) make-up 78% of the compost mix with approximately 22% being municipal biosolids.

The principal purpose of bulking agents, used in the composting process is to allow for sufficient void spacing to be maintained in the compost pile that coupled with windrow turning for an aerobic environment for biological break-down of the organic material, during the composting process. Anaerobic composting gives rise to malodors and is not as efficient as an aerobic process. For optimum biological activity the Carbon to Nitrogen (C:N) ratio needs to be in the range of 20:1 to 30:1. Contrary to popular belief that wood chips provide a carbon source for biological activity, the wood chips are typically too large for their carbon to be readily available for biological uptake and they last anywhere from four to five composting cycles before breaking down. Where the C:N of the incoming biosolids is already in an acceptable range, wood chips simply provide the necessary void spacing facilitating an aerobic environment. Where the incoming biosolids do not have an acceptable C:N ratio, leaves and/or sawdust are much more suitable as an immediate carbon source for the biological activity. The C:N ratio of the incoming Class B biosolids, to NSP, has always demonstrated an acceptable range.

Since sometime in mid-2021 the NSP windrow composting process began generating odor complaints, that was determined to be from, wind patterns, loss of heated steam from the composting windrows, the windrow pile turning frequency and screening of the completed windrow piles, that had not been given enough time to age. These complaints have resulted in NSP reaching an enforceable agreement [Consent Order & Agreement] with the Department of Environmental Protection [DEP] to construct, operate and maintain the proposed Gore Aerated Static Pile composting system.

NSP intends to adopt the new Gore system that has a compost mix volumetric ratio of 3 to 1 **[25% biosolids and 75% wood chips]** or, as already approved for use, 2-to-4-inch tire chips as the bulking agent, with a ratio of **[25% biosolids, 37.5% wood chips and 37.5 tire chips]** This tire chip/wood chip mixture offers several distinct advantages over using wood chips only:

(a) Tire chips are a significantly more effective bulking agent than pure wood chips as the wire contained in the chip works to constantly clean the screens being used.

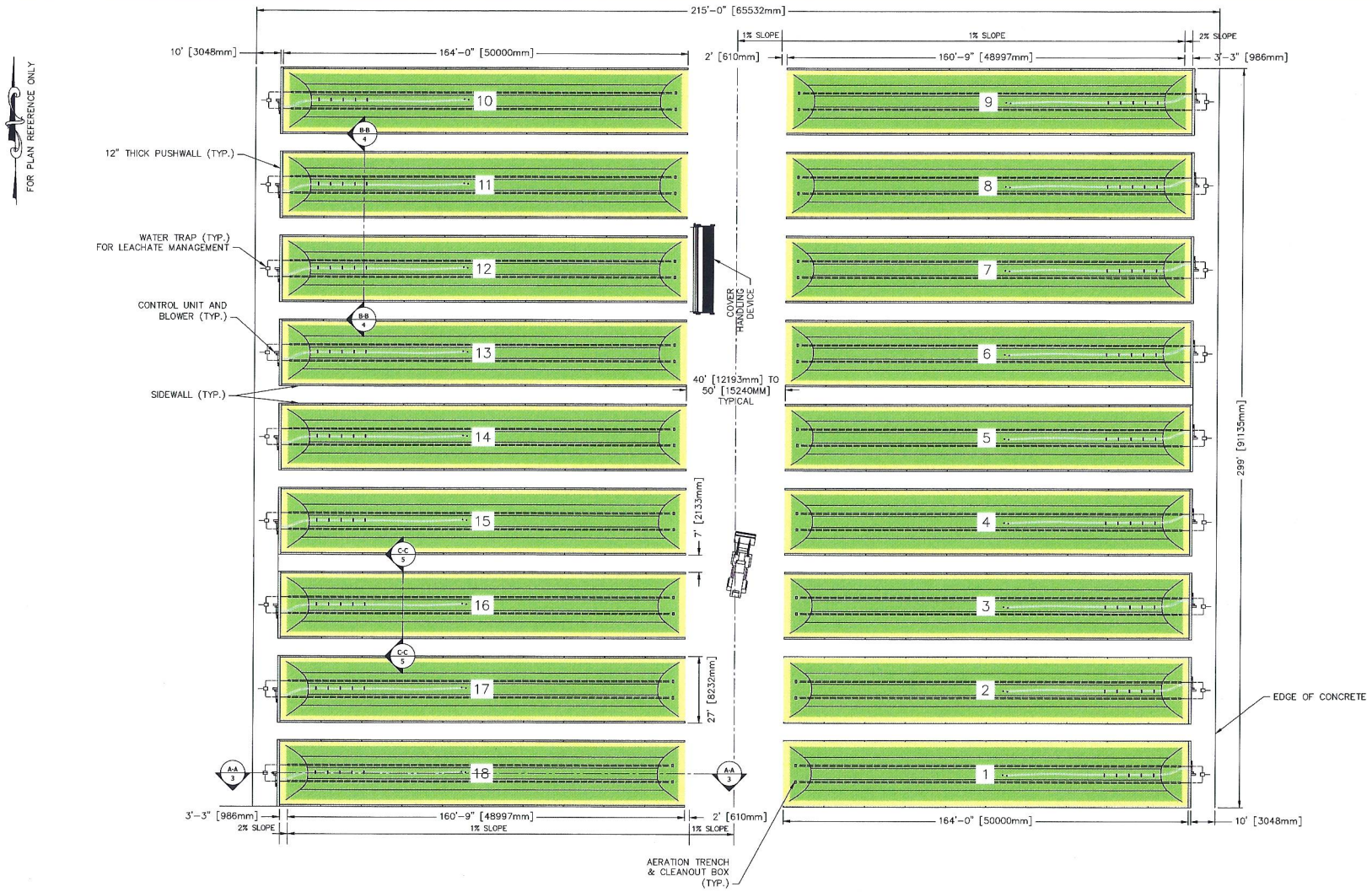
(b) Tire chips offer the environmental advantage of the beneficial reuse of a waste product.

(c) Tire chips offer a significant economic advantage over wood chips, as they are readily available and offer a much longer life cycle.

(d) Tire chips, screened from the compost mix, results in a reduced final compost volume (up to 100%), wood chips that breakdown over 3 to 4 cycles significantly add to the final compost volume.

Appendix B enclosed, contains documentation of a demonstration of the Gore system, done at NSP in the summer of 2022. The documentation includes analytical results for the Gore demonstration, completed by soiltest, Farm Consultants. The analytical results show results well within the 25 Pa Code Chapter 271 § 271.914(b)(3) Table 3 constraints with fecal coliform well within the Exception Quality biocompost limitation stipulated in § 271.932(a)(3)(i). This is consistent with the USEPA certification enclosed in Appendix C.

The Gore composting system utilizes a rather unique blanket cover system that essentially has replaced the traditional air capture from the aerated static pile, which is then run through a biofilter for final cleaning before release into the ambient environment. The Gore cover is weighted and sealed allowing for an in-vessel enclosure system with even distribution of the positive aeration, and which reliably adapts to variations of oxygen demand in the composting pile. The system comes with oxygen and temperature monitoring, providing for constant and consistent control of the composting process. In addition to ensuring a positive aerobic environment, in the composting piles, the cover retains potential odorous compounds by capturing these compounds in a water film that develops on the inner side of the cover, from the heated water vapor generated by the pile. This condensate then drips/falls back into the aerobic composting pile for further biological treatment. Management of the leachate from the composting piles will be accomplished through a constructed drainage and containment system that will be emptied and the leachate taken to a permitted wastewater treatment facility for final disposal. Typical layout drawings for an18 bed Gore Composting System are shown below. Construction drawings for the Gore system planned for NSP is contained in Appendix A.



20 10 0 20 40
SCALE: 1"=20'

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NO.	REVISION	DATE
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SHEET TITLE: **TYPICAL LAYOUT PLAN SG BUNKER® SYSTEM GORE® COVERS**

PROJECT TITLE: **18 BUNKER TYPICAL YOUR TOWN, USA**

CLIENT: **SUSTAINABLE GENERATION, LLC**
110 SOUTH POPLAR STREET
WILMINGTON, DE 19801

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
1 EXECUTIVE BLVD, SUITE 203, SUFFERN, NY 10901
PH: (845) 357-1810 FAX: (845) 357-1049

PROJ. NO.: 02222701.0016 | DWN. BY: SHY | Q/A RVW BY:
DSN. BY: | CHK. BY: GPM | APP. BY:

CADD FILE: Site Plan SG Typ.dwg
DATE: 3/23/23
SCALE: 1" = 20'
DRAWING NO. **2** of **6**

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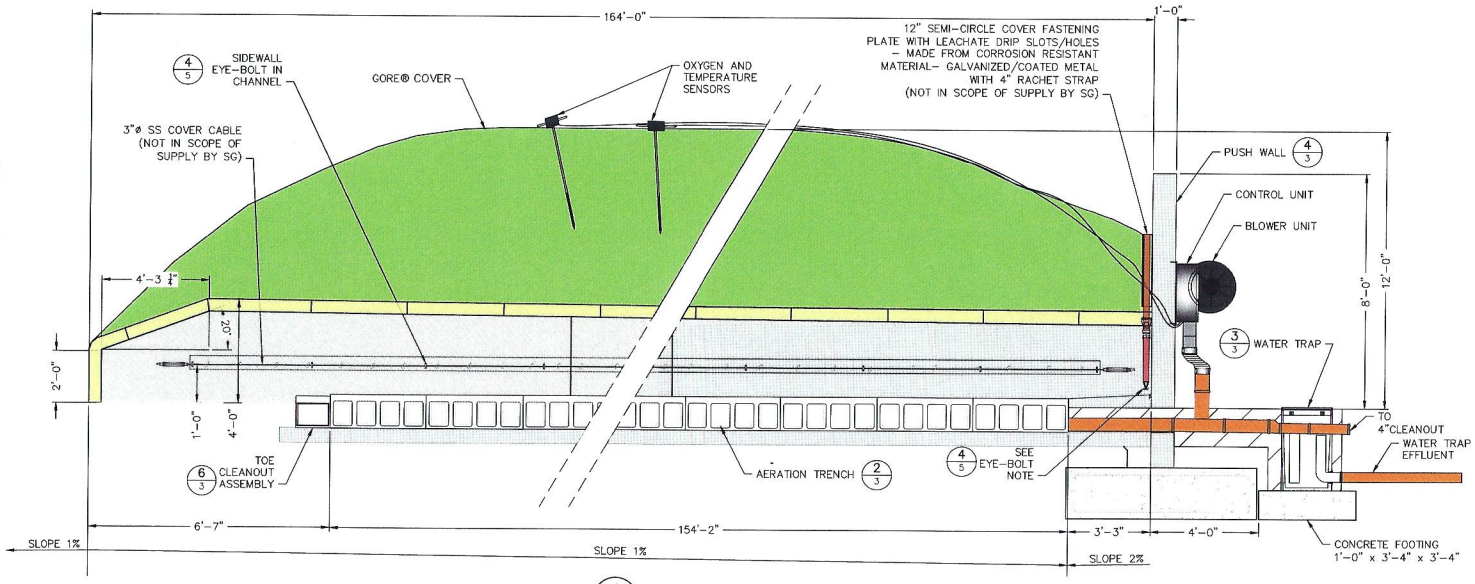
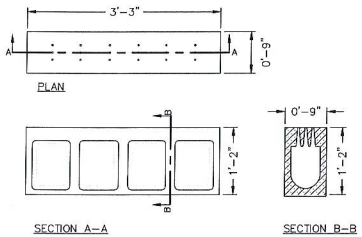


1/3 BUNKER PROFILE A–A
NO SCALE



2/3 AERATION TRENCH DETAIL
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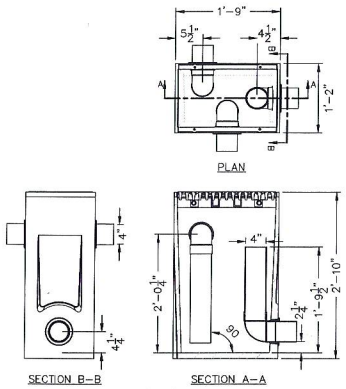
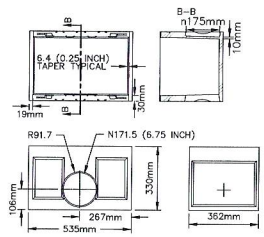
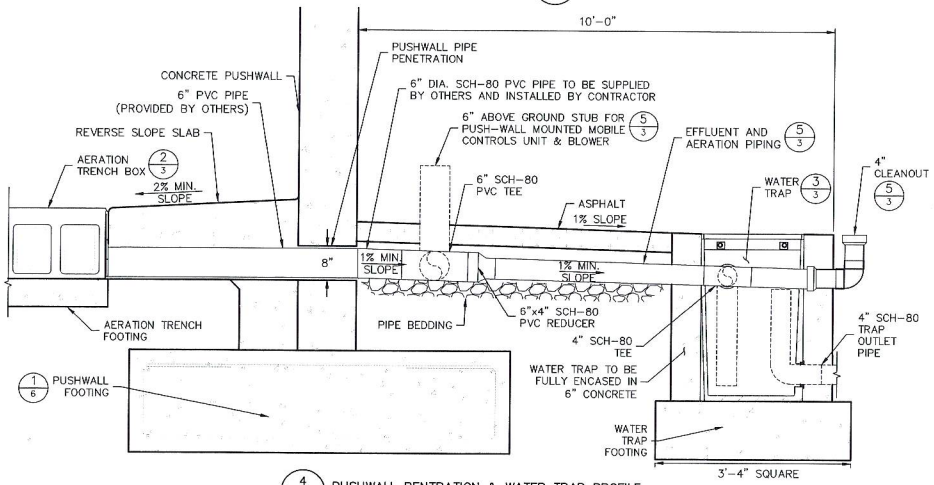


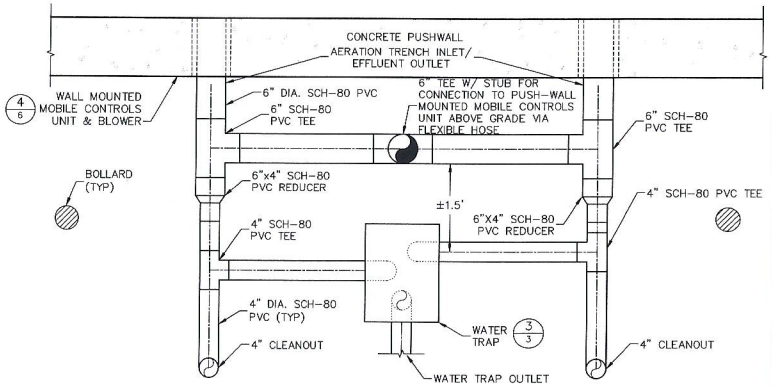
3/3 WATER TRAP DETAIL
NO SCALE
SEE NOTE 4.



6/3 CLEANOUT BOX DETAIL
NO SCALE



4/3 PUSHWALL PENTRATION & WATER TRAP PROFILE
NO SCALE



5/3 EFFLUENT COLLECTION & AERATION PIPING PLAN
NO SCALE

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GENERAL CONSTRUCTION NOTES:

1. CONCRETE DETAIL/ SPECIFICATION SHALL BE PROVIDED BY THE LOCAL PROFESSIONAL ENGINEERING COMPANY GENERATING THE CONSTRUCTION DRAWINGS.
2. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE PH (TYP. 4 to 8) OR CHEMICAL CORROSION (TYP. SIMILAR TO CORROSION EXPERIENCED ON A TRANSFER STATION FLOOR) PROTECTION.
3. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE TEMPERATURE FLUCTUATION PROTECTION. CONCRETE SHOULD WITHSTAND LONG PERIODS OF HIGH TEMPERATURES (UP TO 180° F) AND MUST ALSO BE ABLE TO WITHSTAND AMBIENT TEMPERATURES THROUGH SEASONAL FLUCTUATIONS SUCH AS WINTER CONDITIONS BELOW FREEZING.
4. WATER TRAP CONSTRUCTED FROM REINFORCED FIBERGLASS.

NO.	REVISION	DATE

SHEET TITLE: BUNKER PROFILE A-A

PROJECT TITLE: 18 BUNKER TYPICAL YOUR TOWN, USA

CLIENT: SUSTAINABLE GENERATION, LLC
110 SOUTH POPLAR STREET
WILMINGTON, DE 19801

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4 CORPORATE PARK, IRVINE, CA 92606
PH. (949) 357-1510 FAX. (949) 357-1049

PROJ. NO. 02222701.0010 | DATE: 3/23/23 | Dwn. BY: SHY | Chk. BY: CPM | Q/A RVW BY: | APP. BY:

CADD FILE: Bunker Sections_Details
DATE: 3/23/23
SCALE: NONE
DRAWING NO. 3 of 6

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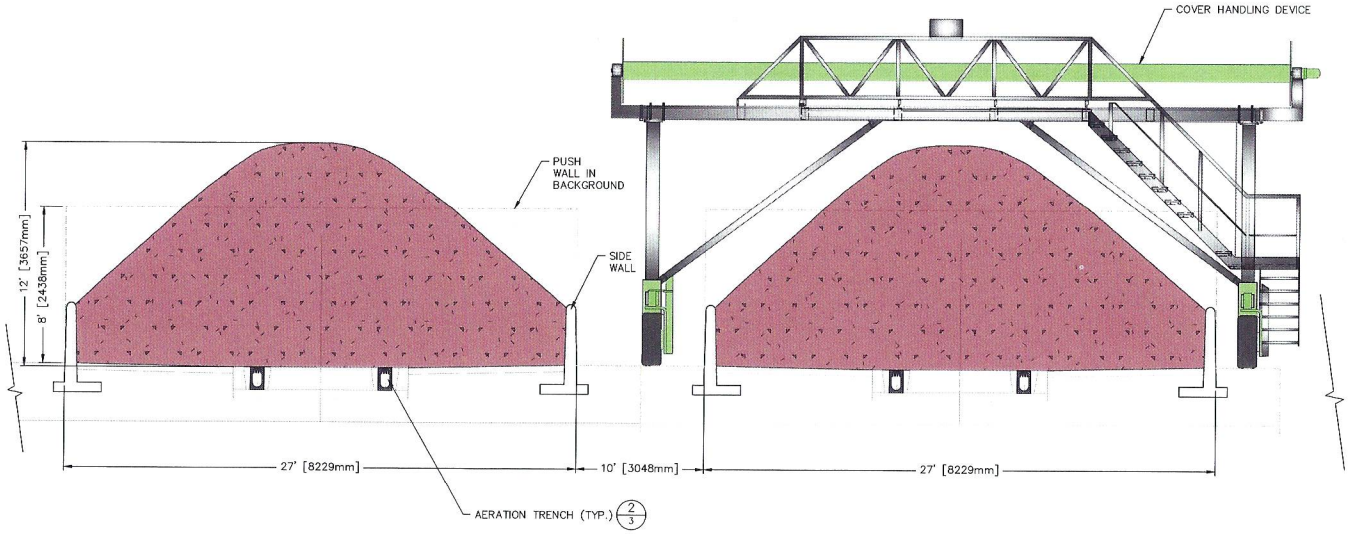

GENERAL CONSTRUCTION NOTES:

1. CONCRETE DETAIL/ SPECIFICATION SHALL BE PROVIDED BY THE LOCAL PROFESSIONAL ENGINEERING COMPANY GENERATING THE CONSTRUCTION DRAWINGS.
2. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE PH (TYP. 4 to 8) OR CHEMICAL CORROSION (TYP. SIMILAR TO CORROSION EXPERIENCED ON A TRANSFER STATION FLOOR) PROTECTION.
3. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE TEMPERATURE FLUCTUATION PROTECTION. CONCRETE SHOULD WITHSTAND LONG PERIODS OF HIGH TEMPERATURES (UP TO 180° F) AND MUST ALSO BE ABLE TO WITHSTAND AMBIENT TEMPERATURES THROUGH SEASONAL FLUCTUATIONS SUCH AS WINTER CONDITIONS BELOW FREEZING.

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NO.	REVISION	DATE
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△		
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SHEET TITLE: BUNKER SECTION B-B

PROJECT TITLE: 18 BUNKER TYPICAL YOUR TOWN, USA

CLIENT: SUSTAINABLE GENERATION, LLC
110 SOUTH POPLAR STREET
WILMINGTON, DE 19801

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
CORPORATE HEADQUARTERS, SUITE 100, ALBANY, NY 12205
PH. (845) 357-1510 FAX. (845) 357-1049

CADD FILE: Bunker Sections_Details
DATE: 3/23/23
SCALE: NTS
DRAWING NO. 4 of 6

PROJ. NO. 02222701.00TS | DWG. BY: SHY | Q/A RVW BY: |
SHT. SIZE: GPM | CHK. BY: GPM | APP. BY: |

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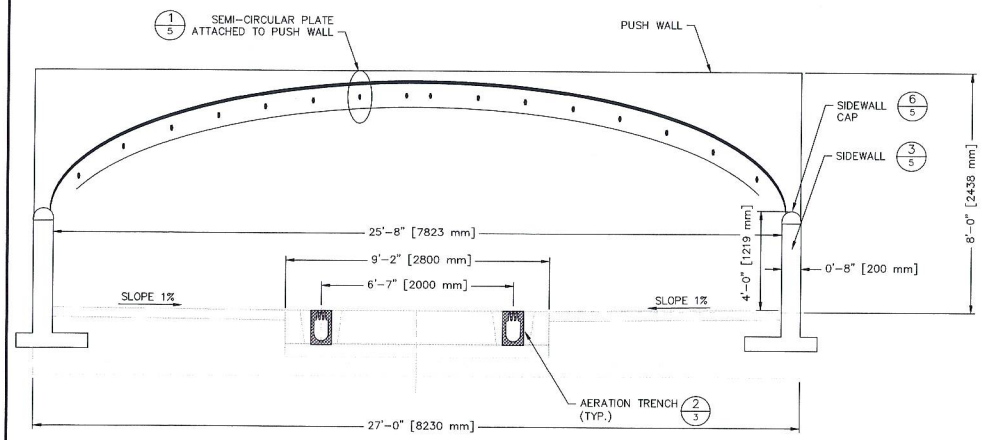

C-C/5 BUNKER SECTION C-C
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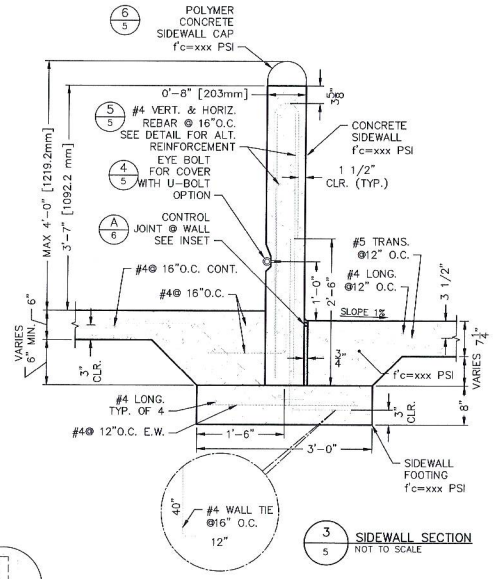

3/5 SIDEWALL SECTION
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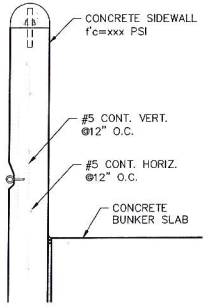

5/5 ALTERNATE REINFORCING OF SIDEWALL
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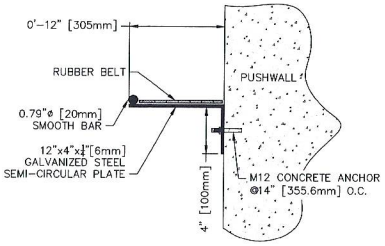

1/5 SEMI-CIRCULAR PLATE ATTACHMENT PROFILE
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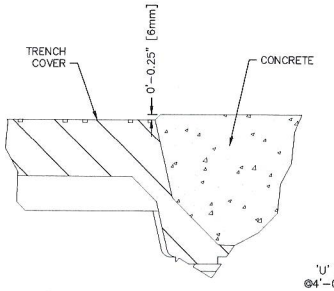

2/5 BUNKER FLOOR AT TRENCH COVER
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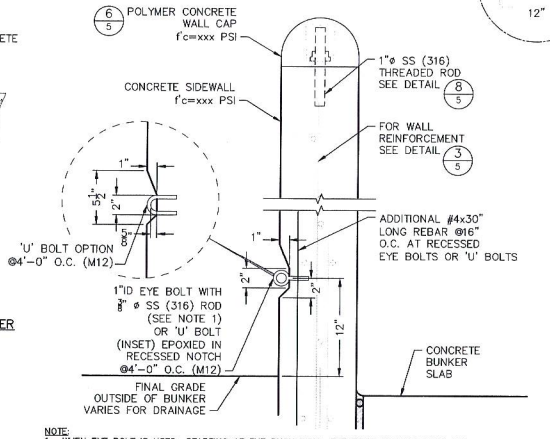

NOTE:
1. WHEN EYE BOLT IS USED: STARTING AT THE PUSH WALL, THE FIRST EYE BOLT WILL BE POSITIONED HORIZONTALLY (FOR 4" RACHET STRAP). THE REST WILL BE POSITIONED VERTICALLY FOR COVER CABLE.

4/5 SIDEWALL 'U' BOLT W/ EYE BOLT OPTION & CAP WALL ANCHOR BOLT DETAIL
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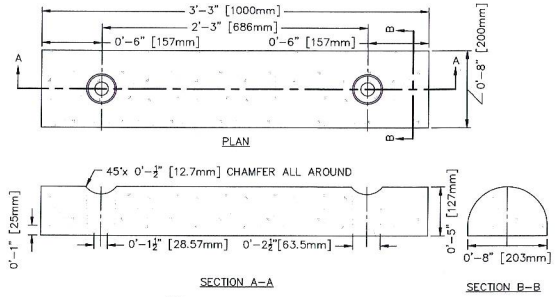

6/5 POLYMER CONCRETE WALL CAP DETAIL
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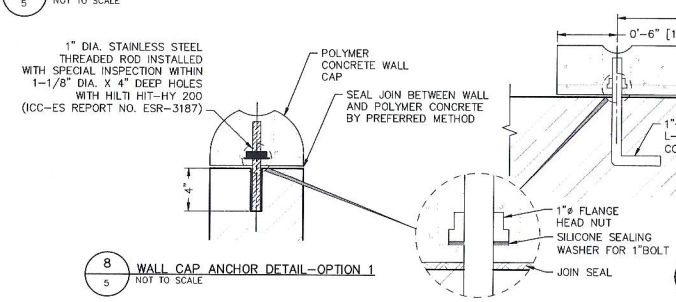
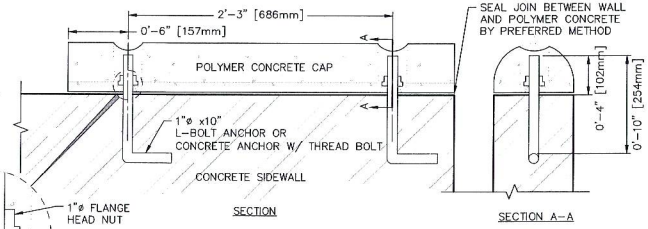


8/5 WALL CAP ANCHOR DETAIL-OPTION 1
NOT TO SCALE



7/5 WALL CAP ANCHOR DETAIL-OPTION 2
NOT TO SCALE

GENERAL CONSTRUCTION NOTES:

1. CONCRETE DETAIL/ SPECIFICATION SHALL BE PROVIDED BY THE LOCAL PROFESSIONAL ENGINEERING COMPANY GENERATING THE CONSTRUCTION DRAWINGS.
2. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE PH (TYP. 4 to 8) OR CHEMICAL CORROSION (TYP. SIMILAR TO CORROSION EXPERIENCED ON A TRANSFER STATION FLOOR) PROTECTION.
3. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE TEMPERATURE FLUCTUATION PROTECTION. CONCRETE SHOULD WITHSTAND LONG PERIODS OF HIGH TEMPERATURES (UP TO 180° F) AND MUST ALSO BE ABLE TO WITHSTAND AMBIENT TEMPERATURES THROUGH SEASONAL FLUCTUATIONS SUCH AS WINTER CONDITIONS BELOW FREEZING.

FOR LAYOUT PURPOSES ONLY
NOT FOR CONSTRUCTION

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ALL RIGHTS RESERVED.

NO.	REVISION	DATE

SHEET TITLE: DETAILS 1
PROJECT TITLE: 18 BUNKER TYPICAL YOUR TOWN, USA

CLIENT: SUSTAINABLE GENERATION, LLC
110 SOUTH POPLAR STREET
WILMINGTON, DE 19801

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
CLIFTON PARK, SARATOGA SPRINGS, NY 10801
PH. (845) 357-1510 FAX. (845) 357-1049

PROJ. NO. 02222701.0016 | DWN. BY: SHY | Q/A RVW BY: | DSN. BY: | APP. BY: | CHK. BY: GPM

CADD FILE: Bunker Sections_Details
DATE: 3/23/23
SCALE: AS SHOWN
DRAWING NO. 5 of 6

I:\PROJECTS\02222701.02\DRAWINGS\TYPICAL\189_50M_8' PUSH_WALL\BUNKER SECTIONS_DETAILS.DWG layout: DETAILS 1 plotted on: 3/23/2023 8:40 AM Yevchak, Sharon

PUBLIC & MUNICIPAL NOTICES

MAVICKAR Environmental Engineering Consultants
Environmental Engineers & Planners

P.O. Box 62046
Harrisburg, PA 17106-2046

Phone: **717-574-1618**
harcher@mavickar.com

May 10, 2023

CERTIFIED MAIL NO. 7021 0350 0001 7728 0018

Donald Allar, Chairperson
Frailey Township Board of Supervisors
23 Maryland Street
Donaldson, PA 17981-1119

Re: Natural Soil Products
Municipal Waste Composting Facility
Frailey Township, Schuylkill County

Dear Supervisors:

In compliance with the requirements of Act 14 and the public notification stipulations of 25 Pa. Code Chapter 271 § 271.141 Natural Soil Products (NSP) hereby gives written notice of its intent to file a minor permit modification application with the Pennsylvania Department of Environmental Protection (DEP).

The minor permit modification request is seeking approval from DEP to modify/upgrade the existing Windrow biosolids processing process to a patented Gore forced air fixed windrow system to provide for the complete mitigation/treatment of potential malodors. The Gore windrow process will ensure and maintain an aerobic windrow process which was demonstrated at the NSP composting facilities in July of 2022.

This minor permit modification request will be submitted under the provisions of the Act of July 7, 1980, P. L. 380 No. 9[illegible] as amended 35 P. S. Section 6018.101 et seq. ("Solid Waste Management Act"), and the [illegible] Code Chapter 271 § 271.22[illegible] minor permit modification re[illegible] number. If you would like to [illegible] DEP at the following addres[illegible] Office, 2 Public Square, Will[illegible]

Sincerely,

Hugh V. Archer, Ph.D., P. E[illegible]
President

SENDER: COMPLETE THIS SECTION
- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
FRAILEY TOWNSHIP SUPERVISORS
23 MARYLAND STREET
DONALDSON, PA 17981

9590 9402 6593 1028 2796 57

2. Article Number (Transfer from service label)
7021 0350 0001 7728 0018

COMPLETE THIS SECTION ON DELIVERY
A. Signature
X [illegible] ☐ Agent ☐ Addressee
B. Received by (Printed Name) [illegible] C. Date of Delivery 5/18/23
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

MAVICKAR Environmental Engineering Consultants
Environmental Engineers & Planners

P.O. Box 62046
Harrisburg, PA 17106-2046

Phone: 717-574-1618 harcher@mavickar.com

May 10, 2023

CERTIFIED MAIL NO. 7021 0350 0001 7728 0230

Schuylkill County Board of Commissioners
401 North Second Street
Pottsville, PA 17901-1756

Re: Natural Soil Products
Municipal Waste Composting Facility
Frailey Township, Schuylkill County

Dear Commissioners:

In compliance with the requirements of Act 14 and the public notification stipulations of 25 Pa. Code Chapter 271 § 271.141 Natural Soil Products (NSP) hereby gives written notice of its intent to file a minor permit modification application with the Pennsylvania Department of Environmental Protection (DEP).

The minor permit modification request is seeking approval from DEP to modify/upgrade the existing Windrow biosolids processing process to a patented Gore forced air fixed windrow system to provide for the complete mitigation/treatment of potential malodors. The Gore windrow process will ensure and maintain an aerobic windrow process which was demonstrated at the NSP composting facilities in July of 2022.

This minor permit modification request will be submitted under the provisions of the Act of July 7, 1980, P. L. 380 No. 97 as amended 35 P. S. Section 6018.101 et seq ("Solid Waste Management Act"), and the regulations promulgated thereunder, Title 25 Pennsylvania Code Chapter 271 § 271.22 minor permit modification re number. If you would like to DEP at the following addres Office, 2 Public Square, Will

Sincerely,

Hugh V. Archer, Ph.D., P. E
President

SENDER: COMPLETE THIS SECTION
- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
SCHUYLKILL COUNTY COMMISSIONERS
401 NORTH SECOND STREET
POTTSVILLE, PA 17901-1756

9590 9402 6593 1028 2796 64

2. Article Number (Transfer from service label)
7021 0350 0001 7728 0230

COMPLETE THIS SECTION ON DELIVERY
A. Signature
X Barbara Barone ☐ Agent ☐ Addressee
B. Received by (Printed Name) Barbara Barone
C. Date of Delivery 5-15-
D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricte Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

MUNICIPAL WASTE PERMIT APPLICATION

FORM A

2540-PM-BWM0357 Rev. 10/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Coordination #

FORM A
APPLICATION FOR MUNICIPAL OR RESIDUAL WASTE PERMIT

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided herein. Replacement/substitution of or attachment to this form is prohibited. Improperly completed forms may be rejected by the Department, may be considered to be violations of the Department's Rules and Regulations, and may result in assessment of fines and penalties.

SECTION A. APPLICANT IDENTIFIER (Check one of the boxes and identify both)

☒ Owner
Name: Tully Environmenta, Inc.l
Address: 2286 East Center Street, P.O. Box283, Tremont, PA 17981
Phone #: 570-695-2525
Email: rvaliga@tullyenvironmental.com

☐ Operator
Name: Natural Soil Products
Address: 2286 East Center Street, P.O. Box283, Tremont, PA 17981
Phone #:
Email:

SECTION B. TYPE OF FACILITY

- Municipal Waste Landfill ☐
- Construction/Demolition Waste Landfill ☐
- Municipal Waste Composting Facility ☐
- Municipal Waste Incinerator or Resource Recovery Facility ☐
- Municipal Waste Demonstration Facility ☐
- Municipal Waste Transfer Facility ☐
- Municipal Waste Processing Facility ☒
- Other, Specify ☐

- Residual Waste Landfill ☐
  - Class I ☐
  - Class II ☐
  - Class III ☐
- Residual Waste Disposal Impoundment
  - Class I ☐
  - Class II ☐
- Residual Waste Composting Facility ☐
- Residual Waste Demonstration Facility ☐
- Residual Waste Transfer Facility ☐
- Residual Waste Incinerator or Other Processing Facility ☐
- Residual Waste Agricultural Utilization ☐
- Residual Waste Land Reclamation ☐
- Oil and Gas Wastewater Storage Impoundment ☐
- Other, Specify ☐

SECTION C. MAP LOCATION

U.S.G.S. Map Location of Facility (attach the map and identify location on the USGS map)

7.5" Map Name Tremont

Center of Facility:

Latitude 40 ° 38 ' 06 " Longitude 76 ° 26 ' 52 "

SECTION D. GENERAL INFORMATION

Number of New Acres Proposed for Permit (Issued) _____ •

Number of Acres Proposed for Permit (New) _____ •

Total Acres of the Property 106 • 5

Number of Previously Permitted Acres 97 • 5

Current Permit ID Number(s) 101628

SECTION E. AFFIDAVIT

COMMONWEALTH/STATE OF Pennsylvania
ss:
COUNTY OF Montgomery

Sworn and subscribed to before me this 23rd day of June 2023 by Richard Valiga.

Adriana Donat
NOTARY PUBLIC

Commonwealth of Pennsylvania - Notary Seal
ADRIANA DONAT, Notary Public
Montgomery County
My Commission Expires October 19, 2024
Commission Number 1382423

My Commission Expires 10/19/2024

Print or type name to be Signed: Richard E. Valiga, P.E., DEE Date 6-23-2023

Date: 6-23-2023

I, _____ (Signature of Applicant) do hereby certify pursuant to the penalties of 18 Pa. C.S.A. Section 4904 to the best of my knowledge, information, and belief that the information contained in this application is true and correct and is in conformance with 25 PA. Code Chapters 271 or 287, whichever is applicable, of the rules and regulations of the Department of Environmental Protection.

SECTION F. APPLICATION FEE

A. Municipal Facilities

i. Application for new permit, or repermitting. (ref. 271.128)

- ☐ $18,500 – Municipal Waste Landfill
- ☐ $19,250 – Construction/Demolition Waste Landfill
- ☐ $4,400 – Transfer Facility
- ☐ $1,900 – Incinerator or Resource Recovery Facility
- ☐ $4,000 – Other Municipal Waste Processing Facility, including Composting Facility
- ☐ $17,300 – Demonstration Facility

ii. Application for a major permit modification.

- ☐ $300 – Addition of types of waste not approved in the permit
- ☐ $7,800 – Municipal Waste Landfill and Construction/Demolition Waste Landfill
- ☐ $700 – Transfer Facility
- ☐ $1,500 – Incinerator or Resource Recovery Facility
- ☐ $700 – Other Municipal Waste Processing Facility, including Composting Facility
- ☐ $6,700 – Demonstration Facility

iii. ☐ $300 – Permit Reissuance

iv. ☐ $300 – Permit Renewal

v. ☒ $300 – Minor Permit Modification

SECTION F. APPLICATION FEE (Continued)

A. Residual Facilities

i. Application for new permit, or repermitting. (ref. 287.141)

- ☐ $25,900 – Residual Waste Landfill
- ☐ $8,500 – Residual Waste Disposal Impoundment
- ☐ $5,200 – Residual Waste Transfer Facility
- ☐ $8,300 – Residual Waste Noncaptive Incinerator
- ☐ $2,200 – Residual Waste Captive Incinerator
- ☐ $5,200 – Other Waste Processing Facility, including Composting Facility
- ☐ $8,500 – Residual Waste Demonstration Facility
- ☐ $5,100 – Residual Waste Land Reclamation
- ☐ $5,100 – Residual Waste Agricultural Utilization
- ☐ $8,500 – Oil and Gas Wastewater Storage Impoundment

ii. Application for a major permit modification.

- ☐ $600 – Addition of types of waste not approved in the permit
- ☐ $7,800 – Residual Waste Landfill
- ☐ $600 – Residual Waste Agricultural Utilization
- ☐ $1,900 – Residual Waste Land Reclamation
- ☐ $1,500 – Residual Waste Incinerator Facility
- ☐ $700 – Residual Waste Transfer or Other Processing Facility, including Composting Facility
- ☐ $5,800 – Residual Waste Demonstration Facility
- ☐ $4,600 – Residual Waste Disposal Impoundment
- ☐ $4,600 – Oil and Gas Wastewater Storage Impoundment

iii. ☐ $400 – Residual Waste Permit Reissuance

iv. ☐ $300 – Residual Waste Permit Renewal

v. ☐ $300 – Residual Waste Minor Permit Modification

SECTION G. PUBLIC NOTICE - SECTION 271.141 (MUNICIPAL), 287.151 (RESIDUAL)

For a new permit, major permit modification, permit renewal, permit reissuance, and submission of a closure plan, attach the proof of public notice for each of the following:

1. Newspaper - Attach the name of the newspaper, circulation location, copies of the notice, and dates of publication.
2. Municipality - Attach copies of the written notices sent to the host township and host county, and copies of the returned certified mail signature cards.
3. Contiguous Landowners - Attach copies of the written notice(s) sent to each landowner and copies of the returned certified mail signature cards.

SECTION H. MUNICIPAL WASTE MANAGEMENT PLANS AND PERMITS

For a new permit, major permit modification, permit renewal, or permit reissuance of a municipal waste landfill or resource recovery facility permit, is the proposed facility located in a county that has an approved municipal waste management plan that complies with Section 513 of Act 101? Yes ☐ No ☒

If the above answer is "yes", the applicant must complete form 46 - Relationship between Municipal Waste Management Plans and Permits.

NOTE: For each permit application, please submit the original (mark as such) and additional copies as requested by the Department's regional office.

CERTIFICATIONS

FORMS B & B1

2540-PM-BWM0358 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised 6/22/2023
DEP USE ONLY
Date Received

FORM B
PROFESSIONAL CERTIFICATION

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form B, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 271.122, 287.122

SECTION A. SITE IDENTIFIER

Applicant/permittee: Natural Soil Products

Site Name: Natural Soil Products

Facility ID (as issued by DEP): 101628

SECTION B. REGISTERED PROFESSIONAL ENGINEER

I, Hugh V. Archer
(Engineer's Name – Print or Type)

being a Registered Professional Engineer in accordance with the Pennsylvania Professional Engineer's Registration Law, do hereby certify to the best of my knowledge, information, and belief that the information contained in the accompanying application, plans, specifications, and reports has been prepared in accordance with accepted practice of engineering, are true and correct, and are in accordance with the Rules and Regulations of the Department of Environmental Protection. I also certify that those individuals indicated in the following paragraphs prepared this application under my supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Signature _____ Date 6/22/2023

License Number PE029972E Expiration Date 9/30/2023

Address 2000 Bonita Court
Harrisburg PA 17110-3572

Telephone No. (717) 574-1618

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL SEAL
HUGH V. ARCHER
ENGINEER
PE029972E

2540-PM-BWM0359 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised 6/22/2023
DEP USE ONLY
Date Received

FORM B1
APPLICATION FORM CERTIFICATION

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form B1, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

SECTION A. SITE IDENTIFIER

Applicant/permittee: Natural Soil Products

Site Name: Natural Soil Products

Facility ID (as issued by DEP): 101628

SECTION B. CERTIFICATION

Professional Engineer

I, Hugh V. Archer
(Engineer's Name -Print or Type)

being a Registered Professional Engineer in accordance with the Pennsylvania Professional Engineer's Registration Law, do hereby certify that the forms used in the accompanying application have been reproduced under my supervision and have the same exact content and the same format as the forms prepared by the Department. I am aware that there are significant penalties for altering the content of the Department's forms, including the possibility of fines and imprisonment.

Signature _____ Date 6/22/2023

License Number PE029972E Expiration Date 9/30/2023

Address 2000 Bonita Court
Harrisburg, PA 17110-3572

Professional Seal

Telephone No. (717) 574-1618

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
HUGH V. ARCHER
ENGINEER
PE029972E

Recycled Paper

COMPLIANCE HISTORY

FORM HW-C

2540-PM-BWM0351 Rev. 9/2013

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

DEP USE ONLY
Date Received

FORM C1
COMPLIANCE HISTORY CERTIFICATION

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided herein. Improperly completed forms may be rejected by the Department, may be considered to be violations of the Department's Rules and Regulations, and may result in assessment of fines and penalties.

Instructions:

If your last Form HW-C does not require to be amended, execute the certification Form C1 Compliance History Certification (2540-PM-BWM0351 Rev. 9/2013) indicating that the Form HW-C, on file is complete and current. Be sure the form is properly signed, sealed, and notarized. Please note that the date on the certification Form C1 must be the date the HW-C, on file, was notarized.

If the applicant, permittee, or licensee ("application") is a corporation, this form must be signed by two corporate officers (a president or vice-president and a secretary or treasurer) authorized to execute the form or by one corporate officer and one corporate employee in Pennsylvania with sufficient authority over the solid waste management activity being licensed or permitted to execute this form on behalf of the corporation. **ATTACH A COPY OF THE ARTICLES OF INCORPORATION OF THE APPLICANT.**

SECTION A. APPLICANT IDENTIFIER

Facility Name: Natural Soil Products

SECTION B. CERTIFICATION

This is to certify that no changes, additions, or other supplemental data are required to amend the most recent form HW-C, Compliance History dated 1/23/2023 and submitted to the Pennsylvania Department of Environmental Protection by Natural Soil Products, which amendments would update and make current and complete all the information provided therein. The Compliance History now in the Department's possession reflects the Company's current status of officers, corporate structure as applicable, and compliance with environmental laws and regulations, and there are no instances of unlawful conduct as defined by the Pennsylvania Solid Waste Management Act of July 7, 1980 (35 P.S. §6018.610) that have not been corrected to the satisfaction of the Department.

(Signature)

Name: Richard E Valiga
(Print or Type Name)

Title: General Manager
(Print or Type Title)

Sworn to and subscribed before me this 17th day of June 2023.

Patty Jean Bair
Notary Public

COMMONWEALTH OF PENNSYLVANIA - NOTARY SEAL
Patty Jean Bair, NOTARY PUBLIC
Montgomery County
My Commission Expires 08/11/2025
Commission Number 1318474

SECTION B. (Continued)

(Signature)

Name: Richard E Valiga
(Print or Type Name)

Title: General Manager
(Print or Type Title)

Sworn to and subscribed before me this
17th day of June
2023.

Patty Jean Bair
Notary Public

COMMONWEALTH OF PENNSYLVANIA - NOTARY SEAL
Patty Jean Bair, NOTARY PUBLIC
Montgomery County
My Commission Expires 08/11/2025
Commission Number 1318474

Attach copy of Articles of Incorporation

SOIL EROSION & SEDIMENTATION CONTROLS

FORM I

2540-PM-BWM0390 Rev. 10/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised 6/22/2023
DEP USE ONLY
Date Received

FORM I
SOIL EROSION AND SEDIMENTATION CONTROLS

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form I, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: 273.151, 275.205, 277.151, 279.232, 281.132, 283.106, 288.151, 289.252, 291.205, 293.232, 295.132, 297.106

SECTION A. SITE IDENTIFIER

Applicant/permittee: Natural Soil Products

Site Name: Natural Soil Products

Facility ID (as issued by DEP): 101628

SECTION B. EROSION AND SEDIMENT CONTROL

Provide a plan for the control of erosion and sedimentation on land within the permit area, all borrow areas and adjacent areas to be disturbed by construction activities. Include a narrative describing the implementation of the plan, its relationship to the overall staging of earth moving activities, and detailed design and construction plans and specifications for each structure or facility used in the plan. The plan must be site specific for each phase of construction. Include design assumptions, runoff calculations, channel profiles, cross sections, channel linings, and applicable details on attached Data Sheet for all collection and interceptor ditches. Provide documentation on the capacity of existing drainage system and the effect that storage or disposal activities will have on the drainage. Show discharge points to natural drainageways and all culverts that carry drainage away from the site. Plans and maps shall contain all details necessary for construction of the structures.

SECTION C. DIVERSION CONTROLS

Provide a plan for the collection and conveyance to a natural drainageway of the runoff from up slope undisturbed areas. Include design calculations, profiles, cross sections, and applicable details for each structure, ditch, or channel used for diverting runoff. The diversion control and erosion and sedimentation control plan shall be based on the requirements of Chapter 102 (Erosion and Sedimentation Control) of the Department's regulations. Calculations indicating water quantities shall be based on a 24-hour precipitation event with a frequency of once in 25 years. More stringent criteria may be required by the Department based on the most recent edition of the USDA-SCS, *Engineering Field Manual for conservation Practices,* or as otherwise determined necessary by the Department.

SECTION D. ACCESS ROADS (Residual Waste Facilities Must Submit Form 23R)

Access roads shall have drainage system that is compatible with the natural contours, structurally stable, and capable of passing safely the peak flow from a 25-year, 24-hour precipitation event.

Provide the following information for each haul road to be used in the operation.

a) Show the location on the application's topographic maps;

b) Description and typical cross sections showing the construction of each access road including existing and proposed contours, grades, slopes, culvert locations, outlet protection, and other drainage control;

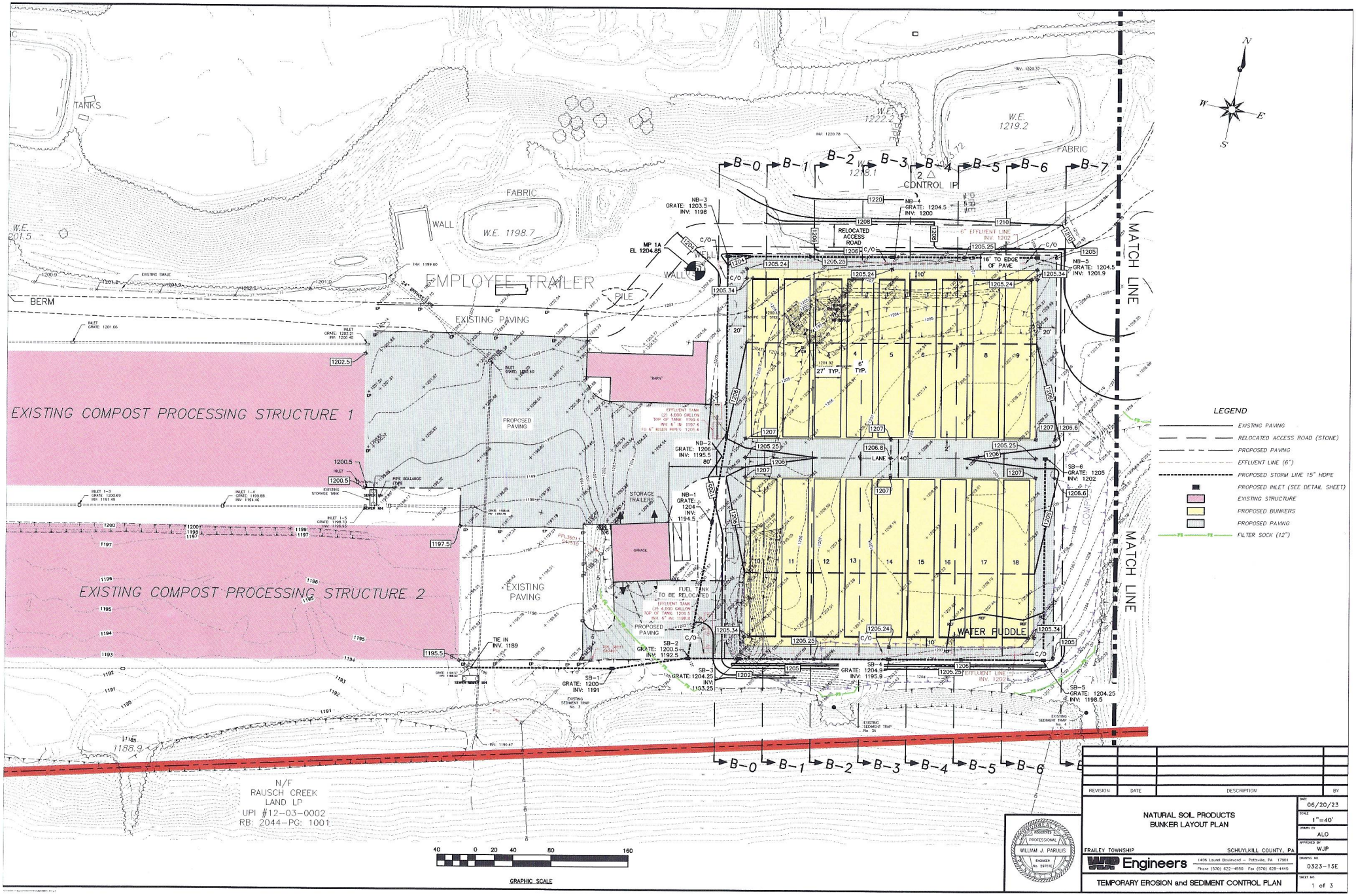
c) Measures to control and prevent erosion and sedimentation; include proposed spacing of sediment traps, turnouts, cross drains, culverts, check dams, stabilized ditches, erosion resistant surfacing, etc.;

d) Plan for reclamation after the operation is completed;

SOIL EROSION & SEDIMENTATION CONTROL

It is anticipated that approximately ft^3 of soil and rock material will be excavated from the area designated for the Gore composting system with this material to be temporarily stored as noted on the attached plans. The temporarily stored material is to be protected from any direct runoff by a series of 12-inch compost filter socks to filter out any sediment and the filtered flow directed to existing sediment traps.

All excavated material is to be reused to fill-in ponds 2 and 9, with the remaining ponds to be kept for potential outdoor composting needs and as fresh water sources.



REVISION	DATE	DESCRIPTION	BY

NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

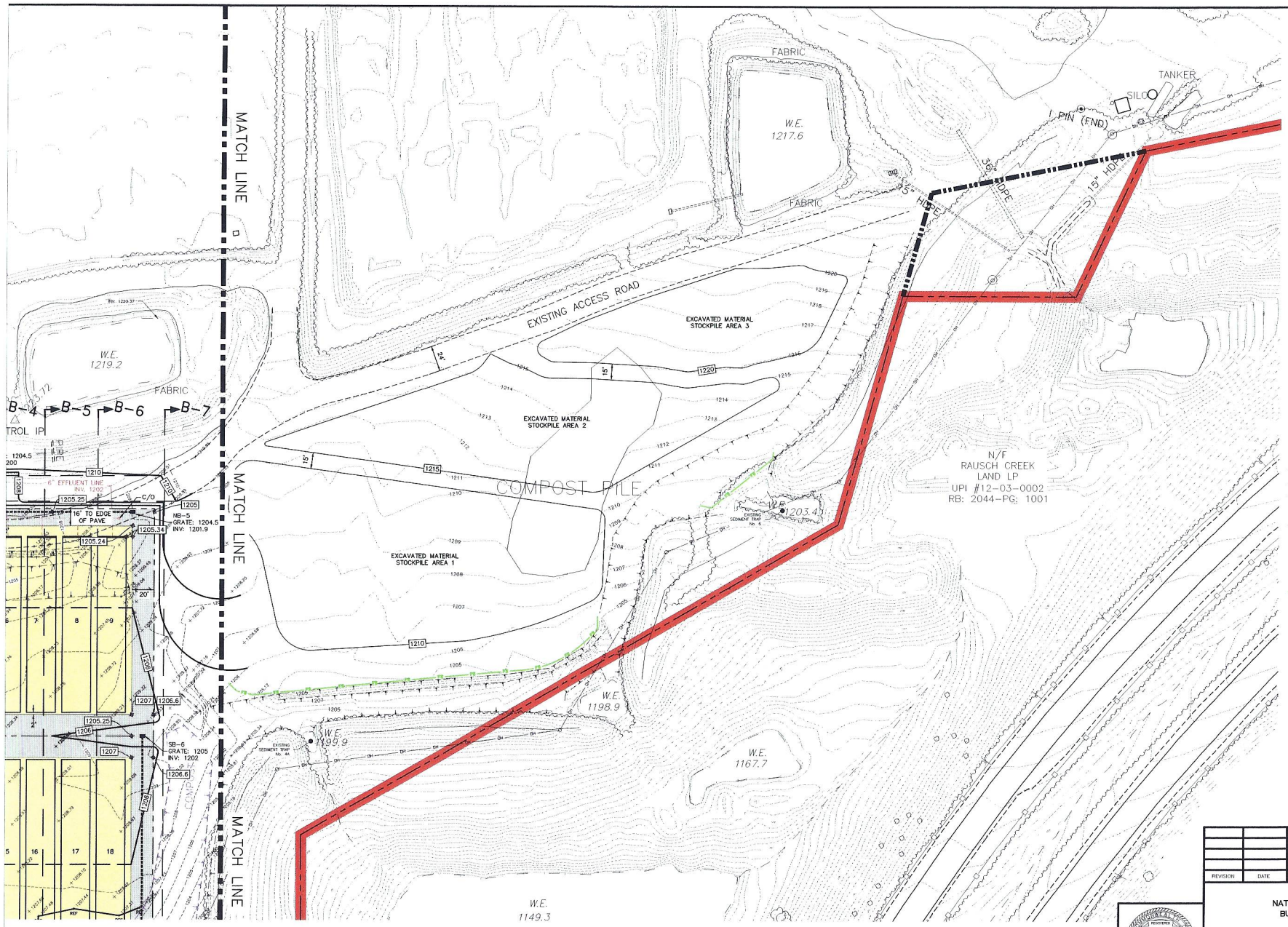
FRAILEY TOWNSHIP SCHUYLKILL COUNTY, PA

WJP Engineers
1406 Laurel Boulevard - Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

TEMPORARY EROSION and SEDIMENT CONTROL PLAN

DATE	06/20/23
SCALE	1"=40'
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO	0323-13E
SHEET NO	1 of 3

WILLIAM J. PARULIS
REGISTERED PROFESSIONAL ENGINEER



LEGEND

- EXISTING PAVING
- RELOCATED ACCESS ROAD (STONE)
- PROPOSED PAVING
- EFFLUENT LINE (6")
- PROPOSED STORM LINE 15" HDPE
- PROPOSED INLET (SEE DETAIL SHEET)
- EXISTING STRUCTURE
- PROPOSED BUNKERS
- PROPOSED PAVING
- FILTER SOCK (12")

40 0 20 40 80 160

GRAPHIC SCALE

REVISION	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL WILLIAM J. PARULIS ENGINEER No. 29707E

NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP SCHUYLKILL COUNTY, PA

WJP Engineers 1406 Laurel Boulevard – Pottsville, PA 17901 Phone (570) 622-4550 Fax (570) 628-4445

TEMPORARY EROSION and SEDIMENT CONTROL PLAN

DATE	06/20/23
SCALE	1"=40'
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO.	0323-13E
SHEET NO.	2 of 3

Temporary Erosion and Sediment Control Measures and Facilities

This plan is an amendment to the Overall Site E&S Plan. It will address the added temporary controls required for the proposed Bunker project on the permit area. The plan addresses the Bunker project area, as well as the stockpile area for excavated material to the east of the Bunker area.

Temporary controls will include:

Cleaning and maintenance of the functioning Sediment Traps of the project.

Installation of Filter Sock or Compost Filter Berm controls as detailed on the plan.

Temporary controls for new areas must be constructed, stabilized, and functional before site disturbance in areas tributary to those controls.

Upon completion of an earth disturbance activity or any stage or phase of an activity, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation.

Temporary and Permanent Revegetation Specifications

Temporary Seeding (if area will be re-disturbed within one year)

Seed Mixture 1 – Annual Ryegrass (15 lbs PLS/ac)

Lime at 45 lbs per 1000 SF and mulch at 3 ton/ac
or during non-seeding dates mulch at 3 ton/ac

Permanent Seeding – Detention Basin

Seed Mixture 3 – Tall Fescue 35 lbs PLS/ac
Plus Birdsfoot trefoil 10 lbs PLS/ac

Fertilize at 100–200–200 lbs/ac

Lime per soil test recommendations (minimum 6 ton/ac)

Mulch at 3 ton/ac or at a 3/4–inch to 1–inch layer

Seeding dates 3/15 to 6/1 and 8/1 to 10/15

Permanent Seeding – Steep Slopes

Seed Mixture 5 – Crownvetch 15 lbs PLS/ac
Plus Tall Fescue 25 lbs PLS/ac

Fertilize at 100–200–200 lbs/ac

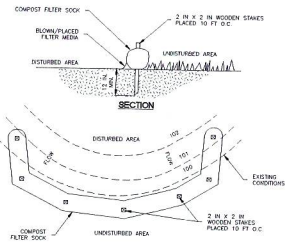
Lime per soil test recommendations (minimum 6 ton/ac)

Mulch at 3 ton/ac or at a 3/4–inch to 1–inch layer

Seeding dates 3/15 to 6/1 and 8/1 to 10/15

(Reference: Penn State Agronomy Guide, Erosion Control and Conservation Planting on Noncropland, Tables 3 and 4.)

Note on Mulch – Because of the nature of the operation, compost will be used as the mulch material for temporary and permanent stabilization.



PLAN VIEW

TABLE 4.2

COMPOST STANDARDS

ORGANIC MATTER CONTENT	25% – 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5–8.5
MOISTURE CONTENT	30%–60%
PARTICLE SIZE	30%–50% PASS THROUGH 3/8" SIEVE
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THIS SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DEPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURERS SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK

NOT TO SCALE

TABLE 4.1

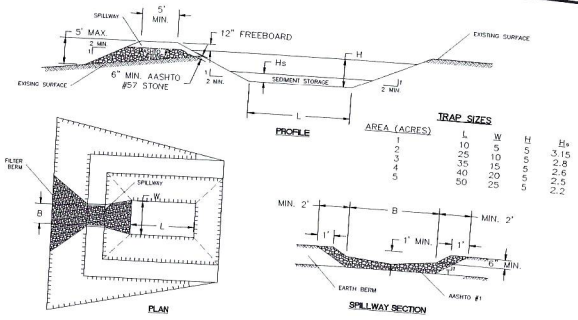
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	200 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting		HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" X 3/4" Max. aperture size			
Outer Filtration Mesh		Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16" Max. aperture size			
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

Fitness & JMD

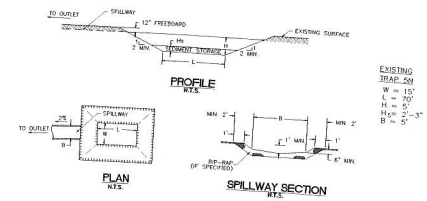
Compost should be a well decomposed, weed free organic matter derived from agriculture, food, stump grindings, and yard or woodchunk organic matter sources. The compost should be aerobically composted. The compost should possess no objectionable odors and should be reasonably free (<1%

363-2134-008 / March 31, 2012 / Page 63



TYPICAL SEDIMENT TRAP

N.T.S.



EXCAVATED SEDIMENT TRAP

NORTH HAUL ROAD AREA

REVISION	DATE	DESCRIPTION	BY

NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers — 1436 Laurel Boulevard – Pottsville, PA 17901 — Phone (570) 622-4559 Fax (570) 628-4445

TEMPORARY EROSION and SEDIMENT CONTROL NOTES and DETAILS

REGISTERED PROFESSIONAL ENGINEER WILLIAM J. PARULIS No. 28707E

DATE	06/20/23
SCALE	NOTED
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO.	0323-13E
SHEET NO.	3 of 3

COMPOSTING FACILITIES

FORM N

2540-PM-BWM0381 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised 6/22/2023
DEP USE ONLY
Date Received

FORM N
COMPOSTING FACILITIES

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form N, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets should match the "date prepared/revised" on this page.

General References: Chapter 281, 295

SECTION A. SITE IDENTIFIER

Applicant/permittee: Natural Soil Products

Site Name: Natural Soil Products

Facility ID (as issued by DEP): 101628

SECTION B. OPERATING PLAN

1. Complete the following table:

Type of Waste Or Other Materials To Be Composted On A Daily Basis	Maximum Weight Or Volume To Be Composted At Any One Time (Include Units)	Maximum Weight Or Volume To Be Stored At Any One Time (Include Units)	% Of Total
a. Wood chips	148 Tons - average daily tonnage	1,500 Tons	4%
b. Municipal Waste Biosolids	30 tons	70 tons	1%
c.			
d.			
e.			
f.			
g.			
TOTAL			

Attach a completed Form U for each residual waste proposed to be composted.

Attach a complete Municipal Waste Form 43 for each sewage sludge proposed to be composted.

2. Attach a narrative which describes the following:
   a. The source and composition of each waste or other material listed above including a description of its suitability for composting.
   b. The compost process and the daily operation methodology to be used at the facility.
   c. The expected life of the facility.
   d. A plan for alternative waste handling or disposal during periods when the proposed facility is not in operation.

SECTION B. OPERATING PLAN (Continued)

e. A description of the anticipated quality of the compost.
f. A plan for the anticipated recovery rate of the compost and plans for the reuse, sale, or marketing of the compost.
g. A plan for managing the compost should markets for sale or reuse of the compost become unavailable.
h. A plan for the proposed location and method for disposal or processing of residue produced by the operation of the facility.
i. A quality control plan for incoming wastes, including frequency of analysis, inspection, etc.
j. A plan for hiring and training operators and other personnel concerning the operation and approved design of the facility.
k. The method of waste measurement for incoming wastes.
l. The proposed operating hours.
m. A description of the alternate permitted solid waste processing or disposal facility available for use if the facility is shut down.
n. A description of the site closure activities.
o. The proposed maximum daily volume. Include a detailed justification for the volume based on the environmental assessment.

SECTION C. DESIGN INFORMATION

1. Attach a narrative which describes the following:
   a. Site preparation procedures, including soil erosion and sedimentation control plan.
   b. The methods to be used to control the flow of waste to the facility, including a flow chart depicting the processing of solid waste and mechanical components of the processing system.
   c. The size, type, capacity and general specifications of equipment for the handling, processing and storage of solid waste.
   d. For composting processes that are not totally enclosed, the frequency schedule for turning, agitation, or aeration of the compost; and for totally enclosed composting processes, the design, composting method and operational procedure.
   e. The windrow dimensions, design, and construction methods.
   f. The maximum and minimum length of time necessary to complete the composting process.
   g. The method of separation, storage and ultimate disposal of non-compostable materials, including bulky waste.
   h. The physical and chemical composition of compost residue produced by the process and the ultimate disposal procedures or use.
   i. The minimum and maximum volume or weight of compost or residue to be stored prior to sale, reuse or disposal, and the minimum and maximum time that material or waste is to be stored. Identify the storage area for each waste or other material to be composted, and the compost storage area, and the residue, and the residue storage area.
   j. Plans for utilities to be installed at the facility, including on-site or off-site point-of-service connections and points of usage.
   k. The flooding frequency of the proposed permit area.

SECTION D. COMPOSTING PAD

1. Complete the following information:
   a. Type of pad.
   b. Thickness of pad.
   c. Dimensions of pad (ft)
   d. Permeability of pad
2. Attach plans and specifications for design, construction and maintenance of the pad, and the leachate and wastewater collection system. Include quality assurance plans for construction activities.
3. Attach a plan for inspection of the compost pad to ensure the integrity of the pad. Include frequency and inspection procedures.
4. Discuss the compatibility of the pad and leachate collection system with the wastes or other materials to be used in the compost process, and the expected leachate from those materials.

SECTION E. LEACHATE COLLECTION AND TREATMENT

1. Identify the plan for the collection, storage and treatment of leachate and wastewater from the facility.

   All leachate anticipated will be collected and adequately stored to be transported to a permitted wastewater treatment facility for ultimate disposal.

SECTION F. SOILS INFORMATION

(Required only if Forms F and/or J are not submitted)

1. A sufficient number of pits or excavation to allow for an accurate characterization of the soils within the proposed permit area are required.
   a. Attach pit or excavation descriptions written in the following format:
      Identify map reference number or letter.

Pit # Example:	Depth	Color	Texture	Structure	Consistence	Mottling
Pit #1	0" - 12"	dark brown	sandy loam	granular	friable	none
	12" – 24"	yellowish brown	silt loam	subangular blocky	firm	none
	24" - 40"	brown	loam	prismatic	hard	grayish brown
	40" +	bedrock				
Pit #2	etc.					

2. Identify the minimum depth to the seasonal high water table or perched water table area within the proposed permit area ____ ft. How was the depth determined?

SECTION G. POSTCLOSURE LAND USE PLAN

(Required only if Form 28 or 18R are not being submitted)

1. Attach a detailed description of the proposed use of the facility following closure. The description shall include the following:
   a. A discussion of the utility and capacity of the revegetated land to support a variety of alternative uses.
   b. The relationship of the use to existing land use policies and plans.
   c. A discussion on how the proposed postclosure land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use.
   d. The consideration given to making the proposed postclosure land use consistent with landowner plans and applicable State and local land use plans and programs.
   e. The specific postclosure land use of areas that are not proposed to be revegetated.

SECTION H. NUISANCE MINIMIZATION AND CONTROL PLAN

Attach a plan for minimization and control of hazards or nuisances from vectors, odors, noise, dust, unsightliness, and other nuisances not otherwise provided for in the permit application. The plan shall include provisions for the routine assessment and control of vector infestation, methods to minimize and control nuisances from odors, dust fall and noise off the property boundary from the facility. Plan may include a control program involving a contract for an exterminator. The plan shall be based in part on the collected meteorological data.

SECTION I. LITTER CONTROL PLAN

1. Describe the litter control plan and explain how the operator will prevent litter from blowing or becoming deposited off-site.
   a. Explain the types, locations, and maintenance procedures for litter fences to be used at the proposed facility.
   b. Explain the frequency of litter pick-up and disposal.

SECTION J. ACCESS ROAD PLAN

1. Will streams or waterways be crossed ☐ Yes ☐ No
   If yes, explain how Chapter 105 will be complied with.

2. Explain what materials are to be used on permanent or temporary roads at the proposed facility.
   ☒ Paved Asphalt
   ☒ Gravel
   ☐ Cinders
   ☐ Other equivalent materials _____

3. Will the grade of any access road be greater than 12% ☐ Yes ☒ No
   If yes, explain _____

4. Describe the methods of maintenance for all access roads to be located on the proposed permitted facility, and property.
   All primary roads are paved and secondary roadways are gravelled.

SECTION K. ACCESS CONTROL

1. Describe the gate or other barrier to be constructed and maintained at potential vehicular access points to block unauthorized access to the site. Include the heights, dimensions and construction materials.
   The site has a main gate from SR 125 that goes to the main office and the truck scales then via a paved road to the larger gate to the permitted site

2. Describe the fence or other suitable barrier to be constructed and maintained around the facility to prevent unauthorized access. Include the heights, dimensions, and construction materials.
   No actual fences are provided but the sit is enclosed by earthen berms and general topography that prohibit access

3. Describe the site security provisions.
   Security is largly provided by locked gates an buildings and primary alarms at the main office

4. Describe the facility sign that will be placed at the junction of each access road and public road.
   Smaller 3ft. x 4ft signage from SR 125 and a larger 7ft. x 4.5ft signage, with DEP permit information at the permitted site.

Printed on Recycled Paper

Date Prepared/Revised
6/22/2023

FORM N Narrative

2.

a. All incoming biosolids are Class B from a number of wastewater treatment plants all authorized by completed Municipal Waste Form 43s. The biosolids are 18 to 25% solids and very suitable for biological composting.

b. Composting is currently being done using the Windrow method and is being replaced by the Gore direct aerated static pile composting process.

c. Expected life of the Gore facilities is anticipated to be 60 years.

d. The existing NSP composting facilities have existing agreements with other municipal biosolid waste processing facilities, including municipal landfills, to which biosolids waste streams can be redirected.

e. All Biosolids waste streams are Class B.

f. NSP currently and will continue to produce a biocompost that meet the stipulations at §271.911(b) and have contracts for almost all of the biocompost for beneficial agricultural reuse.

g. As current agricultural reuse is ongoing with more mined out lands available for reclamation into agriculture, it is highly unlikely that this market will go away.

h. There is no residual waste material produced by the composting process.

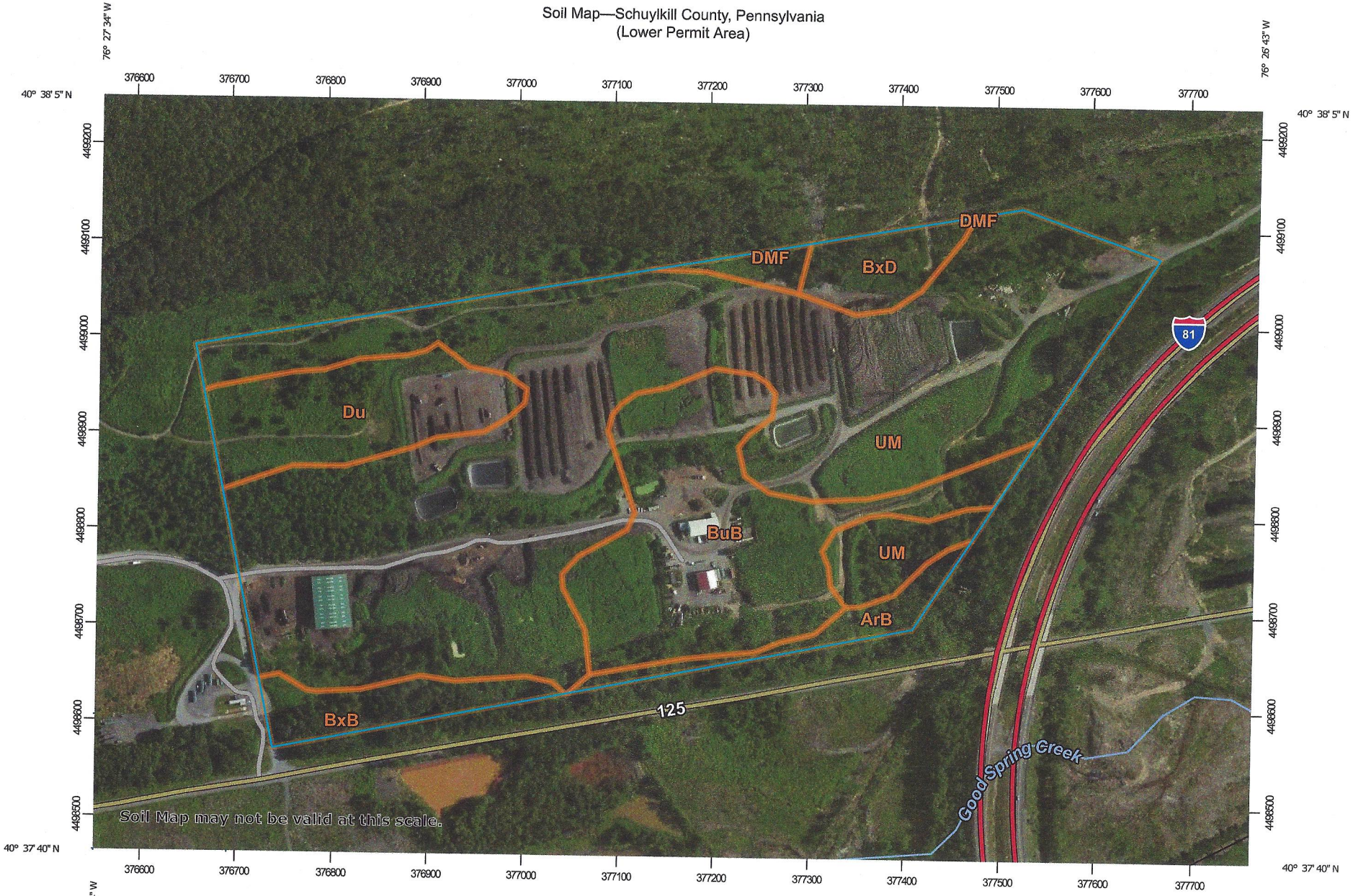
i. All incoming Class B biosolids are regularly monthly tested for nutrients, PCBs and inorganic metals.

j. Hiring and training of new employees is an ongoing process.

k. Measurement of all incoming and outgoing materials is done by means of a regularly calibrated truck scales. Trucks are weighed going in loaded and going out empty.

l. Operating hours are 7:00 am to 3:00 pm.

Soil Map—Schuylkill County, Pennsylvania
(Lower Permit Area)



Map Scale: 1:5,530 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Schuylkill County, Pennsylvania
Survey Area Data: Version 15, Sep 17, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Jul 2, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ArB	Andover extremely stony loam, 0 to 8 percent slopes	2.1	2.4%
BuB	Buchanan gravelly loam, 3 to 8 percent slopes	16.3	18.2%
BxB	Buchanan extremely stony loam, 3 to 8 percent slopes	3.2	3.5%
BxD	Buchanan extremely stony loam, 8 to 25 percent slopes	2.7	3.1%
DMF	Dekalb and Lehew extremely stony soils, steep	0.9	1.0%
Du	Dumps, mine	7.3	8.2%
UM	Udorthents, strip mine	57.0	63.6%
Totals for Area of Interest		**89.6**	**100.0%**

NATURAL SOIL PRODUCTS
NUISANCE MINIMIZATION AND CONTROL PLAN

"Updated JUNE 2023"

1. INTRODUCTION

Natural Soil Products (NSP), a biosolids composting operation, is located in Frailey and Porter Townships, Schuylkill County. NSP has developed and will utilize the procedures described in this Nuisance Minimization and Control Plan (NMCP) to assist in achieving compliance with the specific performance standards related to nuisances that are established in 25 Pa Code Chapter 281 § 281.218. This plan is intended to replace/revise the previous NMCP submitted to the Department.

The NMCP will be periodically revised and/or changed as nuisance control activities are refined and new techniques are developed or changes are necessary to maintain compliance with applicable rules and regulations. The current version of this Plan along with reports, and information/data relevant and pertinent to the NMCP, will be maintained on site for reference by site personnel and for review, as necessary, by regulatory personnel.

2. MANAGEMENT TEAM

2.a. Overview

NSP's Management Team (MT) has been established to monitor the facility's performance and to monitor conditions in nearby communities for off-site nuisance observations.

The MT has been established with a primary role of monitoring and assessing site conditions while offering a quick response capability. It also provides a more direct conduit for establishing a cooperative relationship with the neighbors of NSP by quickly addressing their concerns, problems, or questions. Routine observations by NSP management are made during regular operation hours.

Monitoring locations and frequency are determined and vary depending upon such factors as season, temperature, weather conditions, and site operational activities. MT personnel are trained to be aware of the relevant portions of this plan, and are equipped with two-way radios such that NSP management can be notified of any potential nuisance condition

As part of the MT approach, NSP will have staff available on a 24-hour basis to respond to MT observations and citizen complaints. The MT and on-call staff will also ensure that resources are available to accompany DEP staff within no more than 3 hrs of DEP's request to conduct an inspection at the facility.

2.b. "Monitor-Respond-Assess-Monitor Loop"

The MT follows an action sequence called the "Monitor-Respond-Assess-Monitor Loop" (MRAM Loop). This sequence and function relates primarily to potential nuisances related to odors, noise and dust.

In the normal routine, a MT member is **monitoring** the performance of the facility. This physical monitoring can occur both off-site and on-site, and is particularly focused on determining in real-time whether nuisance conditions exist or have the potential to exist. Monitoring at NSP can also consist of NSP management inspections and regulatory assessments.

When monitoring activities indicate that there is a condition that requires or suggests that action is needed to avoid or correct a potential nuisance condition, the MT moves into the **respond** mode. The primary response is for the MT member to immediately contact the NSP operations management, so the corrective action can be quickly identified and implemented. As a secondary response, the MT can also contact other NSP operations personnel to make operations suggestions. NSP management will then ensure that operations corrections are made either by the MT or by NSP personnel and indirection of the MT.

Upon implementation of corrective action, the MT will **assess** the affect and success of the implemented corrective action(s). The MT will continue to communicate the findings of this assessment to NSP management until the situation is properly addressed.

At this point, the MT returns to the routine **monitoring** mode.

The NSP MT personnel are as follows:

1. Richard Valiga
   General Manager
   (Main Point of All Contact)

2. Charles Kimmel
   Site Operations

NSP Management Personnel:

Dan Scully
Vice President

Matt Ackerly
Regional Manager

Richard Valiga
General Manager

3. VECTORS

3.a. Vector Control Measures

Rodents

The primary control to prevent the attraction, harborage and breeding of these potential vectors is turning of windrows to minimize the attraction of rodents. Windrow turning is to be based on the requirement to have and maintain temperatures for complete composting. If needed rodent traps are to be purchased and strategically located for proper rodent control.

If necessary, NSP would contract with licensed animal removal services to evaluate the site for additional animal control activity. The licensed animal removal service would perform any necessary control or removal measures and completes written reports.

Mosquitoes

NSP will work with the Schuylkill County West Nile Virus Program Surveillance Technician Supervisor and implements the program recommendations, as needed. If appropriate, NSP would contract with a licensed contractor to evaluate the site for the breeding of the insects. The licensed contractor would execute a plan and develop reports with the results of such inspections and treatment activities. This type of program would continue until the risk of the West Nile Virus of other diseases known to be carried by mosquitoes has diminished.

The primary mosquito control program will include the elimination of all sources of standing water on NSP property during the breeding season. The program would not include any spraying to control adult mosquitoes but focuses on the breeding areas of the insects. The program would also provide for the regular removal of contact stormwater runoff collected in the lined retention ponds at the compost pads and runoff collection areas. In addition, NSP uses commercial grade lure-type fly traps, that are located throughout the site.. Trays are changed on an as-needed basis and are monitored by the MT.

3.b. Vector Monitoring and Follow-up

The licensed contractors discussed in Section 3.a. above would provide the primary monitoring and follow-up activities related to rodents and mosquitoes. These firms would periodically evaluate conditions at the NSP site and implement appropriate prevention and response activities if needed.

In addition, the MT members are on the lookout for particular problems involving vectors as they perform their routine on-site and off-site work activities.

4. ODORS

4.a. Odor Control Measures

The following subsections discuss NSP's current activities for reducing the potential for on-site odor generation and to minimize the possibility of off-site malodors.

The Odor Neutralizing linear spraying system was put "online" in May of 2005. It was designed to travel 1300ft along a berm that borders between the Natural Soil Products facility in Frailey Township, PA and the nearby highways and adjacent areas. The system generates a curtain of odor control separating Route 125 and Route 81 from the odors the facility may generate as a byproduct of regular composting activities. The wind pattern tends to blow west to east. When the compost is being turned, with the compost turner, odor is released when fresh areas become exposed or when some raw biosolids are brought in and prior to mixing. The function of the linear spraying system is to neutralize the odors before they get to the area of traffic on these major highways.

The 20 ft steel poles were installed every 25 ft along the road. The technician installed the system attached to aircraft cable that is strung between the poles. Hydraulic hose is then attached to the cable and tightened to the same degree. The nozzles are attached every 15 feet. Along the 1,300 feet section, which includes 92 nozzles. The system is pressurized at 1000 psi, which generates a conical spray misting pattern at the nozzel head. As this cone moves away from the nozzle, it opens up and within 10ft from the nozzle, it overlaps the spray pattern of the adjacent nozzles forming a solid curtain of odor control to encapsulate the odors generated by the compost facility, that is moving in that direction. The MSDS for the odor control agent, manufactured by Aireactor, Inc., is attached.

The current perimeter misting system has been further supported and expanded by inclusion of two forced air odor neutralizing BossTek - OdorBoss systems. The OdorBoss dispenses water soluble air treatment agents using water as the delivery vehicle. The single air atomizing nozzle fractures the air stream into tiny droplets and a high velocity fan creates the air stream delivery system, where the air treatment agents converts into a gas and attaches to odorous compounds [VOCs, sulfides, mercaptans, ammonia and amines]. Attached is the Odor Boss System Specifications.

Also utilized to mitigate odors from compost windrows are"windrow blankets," manufactured by Midwest Biosystems. The Midwest Biosysems blankets are used at NSP to cover the active compost windrows for the first five to ten days, when the potential for the generation of malodors is at its highest.

A weather monitoring station system was installed at NSP in April, 2023. This weather monitoring station system, monitors weather conditions at NSP and is used in association with local weather predictions, to make operational changes, as needed, to the composting process/activities to mitigate off site odor migration. Attached is a picture of the weather station monitor at NSP.

NSP, as part of a recently executed Consent Order and Agreement [CO&A], has agreed to temporarily modify the current permitted mix ratio from 78% bulking agent [woodchips] and 22% biosolids, to 80% woodchips and 20% biosolids. This change, meant to further enhance/support an aerobic composting environment through increased windrow porosity, has been implemented and is being recorded and certified daily. Attached is the Daily Operation Report to record the raito mix of woodchips and biosolids at 4:1 ratio.

NSP is currently in the process of initiating/finalizing a minor permit amendment to convert the current windrow composting process to a fixed forced air static pile system [The Gore composting system] that, when implemented, will fully address the issue of offsite malodors.

4.b. Odor Monitoring and Follow-up

Community Out-Reach

As part of NSP's on-going community out-reach program to work with our neighbors to become a partner in the community, it is very important that if a neighbor says that they smell an odor, and the complaint can be verified or is unverified but is from a credible source, then there is a potential odor issue that must be addressed. {"Verified" and "Unverified" complaints are further defined below}. NSP's community outreach includes regular attendance at both Frailey and Porter Township Board of Supervisors monthly meetings.

Odor complaints usually begin with one or more persons that may be more sensitive to odors or may be closest the site boundary. Remember that odor perception is subjective and qualitative. If attempts are not made to address the odor issue complaints may then mobilize community support and initiate more formal action that may involve community, county and state officials.

The most common factors that cause neighbors to file odor complaints are:

- The intensity of the odor
- The duration and frequency of odorous emissions
- Lack of attempts and progress on the part of the site in mitigating odorous discharges.
- A belief that no one cares
- The negative attitude of the site concerning the issue
- Not involving the neighbors in a solution
- Other issues- such as political concerns such as adversarial groups who identify odor as a subjective issue that is difficult for composting facilities to address

The most effective initial course of action is to adopt a strong proactive program to address odor complaints. The following are elements of an effective proactive odor control program that should be considered.

- Immediately response via a formal documentation report and investigation
- Respond to complaints by personal visit (determine if the complaint is verified or unverified)
- Avoid adverse relationships

- Establish a single point of contact and/or a center of responsibility for dealing with odor complaints (refer to the attached organizational flow chart) and establish and implement a formal odor complaint management program and complaint response system
- Build a team composed of a key operations person, the "point of contact" This has been assigned as one of the primary functions of the General Manager.
- Develop an aggressive program to address the potential issue. Activities under the program should include:
    - Set up meetings or attend regular municipal meetings with local authorities, complaints, and community leaders and create a reliable response system to complaints. (Complaints and authorities need to know that something is being done).
    - As necessary, enlist the help of qualified consultants and vendors who can assist your odor control efforts.
    - Document your efforts to mitigate any identified issues.
    - Document what operational activates were being performed at the time the odor occurred (e.g. sludge unloading, removal of cover materials, etc.)
    - Let the communities know about progress or change meant to improve the odor issue at the monthly Township meetings.
    - Set up a complaint response system for the site personnel to investigate possible complaints.

Currently monthly attendance at the local township meetings is the best way to gauge the public's response to odor and any other potential complaint. Public questions and answer periods allow citizens to voice opinions on any issue relevant in the township, including odor issues. Attendance at these regularly scheduled meetings by the General Manager is important to tracking and responding to odor issues.

Setting up and managing an Odor Complaint Tracking System

Complaint Sources

Odor complaints are receives in a number of ways including:

- Direct call in from complaint(s);
- Calls referred to the site from local officials such as Mayors, City Council members, Township Supervisors, County commissioners, other governmental officials, fire departments, etc.;
- Calls and letters from City, County, Regional, or State or Federal regulatory officials;
- Written reports from officials that have investigated complaints; and/or
- Written reports from assigned site personnel that investigate complaints.

Complaint Tracking

There are numerous ways to set up and manage an odor complaint system. The goal of any system is to create a logical method of recording and maintaining a history of complaints. The system should be established to record the following basic information:

- Complainant- name, sex and age
- Complainant- address
- Complainant- location of complaint
- Complainant- date of complaint
- Complainant- time of day of complaint
- Complainant- weather conditions (at time of the complaint)
- Complainant- wind directi0n and speed (at time of the complaint)
- Duration of odor
- Characteristic of odor (What did it smell like)
- Intensity of odor (very weak, weak, moderate, strong, very strong)
- Characteristic of wind (steady, variable, swirling)
- Any other general observations

Verified and Unverified Complaints

In addition to the above basic information, the complaint record should indicate the type and source of the complaint. It is helpful to distinguish the difference between a "verified" and "unverified" complaint.

- "Verified Complaints" are complaints where a second party* (other than the complainant) identifies the location during the time of the odorous discharge and perception.

*Note: For the purposes of this plan the definition of a second party includes any of the following:

- A NSP employee
- A regulatory Agent
- An official from the Township or the County

- "Unverified Complaints" are complaints from a single person

The odor complaint record system should include the type and source of complaint as:

- Single complaint call in
- Referred complaint
- Field investigated complaint

Complaint Analysis

Complaint forms have been developed by NSP and are provided as attachments to this plan. The long-term goal for these forms by NSP is to utilize the information that may be gathered to analyze potential odor issues. Several formats can be utilized for this analysis, these include:

- By time of day, time of year, monthly totals
- By wind direction
- As a function of site processing activities
- Seasonal changes in weather and prevailing wind
- As a function of implementation of odor control practices

Investigation & Response by NSP

Once an odor complaint is received, action should be taken as soon as possible. Unverified complaints will be treated seriously, but they should not be relied upon to justify a permanent modification to current operations or actions from regulatory agencies.

A timely response is important to maintain credibility with neighbors, customers, regulators and the community at large.

Refer to the attached forms that will be utilized by NSP to track each reported complaint (verified or unverified) that is received by the facility as part of formally implementing this plan. The following forms may be utilized:

- Complaint Investigation/Interview Form
- Verified Complaint Mitigation and Resolution Form
- Odor Complaint Follow-Up Form

As each complaint is received, it will be assigned a "tracking number" this tracking number will be a unique number assigned by NSP and utilized on each of the subsequent forms if a complaint is verified and requires additional activities on the behalf of NSP. NSP will keep an on-going record containing all complaint forms that may be utilized at a later date to analysis potential odor issues and for review accessibility by regulatory community.

Mitigation by NSP

Once a complaint is verified and potentially during the verification process, NSP will investigate the potential source of that odor and make all reasonable attempts to mitigate the odor at the source if it is determined to originate from the NSP facility. The Best Management Practices (BMP's) utilized at the facility will be reviewed and modified as necessary. This may include the use additional BMPs as deemed necessary by facility personnel. BMP's currently utilized by NSP include:

- Cover materials (finished compost)/ ground leaves and/or woodchips
- Working with NSP's customer to implement BMP's at the generators
- Working with NSP's customers to implement BMP's with the transporters
- As previously stated, change the current operation to an enclosed forced air static pile operation.

If the source of the odor is determined not to be from the NSP facility or generator/ transporter, this information should also be logged and communicated to all involved parties.

Follow-up and Closure by NSP

Each verified complaint, or unverified complaint from a reliable source, investigated will see follow-up and closure by NSP. This may be an iterative process by which on-going modifications to facility operations will be tracked with complainants in order to track progress.

Typically follow up will be conducted by the General Manager and documented on an Odor Complaint Follow up Form, which is provided with this plan. Information garnered from this follow up will be utilized to either provide closure to that tracking number/odor complaint or to provide further insight for investigative procedures.

Follow up may be conducted in several different ways. These methods include via phone call, a meeting with the complainant and/or regulatory/ local officials, or in letterform, as necessary. It is NSP's goal to document each incident and keep this documentation for future analysis or review.

5. NOISE

5.a. Noise Control Measures

Composting operations (receipt of biosolids and mixing with bulking agent) are limited by permit to the hours between 7AM and 5PM on weekdays and Saturdays. These limited permitted hours of acceptance minimize any problematic off-site noise conditions.

Heavy equipment engine noise is primarily controlled by insuring that all equipment is operated with the required muffler systems functioning properly.

Back-up alarms are required under OSHA regulations and are necessary to insure the safety of our employee's and customers. Back-up alarms can be an additional source of noise from heavy equipment.

6. DUST

6.a. Dust Control Measures

Dust is generated from unpaved roads and areas that are used for composting, curing and storage, and can be prevalent during dry times of the year in the facility.

A speed limit restriction is enacted for site safety. This also has the dual effect to limit dust that is generated from improved and unpaved roads. The main truck queuing area and primary site entrance road is improved with stone blend. Water trucks are available full time on site and are currently used, as necessary, to control dust along all site roads. Personnel using brooms / shovels are also used to clean the public roads leading to and from the facility to ensure that nothing that

maybe tracked out onto the public roadway remains. NSP also intends to provide an impervious surface to the area leading from State Route 125 into the NSP facility, during the May – July 2007 Period.

During inclement weather, water trucks can also be used to control any accumulation of mud and dust from unpaved or improved parking and road surfaces.

NSP can designate "no-drive zones" during dry weather conditions. This helps to limit traffic to only those areas that can be maintained for dust control through watering and/or sealing.

6.b. Dust Monitoring and Follow-up

The primary means employed by NSP for the monitoring of potential dust conditions is the "Monitor-Respond-Assess-Monitor Loop" used by the Management Team and described in Section 2.b of this Plan.

Equipment operators and maintenance personnel also continually monitor for dust problems, and communicate via radio to fellow operations personnel or management to facilitate follow-up activities.

7. LITTER

7.a. Litter Control Measures

Site personnel regularly inspect the roadways and windrows for litter, however since plastic bagged leaves and yard waste is no longer accepted, there is virtually no litter generated at the operation.

NSP will utilize the following guidelines to further control active area and unloading operations during high wind conditions, if any litter results from unloading activities.

- NSP will deploy litter pickers at those times and in the number necessary to prevent anticipated litter conditions form becoming a nuisance. If windblown litter continues to present a nuisance, additional measures to reduce litter will be implemented, such as minimizing inbound volumes of loads containing litter.

In general, trucks/trailers will remain tarped during unloading activities. Exceptions will be allowed under certain circumstances such as (1) special operational circumstances, such as frozen loads, snowy tarps, blockage or bridging within the trailer if the load must be untarped to unload; and (2) during safe weather conditions when winds are extremely light or nonexistent. These trucks deliver leaves (in bulk), woodchips, and limbs / waste wood requiring grinding for compost mixture. Plastic or other debris is not put on these loads.

7.b. Litter Monitoring and Follow-up

All NSP personnel continually monitor the facility for litter. In particular, NSP management personnel are continuously evaluating litter conditions during operations, and are responsible for deploying the necessary labor and equipment to pick-up accumulated litter.

Additionally, the "Monitor-Respond-Assess-Monitor Loop" used by the Management Team and described in Section 2.b of this plan is utilized to evaluate and control potential nuisance conditions caused by litter.

8. TRAFFIC

Traffic nuisances are minimized through a comprehensive program that combines control activities with monitoring and follow-up activities.

NSP is committed to transportation safety and proactively enforces the policies and procedures along with site-specific rules.

Some of the key initiatives currently employed through this plan are as follows:

- All long haul vehicles are required to utilize the Interstate 81 to access and exit the facility area.
- Each driver is required to stop after the tare weight is recorded and prior to exiting to conduct a walk around self-inspection of his or her vehicle such that any loose liter and debris may be removed and any rocks removed from between dual wheels before exiting the facility.

- As part of NSP's Vehicle Inspection Program, all trucks are required to stop after the scales to conduct a walk around inspection. Drivers are to look inside all open-top trailers and roll-off trucks for any loose litter or debris, which must be removed before exiting the facility. They also inspect the hopper of rear load trucks for loose litter. Scale cameras will be installed so that scale and or inspection personnel can visibly inspect the truck for loose litter of debris on the outside or inside of the vehicle.

- Overweight trucks are logged and notifications are made to the applicable driver and trucking company. As a general rule, overweight trucks are not rejected, in order to avoid such vehicles re-entering the public roadways. On the driver's first offense, he is notified in writing of the overweight condition. If the second offense occurs within 6 months of the initial infraction, the driver is penalized for one hour wait prior to unloading. On a third

offense, the driver is penalized with a three hour wait. The driver is banned from NSP if there are any further offenses within one year.

Tracking Number_____

COMPLAINT INVESTIGATION / REVIEW FORM

Complainant Name:_____ Date:_____ Time:_____
Complainant Address:_____
Location of Complaint (including Direction and Distance):_____
Weather Conditions at time of complaint:_____
Wind direction and speed at time of complaint:_____

1. What time was the odor initially observed?_____
2. Describe the characteristics of the odor. What did it smell like?_____
3. Did the odor disturb or annoy you? In what way?_____
4. Do you know anyone else who was disturbed by the odor? How do you know?_____
5. Besides making a complaint, did you take any action in response to the odor? (For example, did the complainant go and/or stay indoors on a pleasant day? Shut windows? Cancel outdoor activities?)_____
6. Do you detect the odor now? If not, when did you last detect the odor?_____
7. How often do you experience the odor?_____
8. Is the odor always basically the same, or does it differ in intensity or characteristics?_____
9. How long does each odor incident typically last?_____
10. Do you know where the odor is coming from? How do you know?_____
11. How does the current odor intensity compare to the intensity when the complaint was inititated?_____

Tracking number_____

VERIFIED COMPLAINT MITIGATION AND RESOULUTION FORM

Verified Complaint_____ Unverified Complaint_____

1. Was the source and probably cause of the odor identified? _____Yes _____No
   If yes, describe:_____
   _____
2. What Best Management Practice (BMP) recommended to the odor? (Check all that apply)
   - ❑ Will this circumstance/situation exist again (e.g. continuous waste stream)?
   - ❑ BMP's for transporter (e.g. tapping; truck demurrage time load sitting time?)
   - ❑ BMP's for generator
   - ❑ Handling hour-limitation (e.g. low wind conditions)
   - ❑ Specific odor control agent applicable and available
   - ❑ Verify Proper operation of existing system
   - ❑ Long range capital investments control
   - ❑ Restriction or elimination of the waste stream
3. Odor intensity and character after hours under #2 were implemented, describe:_____
   _____

4. Resolution or further action required? _____Yes _____No
   If yes, Describe:_____
   _____

Was complainant informed and was their perception of results verified?____Yes ___No

If yes, describe:_____
_____

Tracking Number_____

ODOR COMPLAINT FOLLOW UP FORM

1. How was follow-up conducted? Describe:_____
_____
_____

2. Who conducted the follow-up?_____
_____

3. When was follow-up conducted?_____

4. In what format (phone call, letter, personal visit), describe:_____
_____

5. Results/discussion note:_____
_____
_____
_____

6. Further/follow action items? _____Yes _____No
If yes, describe:_____
_____
_____
_____
_____

Tracking Number_____

NSP COMPOST FACILITY ODOR SURVEY FORM

Date:_____

Time of Inspection:_____

Name of Inspector:_____

Weather Conditions at Time of Inspection:

Temperature: _____

Wind Direction: _____

Precipitation: _____

Were there any odor observations at facility perimeter: ____Yes ____No

If so, describe:_____

_____

_____

_____

_____

If there were any odor observations, was the source of the odor identified? If so, describe:_____

_____

_____

_____

WASTE ANALYSIS & CLASSIFICATION

FORM R1

2540-PM-BWM0001 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised 6/22/2023
DEP USE ONLY
Date Received

FORM R1
WASTE ANALYSIS AND CLASSIFICATION PLAN FOR PROCESSING FACILITIES AND BENEFICIAL USE

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form R1, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

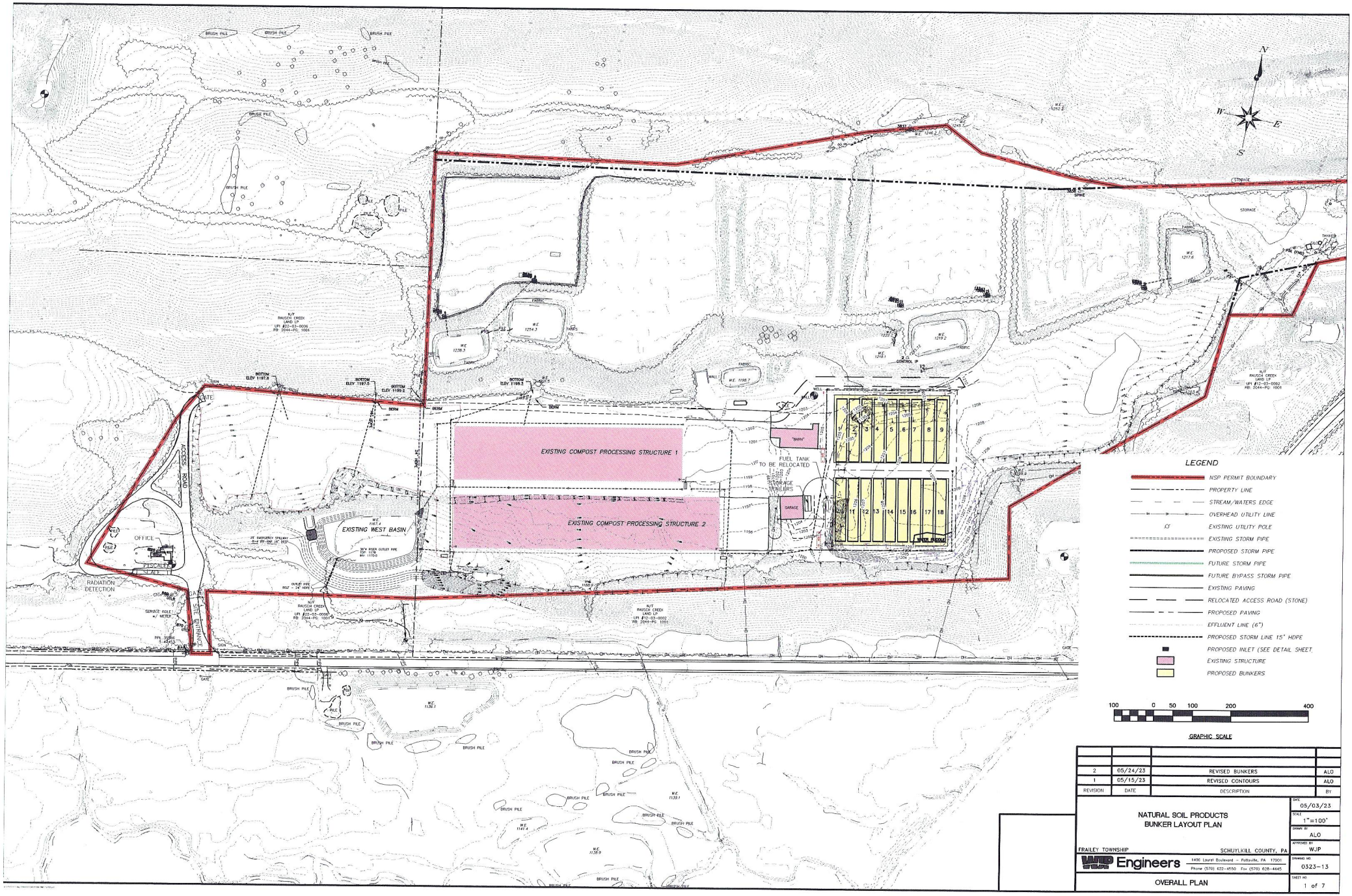
SECTION A. SITE IDENTIFIER
Applicant/permittee: Natural Soil Products
Site Name: Natural Soil Products
Facility ID (as issued by DEP): 101628

All waste monitoring requirements are stipulated in Waste Permit 101628 and strictly followed. Recent analytical waste laboratory analyses are included under Appendix D.

APPENDICES

Appendix A

GORE SYSTEM
SITE CONSTRUCTION DRAWINGS



REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

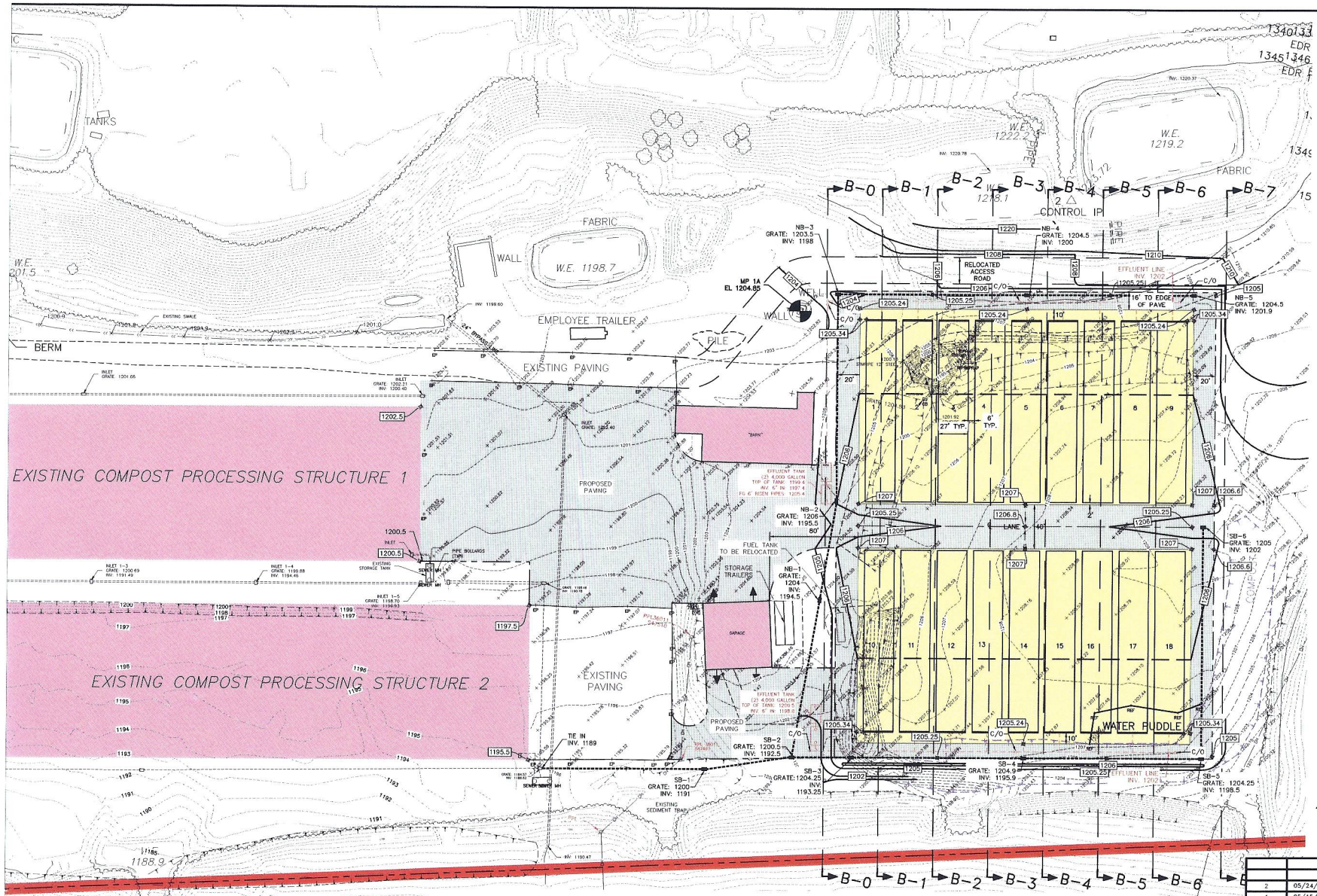
NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers
1406 Laurel Boulevard – Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

OVERALL PLAN

DATE	05/03/23
SCALE	1"=100'
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO	0323-13
SHEET NO	1 of 7



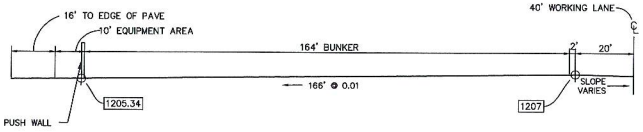
LEGEND

- EXISTING PAVING
- RELOCATED ACCESS ROAD (STONE)
- PROPOSED PAVING
- EFFLUENT LINE (6")
- PROPOSED STORM LINE 15" HDPE
- PROPOSED INLET (SEE DETAIL SHEET)
- EXISTING STRUCTURE
- PROPOSED BUNKERS
- PROPOSED PAVING

40 0 20 40 80 160

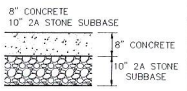
GRAPHIC SCALE

N/F
RAUSCH CREEK
LAND LP
UPI #12-03-0002
RB: 2044-PG: 1001



SCHEMATIC SECTION

NOT TO SCALE



BUNKER AREA PAVING

NOT TO SCALE

REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

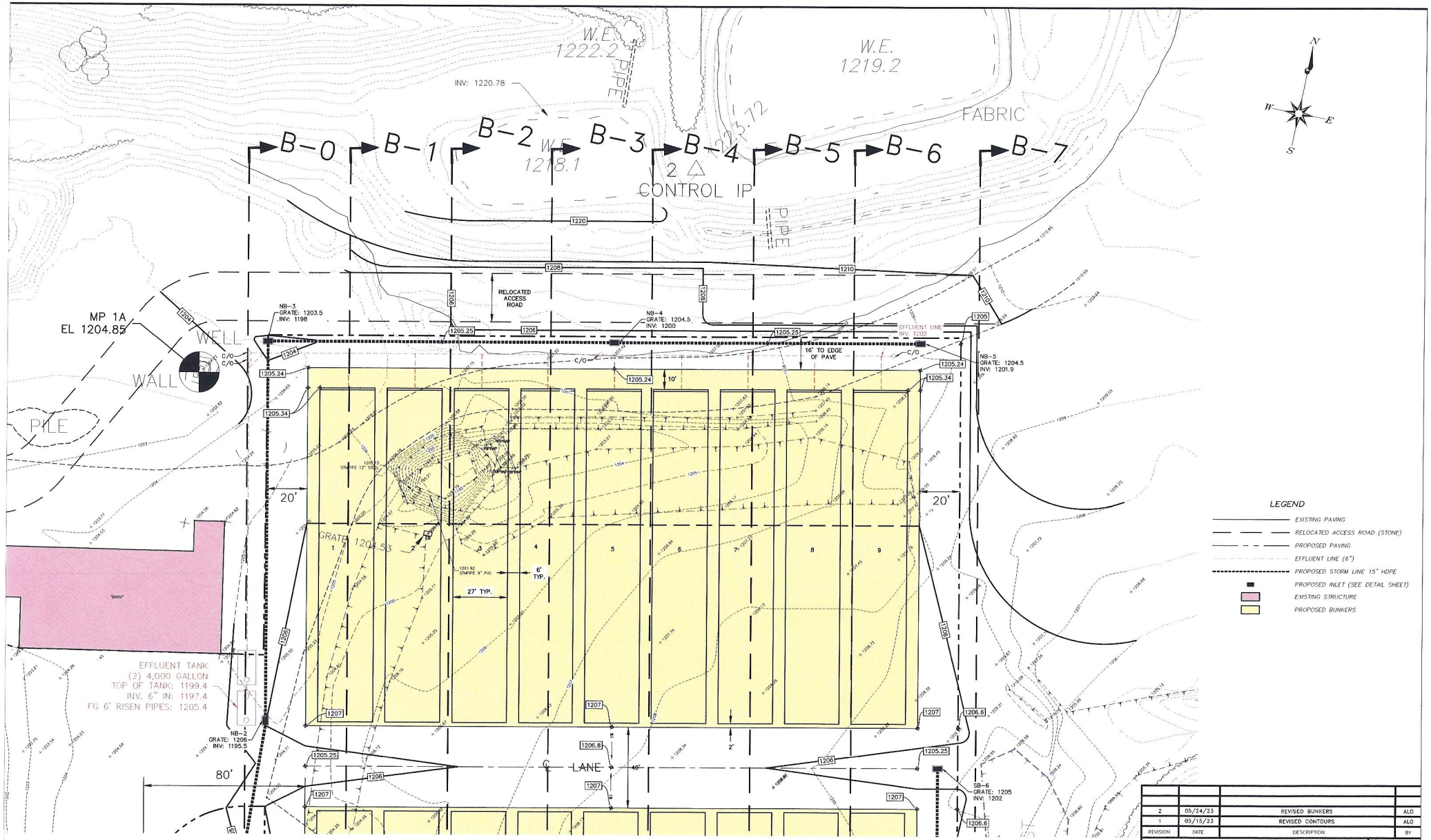
NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers
1406 Laurel Boulevard – Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

SITE and PAVING PLAN

DATE: 05/03/23
SCALE: 1"=40'
DRAWN BY: ALO
APPROVED BY: WJP
DRAWING NO: 0323-13
SHEET NO: 2 of 7



REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

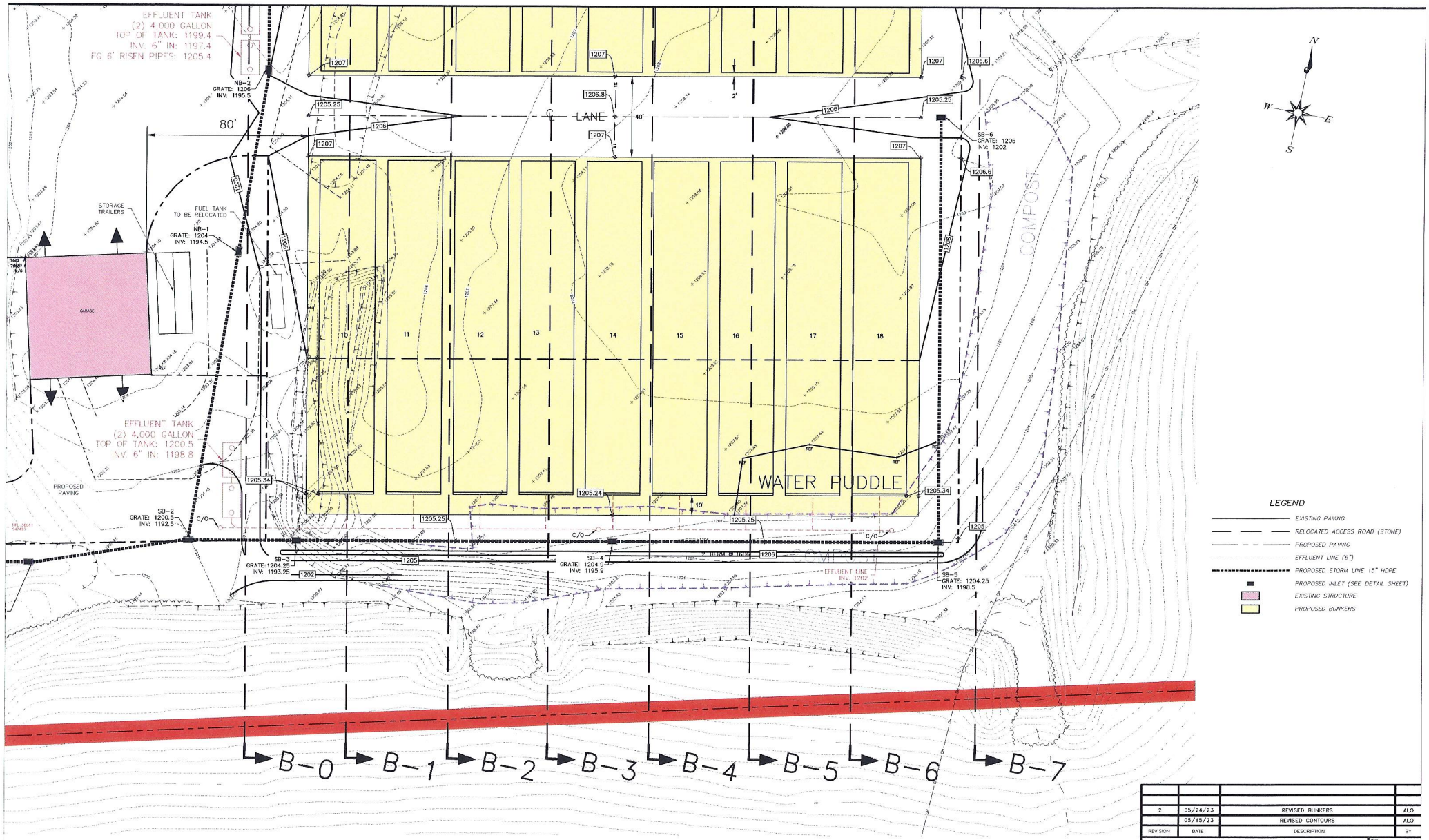
NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers
1405 Laurel Boulevard – Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

NORTH BUNKERS 1-9

DATE: 05/03/23
SCALE: 1"=20'
DRAWN BY: ALO
APPROVED BY: WJP
DRAWING NO: 0323-13
SHEET NO: 3 of 7



REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

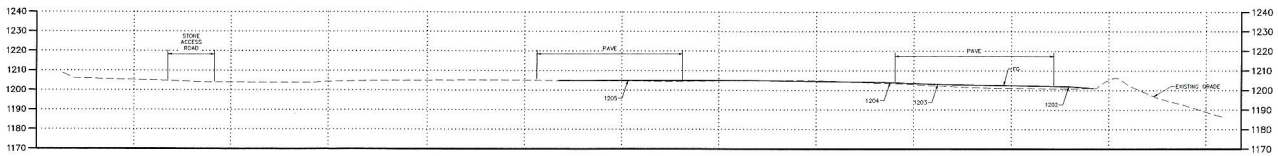
NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers
1406 Laurel Boulevard – Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

SOUTH BUNKERS 10-18

DATE	05/03/23
SCALE	1"=20'
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO.	0323-13
SHEET NO.	4 of 7



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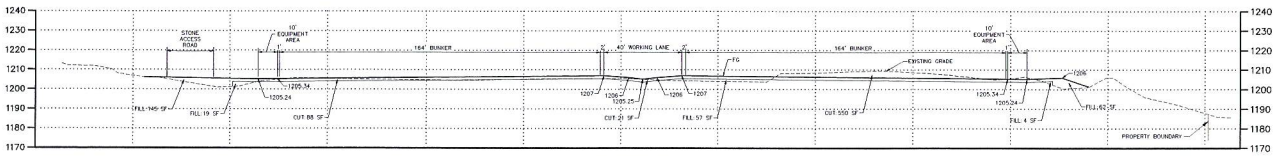

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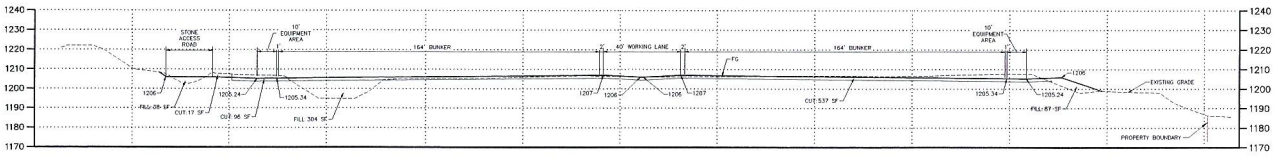

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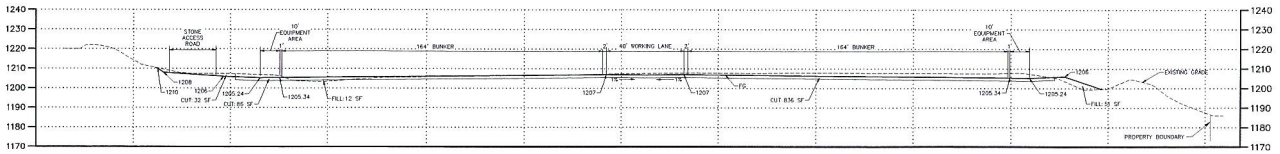


SECTION B-3
SCALE: 1"=30'

SUBGRADE = F.G. – 1.5'

REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

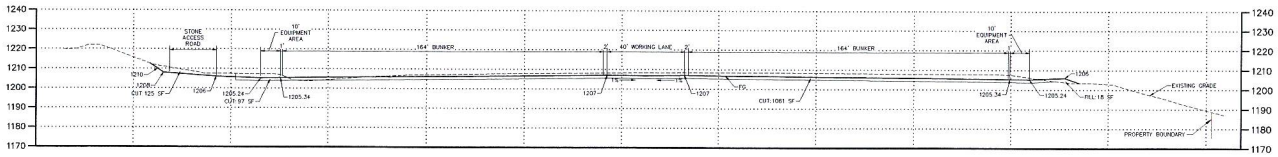
NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers
1406 Laurel Boulevard – Pottsville, PA 17901
Phone (570) 622-4550 Fax (570) 628-4445

SECTIONS B-0 TO B-3

DATE	05/03/23
SCALE	NOTED
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO	0323-13
SHEET NO	5 of 7



SECTION B-4

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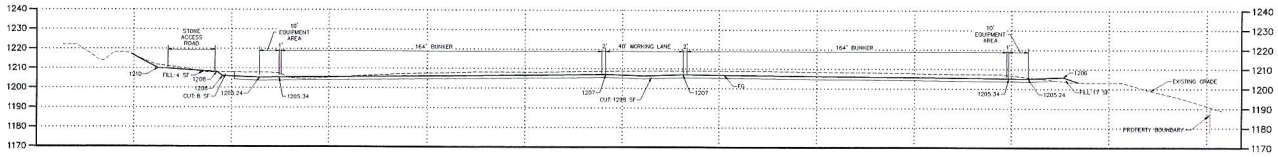
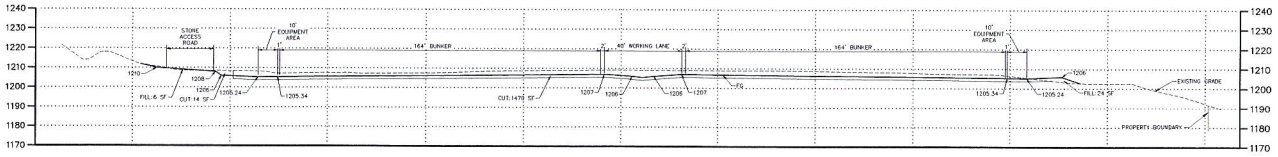


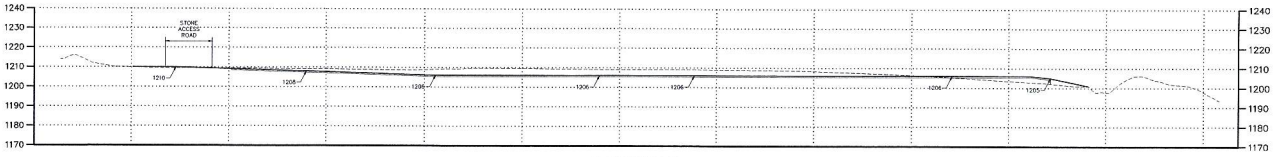
SECTION B-5

SCALE: 1"=30'



SECTION B-6

SCALE: 1"=30'



SECTION B-7

SCALE: 1"=30'

SUBGRADE = F.G. – 1.5'

(SECTION 7) SUBGRADE = F.G. – 0.67'

REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

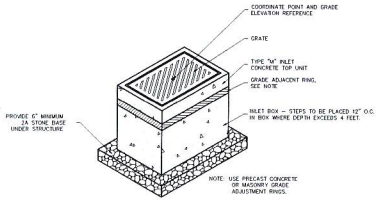
WJP Engineers — 1406 Laurel Boulevard – Pottsville, PA 17901 — Phone (570) 622-4550 Fax (570) 628-4445

SECTIONS B-4 TO B-7

DATE	05/03/23
SCALE	NOTED
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO.	0323-13
SHEET NO.	6 of 7

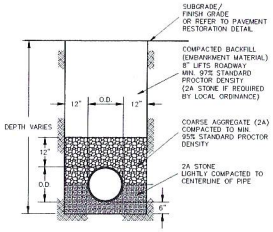
STORMWATER STRUCTURE TABLE

	GRATE	INV.	15" HDPE
EXISTING S2-3 TIE-IN	1194.57	1189	
STRUCTURE SB-1	1200	1191	150
STRUCTURE SB-2	1200.5	1192.5	80
STRUCTURE SB-3	1204.25	1193.25	53.6
STRUCTURE SB-4	1204.9	1195.9	156.5
STRUCTURE SB-5	1204.25	1198.5	161.5
STRUCTURE SB-6	1205	1202	210
STRUCTURE SB-2	1200.5	1192.5	
STRUCTURE NB-1	1204	1194.5	144.8
STRUCTURE NB-2	1206	1195.5	90.8
STRUCTURE NB-3	1203.5	1198	187.6
STRUCTURE NB-4	1204.5	1200	171.5
STRUCTURE NB-5	1204.5	1201.9	151.5



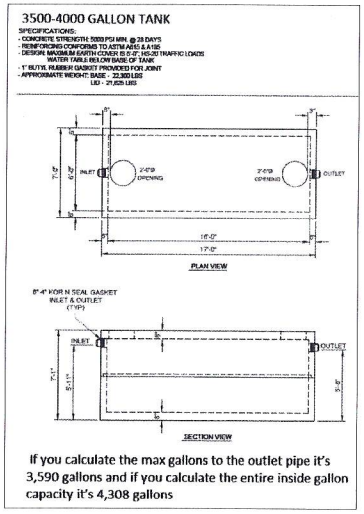
TYPE "M" INLET - PA D.O.T. RC 45

N.T.S.



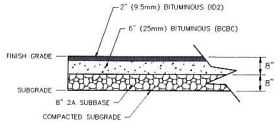
TYPICAL STORM SEWER TRENCH DETAIL

N.T.S.



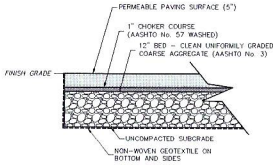
MANUFACTURER STORAGE TANK DETAIL

N.T.S.



BITUMINOUS PAVEMENT

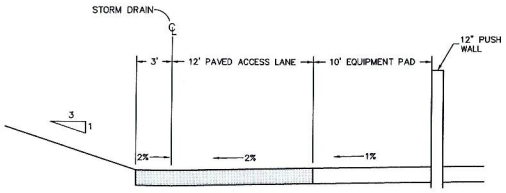
OR



PERMEABLE PAVEMENT

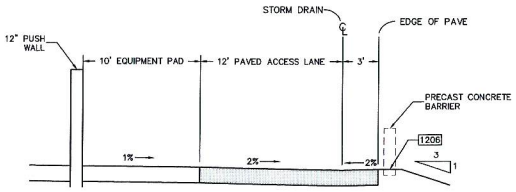
PAVEMENT DETAIL

N.T.S.



NORTH ACCESS LANE TYPICAL DETAIL

SCALE: 1"=5'



SOUTH ACCESS LANE TYPICAL DETAIL

SCALE: 1"=5'

REVISION	DATE	DESCRIPTION	BY
2	05/24/23	REVISED BUNKERS	ALO
1	05/15/23	REVISED CONTOURS	ALO

NATURAL SOIL PRODUCTS
BUNKER LAYOUT PLAN

FRAILEY TOWNSHIP — SCHUYLKILL COUNTY, PA

WJP Engineers — 1405 Laurel Boulevard – Pottsville, PA 17901 — Phone (570) 622-4550 Fax (570) 628-4445

DETAILS

DATE	05/03/23
SCALE	NOTED
DRAWN BY	ALO
APPROVED BY	WJP
DRAWING NO.	0323-13
SHEET NO.	7 of 7

Appendix B

GORE SYSTEM
NSP DEMONSTRATION PROJECT

SG MOBILE® System using GORE® Cover
Project Report Natural Soil Products DRAFT
Tremont, PA

Summer 2022

Photo Source: Sustainable Generation Biosolids Pilot July 2022

From:

Sustainable Generation, LLC
110 South Poplar St, Suite 400
Wilmington, DE 19801

Confidential Information

Summary of Results

The purpose of the demonstration project is to enable Natural Soil Products (NSP) to evaluate the SG MOBILE® System utilizing the GORE® Cover technology, the operational process, and the system performance at its facility.

The primary goal is to develop a solution for controlling Odors and Emissions associated with organic residual material from Biosolids. The pilot will validate that the SG MOBILE® System utilizing the GORE® Cover is an approved solution for the organic waste treatment application in the Natural Soil Products (NSP) environment.

The project will test and provide results for the following:

- Input material mix ratio as follows: (starting mix recipe values)
  - 1:1 by weight or 1:3 by volume biosolids to bulking material
    - Biosolids – typical 65% - 70% moisture
    - Bulking material – shredded/ground wood waste / green yard debris, etc….
  - C:N ratio of 1:25 to 1:35
  - Moisture between 55%-65%
  - Adequate porosity +35% to promote positive aeration in the process
- Finished output product quality and stability
  - The organic material emits no more than seven (7) mg carbon dioxide per gram of organic material (CO2-C) per day; or
  - The material has a Solvita Maturity Index of 5 or greater; or
  - The material has been composted for a period of at least 14 to 21 consecutive calendar days
- **Control of Odors and Emissions:**
  - Non-Scientific Odor evaluation by SG, Gore and Natural Soil Products (NSP) staff using non-scientific methods (nose) to determine effectiveness of trial process for any noticeable odors
- Design, operational, and environmental considerations for the composting application
- Confirmation of treatment time for system sizing, construction, and design considerations

Observations from Pilot Study

1. The primary goal for odor abatement was achieved using non-scientific methods. SG and NSP staff did not notice any malodors emitting from the heap during the 21-day process as well when uncovering for end of process. The end of process material was observed having a dark rich color and good earthy smell.
2. Meet PRFP for Class A compliance according to US EPA 503 regulations. Temperatures exceeded 131° F temperatures and averaged in the 155-165 ° F range for the first 14 days of the process and reduced to below 140° F by the end of the 21-day process in anticipation of screening and storage.
3. Process water was not required. As well there was no observed excess leachate coming off from the heap, as well experienced a several thunderstorm rain events, which did not impact the process. The GORE® Cover provided for a clear separation of leachate from stormwater water management.
4. Compost Quality and Stability - results from Soil Test Labs demonstrated a stabilized finished compost meeting required for a Class A compliance. Upon visual inspection by experienced SG and NSP compost operators the organic material is consistent with a healthy stabilized compost.

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Objectives from Project Plan and Achieved Results

Criteria	Requirement	Report By	Achieved
Time/Temp (PFRP)	3 days at 131° F	SG CC Software	YES
Odor	Nasal Observation	SG & NSP Staff	NO noticeable odors
Leachate	Visual Observation	SG & NSP Staff	None observed
Compost Quality	Visual Observation 3rd Party Lab Sampling	SG & NSP Staff Soil Test Lab Analysis	See Lab Analysis Report

SG Compost Control System Regulatory Report

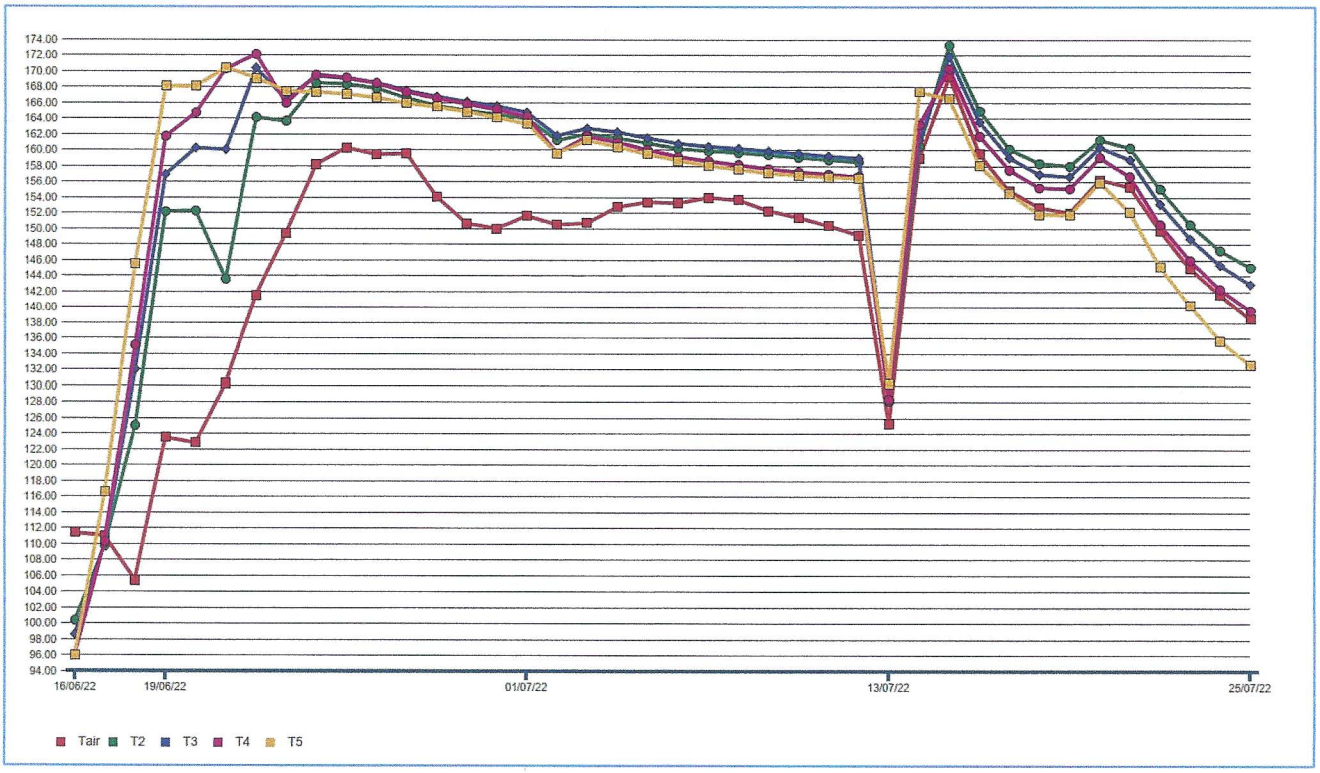
Sensor Readings

Company: Natural Soil Products

,

Heap: H1

Report Generated On: 2022-08-01 14:28:55



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Date	Heap Name	Location	Tair	T2	T3	T4	T5
2022-07-25	H1	L1	138.50	145.05	142.90	139.59	132.60
2022-07-24	H1	L1	141.57	147.20	145.34	142.27	135.70
2022-07-23	H1	L1	144.90	150.48	148.70	145.95	140.22
2022-07-22	H1	L1	149.72	155.03	153.14	150.47	145.11
2022-07-21	H1	L1	155.32	160.26	158.79	156.66	152.08
2022-07-20	H1	L1	156.28	161.24	160.31	159.04	155.94
2022-07-19	H1	L1	152.01	158.00	156.66	155.11	151.75
2022-07-18	H1	L1	152.69	158.34	156.94	155.24	151.82
2022-07-17	H1	L1	154.85	160.10	159.03	157.50	154.49
2022-07-16	H1	L1	159.50	164.95	163.54	161.77	158.10
2022-07-15	H1	L1	169.35	173.27	171.86	170.34	166.48
2022-07-14	H1	L1	158.97	160.47	161.29	163.18	167.39
2022-07-13	H1	L1	125.23	128.08	128.63	128.31	130.27
2022-07-12	H1	L1	149.16	158.51	158.97	156.66	156.46
2022-07-11	H1	L1	150.35	158.78	159.23	156.95	156.61
2022-07-10	H1	L1	151.41	159.07	159.54	157.24	156.80
2022-07-09	H1	L1	152.28	159.39	159.85	157.63	157.10
2022-07-08	H1	L1	153.66	159.69	160.18	158.12	157.56
2022-07-07	H1	L1	153.98	159.88	160.42	158.60	158.04
2022-07-06	H1	L1	153.25	160.16	160.79	159.14	158.65
2022-07-05	H1	L1	153.41	160.88	161.51	160.02	159.49
2022-07-04	H1	L1	152.75	161.49	162.25	160.97	160.40
2022-07-03	H1	L1	150.69	162.00	162.72	161.71	161.22
2022-07-02	H1	L1	150.50	161.23	161.78	159.59	159.60
2022-07-01	H1	L1	151.63	163.96	164.74	164.20	163.27
2022-06-30	H1	L1	149.99	164.51	165.55	165.10	164.09
2022-06-29	H1	L1	150.63	164.97	166.12	165.81	164.83
2022-06-28	H1	L1	154.09	165.59	166.76	166.54	165.43
2022-06-27	H1	L1	159.55	166.58	167.51	167.34	165.91
2022-06-26	H1	L1	159.41	167.82	168.52	168.44	166.62
2022-06-25	H1	L1	160.26	168.34	169.05	169.13	167.09
2022-06-24	H1	L1	158.19	168.49	169.38	169.51	167.35
2022-06-23	H1	L1	149.36	163.62	166.40	165.92	167.48
2022-06-22	H1	L1	141.50	164.10	170.38	172.11	169.08
2022-06-21	H1	L1	130.34	143.54	160.03	170.27	170.42
2022-06-20	H1	L1	122.82	152.26	160.21	164.71	168.06
2022-06-19	H1	L1	123.49	152.17	156.89	161.68	168.07
2022-06-18	H1	L1	105.42	125.01	131.99	135.04	145.44
2022-06-17	H1	L1	111.01	109.75	110.00	110.31	116.60
2022-06-16	H1	L1	111.38	100.37	98.58	95.99	95.99

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US Composting Council ®
STA Certified Lab

soiltest
farm consultants, inc.
2925 Driggs Dr., Moses Lake, Wa 98837 - www.soiltestlab.com
Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client: **W. L. Gore** Attn: Brian Fuchs 105 Vieves Way Elkton, MD 21921 610-733-4078	Product: **Batch 2 Front Middle** Date Sampled: 08/23/22 Date Received: 08/24/22 **Invoice #: C22-1050**	Date Reported: 09/12/22 **Laboratory # C22-1050** Reveiwed by Brent Thyssen, CPSSc **PO#: ral Soil Products** **Amount: $205.00**

Nutrients

	Method	As Received	Dry Wt.	Units	Low	Normal	High	Typical Range
Moisture	70 C	52		%	**********			15 to 40
Solids	70 C	48		%	**********			60 to 85
pH	1:5	6.5	NA	SU	**********			5.5 to 8.5
E.C. (Sol. Salts)	1:5	7.27	15.00	mmhos/cm	**********			below 5.0
Total N	TMECC 04.02D	1.73	3.56	%	**********			1 to 5
Organic C	TMECC 04.01A	18.7	38.5	%	**********			18 to 45
Organic Matter	TMECC 05.07A	37.8	77.9	%	**********			40 to 60
Ash	550 C	10.7	22.1	%	**			40 to 60
Ammonium -N	TMECC 05.02C	7740	15969	mg/kg				90 to 450
Nitrate-N	TMECC 04.02B	2.8	5.8	mg/kg	***			50 to 250
Phosphorous	TMECC 04.12B/04.14A	0.65	1.34	%				
P_2O_5	calculation	1.48	3.06	%	**********			1 to 8
Potassium	TMECC 04.12B/04.14A	0.10	0.20	%				
K_2O	calculation	0.12	0.24	%	****			3 to 12
Calcium	TMECC 04.12B/04.14A	0.62	1.3	%	**********			0.5 to 10
Magnesium	TMECC 04.12B/04.14A	0.17	0.35	%	**********			0.05 to 0.7
Sodium	TMECC 04.12B/04.14A	0.04	0.09	%	**********			0.05 to 0.7
Sulfur	TMECC 04.12B/04.14A	0.40	0.82	%	**********			0.1 to 1.0
Boron	TMECC 04.12B/04.14A	0	1	mg/kg	****			25 to 150
Zinc	TMECC 04.12B/04.14A	295	609	mg/kg	**********			100 to 600
Manganese	TMECC 04.12B/04.14A	389	803	mg/kg	**********			250 to 750
Copper	TMECC 04.12B/04.14A	162	334	mg/kg	**********			100 to 500
Iron	TMECC 04.12B/04.14A	11647	24030	mg/kg	**********			1000 to 25000
C/N ratio			11	ratio	********			18 to 24
C/P Ratio			29	ratio	******			80 to 140

Respiration & Stability

	Method		Units	Low	Normal	High	Normal
CO2 Evolution	TMECC 05.08	2.7	mg CO_2-C/g OM/day	**********			1 to 7
	TMECC 05.08	5.9	mg CO_2-C/g TS/day	**********			0.5 to 5
Stability Rating		Very Stable					

Sample was received, handled and tested in accordance with TMECC procedures

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farm consultants, inc.
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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client:	W. L. Gore 105 Vieves Way Elkton, MD 21921 610-733-4078	Product: **Batch 2 Front Middle** Date Sampled: 08/23/22 Date Received: 08/24/22		Date Reported: 09/12/22 Laboratory # C22-1050 Reveiwed by Brent Thyssen, CPSSc

Cucumber Bioassay

	Method		Units	Low	Normal	Normal
Emergence	TMECC 05.05A	**0**	%	*******		80 to 100
Vigor	TMECC 05.05A	**0**	%	*******		85 to 100
Maturity		**Immature**				

Pathogens

	Method		Date Tested units	8/24/2022	Low	Normal	High		Normal
Fecal Coliforms	TMECC 07.01AB	**<5**	MPN/g	**PASS**	*				Less than 1000
Salmonella	TMECC 07.02A	**Not Tested**	MPN/4g						Less than 3

ND = None Detected Fecal Coliforms MDL 4.7 MPN/g Salmonella MDL 1 MPN/4g

EPA 503 Metals

	Method	Dry Wt.	Units	Low	Normal	High	MDL	EPA Limit
Arsenic	TMECC 04.12B/04.14A	**3.3**	mg/kg	****			0.78	41
Cadmium	TMECC 04.12B/04.14A	**1.3**	mg/kg	****			0.42	39
Chromium	TMECC 04.12B/04.14A	**15.9**	mg/kg				0.09	-
Cobalt	TMECC 04.12B/04.14A	**2.8**	mg/kg	****			0.07	1200
Copper	TMECC 04.12B/04.14A	**334**	mg/kg	**********			0.13	1500
Mercury	TMECC 04.12B/04.14A	**0.39**	mg/kg	****			0.004	17
Molybdenum	TMECC 04.12B/04.14A	**5.2**	mg/kg	********			0.05	75
Nickel	TMECC 04.12B/04.14A	**10.2**	mg/kg	****			0.36	420
Lead	TMECC 04.12B/04.14A	**72.9**	mg/kg	*******			0.60	300
Selenium	TMECC 04.12B/04.14A	**5.8**	mg/kg	********			1.40	100
Zinc	TMECC 04.12B/04.14A	**609**	mg/kg	**********			0.27	2800
	Metals Assay	**PASS**						

Particle Size Distribution TMECC 2.02 B & C

inches	mm	% Passing	Inerts	% by wt.
3	76.2	**100**		
2	50	**100**	Total Plastic	**0.00**
1	25	**76**	Film Plastic	**0.00**
3/4	19.1	**65**	Glass	**0.00**
5/8	16	**54**	Metal	**0.00**
1/2	12.5	**41**	Sharps	**0.00**
3/8	9.5	**31**		
1/4	6.3	**19**		

Sample was received, handled and tested in accordance with TMECC procedures

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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

W. L. Gore
Attn: Brian Fuchs
105 Vieves Way
Elkton, MD 21921
610-733-4078

DATE REC 24-Aug-22
INVOICE # 24-Aug-22
LAB # C22-1050
Date Reported: 09/12/22

NUTRIENT REPORT

SAMPLE I.D.: Batch 2 Front Middle

	%SOLIDS	%WATER
As Received:	48.47	51.53

TOTAL	--------100%DRY----------		-----AS RECEIVED------	
ELEMENTS	%	lbs/ton	%	lbs/ton
TN	3.56	71.20	1.73	34.5
P	1.34	26.74	0.65	13.0
P205	3.08	61.50	1.49	29.8
K	0.20	4.02	0.10	1.9
K20	0.24	4.83	0.12	2.3
S	0.82	16.45	0.40	8.0
Ca	1.28	25.6	0.62	12.4
Mg	0.35	6.95	0.17	3.4
Na	0.09	1.83	0.04	0.9
C	38.50	770	18.7	373
	mg/kg	lbs/ton	mg/kg	lbs/ton
Zn	609	1.22	295	0.59
Mn	803	1.61	389	0.78
Cu	334	0.67	162	0.32
Fe	24030	48.06	11647	23.3
B	1	0.00	0.48	0.00
Nitrate N	6	0.01	2.8	0.01
Ammonium N	15969	31.94	7740	15.48
C:N Ratio			11	
pH			6.5	
E.C.	15.00		7.27	

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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client:	**W. L. Gore**	Date Sampled:	**08/23/22**
Product:	**Batch 2 Front Middle**	Date Received:	**08/24/22**
Lab #	**C22-1050**	Date Reported:	**09/12/22**

INTERPRETATION GUIDE

SAFETY INTERPRETATIONS

Pathogens

Fecal coliform bacteria are present in the gut and fecal mater of warm-blooded animals. Their presence is used as an indicator of the presence of possible human pathogens. The heat generated during proper composting is lethal to fecal coliform and other human pathogens. A test value below 1,000 per gram of compost is considered generally safe for human contact. As the compost is stored or transported, the temperature is no longer lethal for coliform bacteria and there is the possibility for regrowth or contamination by birds or other animals.

Your compost was tested for fecal coliform and found to be: VERY SAFE

Salmonella is a human pathogenic bacteria and a good indicator of other human pathogens. It is regularly used to monitor the liklihood of human pathogen presence in biosolids.

Your compost was not tested for salmonella bacteria.

Heavy Metals

9 heavy metals were identified with maximum concentration limits for land application in biosolids by USEPA in 40 CFR Part 503,B. Ongoing applications to the land are prohibited if any metal concentration exceed the limits in Table 3 of Part 503.13.

If the bars on the "Heavy Metals" for your compost are within or below the "Normal" range, your compost is safe to use as a soil amendment.

COMPOST STABILITY AND MATURITY

Respiration

Respiration is the measurement of microbially generated CO2 from the compost when incubated at optimal temperature and moisture. It provides an indication of whether the composting process is complete and whether the compost is mature and ready for use. However, other factors may be limiting microbial activity (see C:N Ratio below)

Your Compost was rated as **Very Stable: well cured, finished compost; no odors or plant toxicity**

Maturity

Bioassay

Cucumbers are grown in a fixed blend of your compost and a commercial potting mix maintained at optimum moisture and temperature. Cucumbers are relatively insensitive to salinity, but very sensative to ammonia, organic acids and herbicide residue. Emergence and Vigor are rated: results greater than 80% indicate that your compost is mature and/or contains no hervicide carryover. Very high salinity can also reduce assay results.

Your Compost Emergence %	**0**	Your Compost vigor %	**0**

Total Nitrogen, Nitrate & Ammonium

Ammonia is produced as a gas in the early stages of composting. The ammonium is nitrified to nitrate as the compost matures. Ammonia is toxic to plants at relatively low concentrations but under moist conditions is converted to ammonium which is less toxic. Nitrate is not toxic, but does contribute to overall salinity if very high. The pH of the compost typically starts out low as organic acids are released, then increases as ammonia is produced, then settles back towards nuetral (7.0) as ammonium is nitrified and the compost matures.

Your Compost Ammonium level was	**15969**	Your Compost Ammonium:Nitrate ratio was	**2764**
Your Compost Ammonium:Total N ratio was	**0.45**	Your Compost pH was	**6.5**

Considering all the factors above, your Compost is Immature: apply to fallow soil

FERTILITY INTERPRETATIONS

C:N Ratio

The carbon to nitrogen ratio is important to determine 1) if the composting process is complete or simply stalled out because of lack of nitrogen and 2) whether the compost, when applied to the soil, will act as a source of nitrogen for the crop or become a sink causing the crops to starve for nitrogen.

Your C:N ratio was **11** **Your compost will tend to release available N for crop use.**

Electrical Conductivity is a convenient way to evaluate the soluble salts or salinity of a compost. High salinity is damaging to plants.

The EC of your Compost was **15.0** **V. High: use only a very low application rates**

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farm consultants, inc.
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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client: **W. L. Gore** Attn: Brian Fuchs 105 Vieves Way Elkton, MD 21921 610-733-4078	Product: **Batch 2 Middle Middle** Date Sampled: 08/23/22 Date Received: 08/24/22 **Invoice #: C22-1051**	Date Reported: 09/12/22 **Laboratory # C22-1051** Reveiwed by Brent Thyssen, CPSSc **PO#: ral Soil Products** **Amount: $205.00**

Nutrients

	Method	As Received	Dry Wt.	Units	Low	Normal	High	Typical Range
Moisture	70 C	42		%	**********			15 to 40
Solids	70 C	58		%	**********			60 to 85
pH	1:5	7.9	NA	SU	**********			5.5 to 8.5
E.C. (Sol. Salts)	1:5	6.51	11.20	mmhos/cm	**********			below 5.0
Total N	TMECC 04.02D	2.09	3.60	%	**********			1 to 5
Organic C	TMECC 04.01A	22.5	38.7	%	**********			18 to 45
Organic Matter	TMECC 05.07A	45.9	79.0	%	**********			40 to 60
Ash	550 C	12.2	21.0	%	**			40 to 60
Ammonium -N	TMECC 05.02C	7364	12675	mg/kg				90 to 450
Nitrate-N	TMECC 04.02B	2.0	3.4	mg/kg	***			50 to 250
Phosphorous	TMECC 04.12B/04.14A	0.82	1.42	%				
P_2O_5	calculation	1.88	3.24	%	**********			1 to 8
Potassium	TMECC 04.12B/04.14A	0.12	0.20	%				
K_2O	calculation	0.14	0.24	%	****			3 to 12
Calcium	TMECC 04.12B/04.14A	0.77	1.3	%	**********			0.5 to 10
Magnesium	TMECC 04.12B/04.14A	0.22	0.39	%	**********			0.05 to 0.7
Sodium	TMECC 04.12B/04.14A	0.05	0.09	%	**********			0.05 to 0.7
Sulfur	TMECC 04.12B/04.14A	0.46	0.79	%	**********			0.1 to 1.0
Boron	TMECC 04.12B/04.14A	1	1	mg/kg	****			25 to 150
Zinc	TMECC 04.12B/04.14A	350	602	mg/kg	**********			100 to 600
Manganese	TMECC 04.12B/04.14A	509	876	mg/kg	**********			250 to 750
Copper	TMECC 04.12B/04.14A	193	333	mg/kg	**********			100 to 500
Iron	TMECC 04.12B/04.14A	15152	26080	mg/kg	**********			1000 to 25000
C/N ratio			11	ratio	********			18 to 24
C/P Ratio			27	ratio	******			80 to 140

Respiration & Stability

	Method		Units	Low	Normal	High	Normal
CO2 Evolution	TMECC 05.08	1.8	mg CO_2-C/g OM/day	**********			1 to 7
	TMECC 05.08	3.7	mg CO_2-C/g TS/day	**********			0.5 to 5
Stability Rating		Very Stable					

Sample was received, handled and tested in accordance with TMECC procedures

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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client:	**W. L. Gore** 105 Vieves Way Elkton, MD 21921 610-733-4078	Product: **Batch 2 Middle Middle** Date Sampled: 08/23/22 Date Received: 08/24/22	Date Reported: 09/12/22 Laboratory # C22-1051 Reveiwed by Brent Thyssen, CPSSc

Cucumber Bioassay

	Method		Units	Low	Normal	Normal
Emergence	TMECC 05.05A	**0**	%	*******		80 to 100
Vigor	TMECC 05.05A	**0**	%	*******		85 to 100
Maturity		**Immature**				

Pathogens

	Method		Date Tested units	8/24/2022	Low	Normal	High		Normal
Fecal Coliforms	TMECC 07.01AB	**620**	MPN/g	**PASS**	**********				Less than 1000
Salmonella	TMECC 07.02A	**Not Tested**	MPN/4g						Less than 3

ND = None Detected Fecal Coliforms MDL 4.0 MPN/g Salmonella MDL 1 MPN/4g

EPA 503 Metals

	Method	Dry Wt.	Units	Low	Normal	High	MDL	EPA Limit
Arsenic	TMECC 04.12B/04.14A	**1.5**	mg/kg	****			0.78	41
Cadmium	TMECC 04.12B/04.14A	**1.2**	mg/kg	****			0.42	39
Chromium	TMECC 04.12B/04.14A	**16.1**	mg/kg				0.09	-
Cobalt	TMECC 04.12B/04.14A	**2.9**	mg/kg	****			0.07	1200
Copper	TMECC 04.12B/04.14A	**333**	mg/kg	**********			0.13	1500
Mercury	TMECC 04.12B/04.14A	**0.53**	mg/kg	****			0.004	17
Molybdenum	TMECC 04.12B/04.14A	**3.9**	mg/kg	****			0.05	75
Nickel	TMECC 04.12B/04.14A	**10.3**	mg/kg	****			0.36	420
Lead	TMECC 04.12B/04.14A	**73.4**	mg/kg	*******			0.60	300
Selenium	TMECC 04.12B/04.14A	**11.8**	mg/kg	**********			1.40	100
Zinc	TMECC 04.12B/04.14A	**602**	mg/kg	**********			0.27	2800
	Metals Assay	**PASS**						

Particle Size Distribution TMECC 2.02 B & C

inches	mm	% Passing	Inerts	% by wt.
3	76.2	**100**		
2	50	**100**	Total Plastic	**0.00**
1	25	**79**	Film Plastic	**0.00**
3/4	19.1	**62**	Glass	**0.00**
5/8	16	**56**	Metal	**0.00**
1/2	12.5	**47**	Sharps	**0.00**
3/8	9.5	**37**		
1/4	6.3	**25**		

Sample was received, handled and tested in accordance with TMECC procedures

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W. L. Gore
Attn: Brian Fuchs
105 Vieves Way
Elkton, MD 21921
610-733-4078

DATE REC 24-Aug-22
INVOICE # 24-Aug-22
LAB # C22-1051
Date Reported: 09/12/22

NUTRIENT REPORT

SAMPLE I.D.: Batch 2 Middle Middle

	%SOLIDS	%WATER
As Received:	58.10	41.90

TOTAL	--------100%DRY----------		-----AS RECEIVED------	
ELEMENTS	%	lbs/ton	%	lbs/ton
TN	3.60	72.00	2.09	41.8
P	1.42	28.30	0.82	16.4
P205	3.25	65.09	1.89	37.8
K	0.20	4.02	0.12	2.3
K20	0.24	4.82	0.14	2.8
S	0.79	15.77	0.46	9.2
Ca	1.33	26.6	0.77	15.5
Mg	0.39	7.71	0.22	4.5
Na	0.09	1.82	0.05	1.1
C	38.70	774	22.5	450
	mg/kg	lbs/ton	mg/kg	lbs/ton
Zn	602	1.20	350	0.70
Mn	876	1.75	509	1.02
Cu	333	0.67	193	0.39
Fe	26080	52.16	15152	30.3
B	1	0.00	0.58	0.00
Nitrate N	3	0.01	2.0	0.00
Ammonium N	12675	25.35	7364	14.73
C:N Ratio			11	
pH			7.9	
E.C.	11.20		6.51	

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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client:	**W. L. Gore**	Date Sampled:	**08/23/22**
Product:	**Batch 2 Middle Middle**	Date Received:	**08/24/22**
Lab #	**C22-1051**	Date Reported:	**09/12/22**

INTERPRETATION GUIDE

SAFETY INTERPRETATIONS

Pathogens

Fecal coliform bacteria are present in the gut and fecal mater of warm-blooded animals. Their presence is used as an indicator of the presence of possible human pathogens. The heat generated during proper composting is lethal to fecal coliform and other human pathogens. A test value below 1,000 per gram of compost is considered generally safe for human contact. As the compost is stored or transported, the temperature is no longer lethal for coliform bacteria and there is the possibility for regrowth or contamination by birds or other animals.

Your compost was tested for fecal coliform and found to be: SAFE

Salmonella is a human pathogenic bacteria and a good indicator of other human pathogens. It is regularly used to monitor the liklihood of human pathogen presence in biosolids.

Your compost was not tested for salmonella bacteria.

Heavy Metals

9 heavy metals were identified with maximum concentration limits for land application in biosolids by USEPA in 40 CFR Part 503,B. Ongoing applications to the land are prohibited if any metal concentration exceed the limits in Table 3 of Part 503.13.

If the bars on the "Heavy Metals" for your compost are within or below the "Normal" range, your compost is safe to use as a soil amendment.

COMPOST STABILITY AND MATURITY

Respiration

Respiration is the measurement of microbially generated CO2 from the compost when incubated at optimal temperature and moisture. It provides an indication of whether the composting process is complete and whether the compost is mature and ready for use. However, other factors may be limiting microbial activity (see C:N Ratio below)

Your Compost was rated as **Very Stable: well cured, finished compost; no odors or plant toxicity**

Maturity

Bioassay

Cucumbers are grown in a fixed blend of your compost and a commercial potting mix maintained at optimum moisture and temperature. Cucumbers are relatively insensitive to salinity, but very sensative to ammonia, organic acids and herbicide residue. Emergence and Vigor are rated: results greater than 80% indicate that your compost is mature and/or contains no hervicide carryover. Very high salinity can also reduce assay results.

Your Compost Emergence % **0** Your Compost vigor % **0**

Total Nitrogen, Nitrate & Ammonium

Ammonia is produced as a gas in the early stages of composting. The ammonium is nitrified to nitrate as the compost matures. Ammonia is toxic to plants at relatively low concentrations but under moist conditions is converted to ammonium which is less toxic. Nitrate is not toxic, but does contribute to overall salinity if very high. The pH of the compost typically starts out low as organic acids are released, then increases as ammonia is produced, then settles back towards nuetral (7.0) as ammonium is nitrified and the compost matures.

Your Compost Ammonium level was	**12675**	Your Compost Ammonium:Nitrate ratio was	**3682**
Your Compost Ammonium:Total N ratio was	**0.35**	Your Compost pH was	**7.9**

Considering all the factors above, your Compost is Immature: apply to fallow soil

FERTILITY INTERPRETATIONS

C:N Ratio

The carbon to nitrogen ratio is important to determine 1) if the composting process is complete or simply stalled out because of lack of nitrogen and 2) whether the compost, when applied to the soil, will act as a source of nitrogen for the crop or become a sink causing the crops to starve for nitrogen.

Your C:N ratio was **11** **Your compost will tend to release available N for crop use.**

Electrical Conductivity is a convenient way to evaluate the soluble salts or salinity of a compost. High salinity is damaging to plants.

The EC of your Compost was **11.2** **V. High: use only a very low application rates**

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Client: **W. L. Gore**	Product: **Batch 2 End Middle**	Date Reported: 09/12/22
Attn: Brian Fuchs	Date Sampled: 08/23/22	**Laboratory # C22-1052**
105 Vieves Way	Date Received: 08/24/22	Reveiwed by Brent Thyssen, CPSSc
Elkton, MD 21921	**Invoice #: C22-1052**	**PO#: ral Soil Products**
610-733-4078		**Amount: $205.00**

Nutrients

	Method	As Received	Dry Wt.	Units	Low	Normal	High	Typical Range
Moisture	70 C	48		%	**********			15 to 40
Solids	70 C	52		%	**********			60 to 85
pH	1:5	6.8	NA	SU	**********			5.5 to 8.5
E.C. (Sol. Salts)	1:5	7.27	13.90	mmhos/cm	**********			below 5.0
Total N	TMECC 04.02D	1.48	2.82	%	**********			1 to 5
Organic C	TMECC 04.01A	22.1	42.3	%	**********			18 to 45
Organic Matter	TMECC 05.07A	45.5	86.9	%	**********			40 to 60
Ash	550 C	6.8	13.1	%	**			40 to 60
Ammonium -N	TMECC 05.02C	6250	11942	mg/kg				90 to 450
Nitrate-N	TMECC 04.02B	1.8	3.4	mg/kg	***			50 to 250
Phosphorous	TMECC 04.12B/04.14A	0.39	0.75	%				
P_2O_5	calculation	0.90	1.72	%	**********			1 to 8
Potassium	TMECC 04.12B/04.14A	0.08	0.15	%				
K_2O	calculation	0.09	0.18	%	****			3 to 12
Calcium	TMECC 04.12B/04.14A	0.49	0.9	%	**********			0.5 to 10
Magnesium	TMECC 04.12B/04.14A	0.12	0.23	%	**********			0.05 to 0.7
Sodium	TMECC 04.12B/04.14A	0.03	0.07	%	**********			0.05 to 0.7
Sulfur	TMECC 04.12B/04.14A	0.30	0.56	%	**********			0.1 to 1.0
Boron	TMECC 04.12B/04.14A	2	4	mg/kg	****			25 to 150
Zinc	TMECC 04.12B/04.14A	189	362	mg/kg	**********			100 to 600
Manganese	TMECC 04.12B/04.14A	262	501	mg/kg	**********			250 to 750
Copper	TMECC 04.12B/04.14A	107	205	mg/kg	**********			100 to 500
Iron	TMECC 04.12B/04.14A	6646	12700	mg/kg	**********			1000 to 25000
C/N ratio			15	ratio	********			18 to 24
C/P Ratio			56	ratio	******			80 to 140

Respiration & Stability

	Method		Units	Low	Normal	High	Normal
CO2 Evolution	TMECC 05.08	2.6	mg CO_2-C/g OM/day	**********			1 to 7
	TMECC 05.08	7.2	mg CO_2-C/g TS/day	**********			0.5 to 5
Stability Rating		Very Stable					

Sample was received, handled and tested in accordance with TMECC procedures

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Client:	W. L. Gore	Product:	Batch 2 End Middle	Date Reported:	09/12/22
	105 Vieves Way	Date Sampled:	08/23/22	Laboratory #	C22-1052
	Elkton, MD 21921	Date Received:	08/24/22	Reveiwed by	Brent Thyssen, CPSSc
	610-733-4078				

Cucumber Bioassay

	Method		Units	Low	Normal	Normal
Emergence	TMECC 05.05A	0	%	*******		80 to 100
Vigor	TMECC 05.05A	0	%	*******		85 to 100
Maturity		Immature				

Pathogens

	Method		Date Tested units	8/24/2022	Low	Normal	High		Normal
Fecal Coliforms	TMECC 07.01AB	<4	MPN/g	PASS	*				Less than 1000
Salmonella	TMECC 07.02A	Not Tested	MPN/4g						Less than 3

ND = None Detected Fecal Coliforms MDL 4.4 MPN/g Salmonella MDL 1 MPN/4g

EPA 503 Metals

	Method	Dry Wt.	Units	Low	Normal	High	MDL	EPA Limit
Arsenic	TMECC 04.12B/04.14A	1.6	mg/kg	****			0.78	41
Cadmium	TMECC 04.12B/04.14A	0.5	mg/kg	****			0.42	39
Chromium	TMECC 04.12B/04.14A	9.7	mg/kg				0.09	-
Cobalt	TMECC 04.12B/04.14A	1.7	mg/kg	****			0.07	1200
Copper	TMECC 04.12B/04.14A	205	mg/kg	****			0.13	1500
Mercury	TMECC 04.12B/04.14A	0.32	mg/kg	****			0.004	17
Molybdenum	TMECC 04.12B/04.14A	3.6	mg/kg	****			0.05	75
Nickel	TMECC 04.12B/04.14A	6.8	mg/kg	****			0.36	420
Lead	TMECC 04.12B/04.14A	41.5	mg/kg	****			0.60	300
Selenium	TMECC 04.12B/04.14A	2.0	mg/kg	****			1.40	100
Zinc	TMECC 04.12B/04.14A	362	mg/kg	**********			0.27	2800
	Metals Assay	PASS						

Particle Size Distribution TMECC 2.02 B & C

inches	mm	% Passing	Inerts	% by wt.
3	76.2	100		
2	50	94	Total Plastic	0.00
1	25	78	Film Plastic	0.00
3/4	19.1	63	Glass	0.00
5/8	16	53	Metal	0.00
1/2	12.5	38	Sharps	0.00
3/8	9.5	28		
1/4	6.3	12		

Sample was received, handled and tested in accordance with TMECC procedures

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W. L. Gore
Attn: Brian Fuchs
105 Vieves Way
Elkton, MD 21921
610-733-4078

DATE REC 24-Aug-22
INVOICE # 24-Aug-22
LAB # C22-1052
Date Reported: 09/12/22

NUTRIENT REPORT

SAMPLE I.D.: Batch 2 End Middle

	%SOLIDS	%WATER
As Received:	52.33	47.67

TOTAL	--------100%DRY----------		-----AS RECEIVED------	
ELEMENTS	%	lbs/ton	%	lbs/ton
TN	2.82	56.40	1.48	29.5
P	0.75	15.01	0.39	7.9
P205	1.73	34.53	0.90	18.1
K	0.15	3.02	0.08	1.6
K20	0.18	3.62	0.09	1.9
S	0.56	11.28	0.30	5.9
Ca	0.94	18.9	0.49	9.9
Mg	0.23	4.66	0.12	2.4
Na	0.07	1.31	0.03	0.7
C	42.30	846	22.1	443
	mg/kg	lbs/ton	mg/kg	lbs/ton
Zn	362	0.72	189	0.38
Mn	501	1.00	262	0.52
Cu	205	0.41	107	0.21
Fe	12700	25.40	6646	13.3
B	4	0.01	2.09	0.00
Nitrate N	3	0.01	1.8	0.00
Ammonium N	11942	23.88	6250	12.50
C:N Ratio			15	
pH			6.8	
E.C.	13.90		7.27	

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farm consultants, inc.
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Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client:	**W. L. Gore**	Date Sampled:	**08/23/22**
Product:	**Batch 2 End Middle**	Date Received:	**08/24/22**
Lab #	**C22-1052**	Date Reported:	**09/12/22**

INTERPRETATION GUIDE

SAFETY INTERPRETATIONS

Pathogens

Fecal coliform bacteria are present in the gut and fecal mater of warm-blooded animals. Their presence is used as an indicator of the presence of possible human pathogens. The heat generated during proper composting is lethal to fecal coliform and other human pathogens. A test value below 1,000 per gram of compost is considered generally safe for human contact. As the compost is stored or transported, the temperature is no longer lethal for coliform bacteria and there is the possibility for regrowth or contamination by birds or other animals.

Your compost was tested for fecal coliform and found to be: VERY SAFE

Salmonella is a human pathogenic bacteria and a good indicator of other human pathogens. It is regularly used to monitor the liklihood of human pathogen presence in biosolids.

Your compost was not tested for salmonella bacteria.

Heavy Metals

9 heavy metals were identified with maximum concentration limits for land application in biosolids by USEPA in 40 CFR Part 503,B. Ongoing applications to the land are prohibited if any metal concentration exceed the limits in Table 3 of Part 503.13.

If the bars on the "Heavy Metals" for your compost are within or below the "Normal" range, your compost is safe to use as a soil amendment.

COMPOST STABILITY AND MATURITY

Respiration

Respiration is the measurement of microbially generated CO2 from the compost when incubated at optimal temperature and moisture. It provides an indication of whether the composting process is complete and whether the compost is mature and ready for use. However, other factors may be limiting microbial activity (see C:N Ratio below)

Your Compost was rated as **Very Stable: well cured, finished compost; no odors or plant toxicity**

Maturity

Bioassay

Cucumbers are grown in a fixed blend of your compost and a commercial potting mix maintained at optimum moisture and temperature. Cucumbers are relatively insensitive to salinity, but very sensative to ammonia, organic acids and herbicide residue. Emergence and Vigor are rated: results greater than 80% indicate that your compost is mature and/or contains no hervicide carryover. Very high salinity can also reduce assay results.

Your Compost Emergence % **0** Your Compost vigor % **0**

Total Nitrogen, Nitrate & Ammonium

Ammonia is produced as a gas in the early stages of composting. The ammonium is nitrified to nitrate as the compost matures. Ammonia is toxic to plants at relatively low concentrations but under moist conditions is converted to ammonium which is less toxic. Nitrate is not toxic, but does contribute to overall salinity if very high. The pH of the compost typically starts out low as organic acids are released, then increases as ammonia is produced, then settles back towards nuetral (7.0) as ammonium is nitrified and the compost matures.

Your Compost Ammonium level was	**11942**	Your Compost Ammonium:Nitrate ratio was	**3472**
Your Compost Ammonium:Total N ratio was	**0.42**	Your Compost pH was	**6.8**

Considering all the factors above, your Compost is Immature: apply to fallow soil

FERTILITY INTERPRETATIONS

C:N Ratio

The carbon to nitrogen ratio is important to determine 1) if the composting process is complete or simply stalled out because of lack of nitrogen and 2) whether the compost, when applied to the soil, will act as a source of nitrogen for the crop or become a sink causing the crops to starve for nitrogen.

Your C:N ratio was **15** **Your compost will tend to release available N for crop use.**

Electrical Conductivity is a convenient way to evaluate the soluble salts or salinity of a compost. High salinity is damaging to plants.

The EC of your Compost was **13.9** **V. High: use only a very low application rates**

Appendix C

GORE SYSTEM
USEPA CERTIFICATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
CINCINNATI, OH 45268

OFFICE OF
RESEARCH AND DEVELOPMENT

April 29, 2010

Brian L. Fuchs
Gore Cover Systems - North America
W. L. Gore & Associates, Inc
105 Vieve's Way
Elkton, MD 21921

Re: GORE® Cover Composting Technology

Dear Mr. Fuchs:

We have reviewed the documentation provided by W.L. Gore Associates regarding the GORE® Cover Composting Technology as applied for producing compost from municipal wastewater sludge. This includes a recent study conducted by W.L. Gore Associates documenting process conditions for the full scale operation of the compost cover system applied at the Greater Moncton Sewerage Commission located in New Brunswick, Canada. The draft report for this work was distributed to members of the U.S. Environmental Protection Agency's Pathogen Equivalency Committee (PEC) and select individuals from the State of Washington's Department of Ecology. We also reviewed additional documentation developed by W.L. Gore Associates on GORE® Cover Composting Technology applied to a number of other full scale applications. This report was entitled: "Using GORE® Cover Composting Technology for Producing a Class A Biosolids Compost" dated February 9, 2010.

As described, the GORE® Cover Composting Technology uses a 3 layer laminate, which contains as a middle layer an expanded polytetrafluoroethylene (ePTFE) membrane to cover static aerated piles to produce compost from municipal sludge. The composting system is conducted in three distinct phases described as: Phase 1: High Rate Composting - 28 Days; Phase 2: Maturation - 14 Days; and Phase 3: Finishing - 14 Days. The cover is used for Phase 1 and Phase 2 operations and is optional for Phase 3.

To produce Class A biosolids, aerated static piles and in-vessel systems must be maintained at a minimum operating temperature of 55°C (131°F) for at least 3 days. Furthermore, to meet 40 CFR Part 503 vector attraction reduction requirements using the "aerobic process" alternative, composting operations must ensure that the process lasts for 14 days or longer at a temperature greater than 40°C. In addition, the average temperature must be higher than 45°C.

In your February 9, 2010 submission you state that you are: "…seeking a recommendation of national equivalency from the EPA Pathogen Equivalency Committee (PEC) that GORE® Cover is capable of meeting and/or exceeding criteria for achieving Class A Biosolids as described in Alternative 5: Use of PFRP [503.32(a) (7) and (B) (1) of Appendix B]. in a covered aerated static pile without the use of a insulating layer of material (such as finished compost). The PEC agrees that your process meets the definition of Alternative 5, Use of a PFRP process. This does not relieve operators/managers from monitoring process operations to demonstrate that the time and temperature requirements as stipulated above are achieved. Moreover, this acknowledgement must not be construed as an endorsement or an exemption from seeking appropriate permits or meeting requirements imposed by state or federal authorities.

If you have questions regarding this matter, please contact me at 513-569-7348.

Sincerely your,

Mark C. Meckes

Mark C. Meckes
Senior Microbiologist and
Chair, U.S. EPA Pathogen Equivalency Committee

cc: PEC members
Rick Stevens, Office of Science and Technology
Regional Biosolids Coordinators
Daniel Thompson, Washington Department of Ecology

APPENDIX D

2022 – Incoming Biosolids & Final Compost Characteristics

Natural Soil Products

BioCompost Lab Results

2022 Annual Summary

Composite Windrow Biocompost Results [1]

							[Exceptional Quality] Table-3 Inorganic Concentration Limits [mg/kg]	4	41	39		1500	300	17		420	100	2800	% Violate Solids
								mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Sample	% Solids	% Tot N	% Org. N	% NH4 N	% Phos.	% Pot.		PCB	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	% Violate Solids
Composite Windrow #'s																			
Jan-22	30.80	2.50	2.03	0.49	0.98	0.28	<	5.96	1.00	23.93	448.75	78.33	0.60	5.01	17.70	1.49	572.00	55.94	
Feb	35.14	2.62	2.00	0.62	0.92	0.26	<	6.47	1.70	23.13	489.98	85.23	0.83	5.69	23.49	3.11	712.16	48.07	
March	38.73	1.14	0.23	1.10	1.76	<	<	5.40	1.30	22.59	378.73	99.34	0.75	<	<	6.70	553.00	75.75	
April	49.22	0.95	0.16	0.89	1.21	<	<	8.40	<	24.97	423.60	120.39	0.75	<	<	<	636.80	79.48	
May	47.41	1.30	<	1.32	1.47	0.22	<	4.62	1.07	21.43	397.36	124.61	0.78	6.61	16.18	3.63	630.82	74.65	
June	44.11	2.16	0.45	1.76	1.39	0.17	<	5.51	0.85	23.43	269.13	81.71	0.85	4.31	14.86	4.60	443.75	74.13	
July	30.80	2.50	2.03	0.47	0.98	0.28	<	5.96	1.00	23.93	448.75	78.33	0.60	5.01	17.70	1.49	572.00	55.94	
Aug	45.84	1.69	1.66	0.05	1.24	1.52	<	4.34	1.10	27.74	388.56	110.16	0.75	5.34	18.53	4.67	690.22	76.39	
Sept	50.44	1.47	0.58	0.88	1.62	0.22	<	5.11	1.69	32.87	516.89	144.67	0.87	6.71	23.24	5.16	945.00	63.34	
Oct	44.98	0.82	0.17	0.66	1.60	0.18	<	6.98	1.48	31.71	493.38	144.00	1.04	7.09	20.21	4.89	881.63	64.73	
Nov	47.41	1.29	0.13	1.17	1.43	0.39	<	4.47	1.05	20.79	386.50	122.17	0.76	6.12	15.84	3.40	617.20	73.36	
Dec-22	40.05	1.49	1.21	0.26	1.24	0.09	<	1.60	0.50	10.80	182.65	40.14	0.41	2.54	6.99	1.55	257.74	28.54	
TOTAL MONTHLY AVERAGES	**42.08**	**1.66**	**0.97**	**0.81**	**1.32**	**0.36**	<	**5.40**	**1.16**	**23.94**	**402.02**	**102.42**	**0.75**	**5.44**	**17.48**	**3.70**	**626.03**	**64.19**	
QUARTERLY MAXIMUM VALUES																			
First Quarter [Jan- Mar]	**38.73**	**2.62**	**2.03**	**1.10**	**1.76**	**0.28**		**6.47**	**1.70**	**23.93**	**489.98**	**99.34**	**0.83**	**5.69**	**23.49**	**6.70**	**712.16**	**75.75**	
Second Quarter [Apr - Jun]	**49.22**	**2.16**	**0.45**	**1.76**	**1.47**	**0.22**		**8.40**	**1.07**	**24.97**	**423.60**	**124.61**	**0.85**	**6.61**	**16.18**	**4.60**	**636.80**	**79.48**	
Third Quarter [Jul - Sept]	**50.44**	**2.50**	**2.03**	**0.88**	**1.62**	**1.52**		**5.96**	**1.69**	**32.87**	**516.89**	**144.67**	**0.87**	**6.71**	**23.24**	**5.16**	**945.00**	**76.39**	
Fourth Quarter [Oct - Dec]	**47.41**	**1.49**	**1.21**	**1.17**	**1.60**	**0.39**		**6.98**	**1.48**	**31.71**	**493.38**	**144.00**	**1.04**	**7.09**	**20.21**	**4.89**	**881.63**	**73.36**	

Results for the Nitrogen Series, Potassium and Potash are analysed from the biosolids in the compost

< non-detect

Natural Soil Products

Raw Incoming Class B Biosolids

2021

Summary

	January	February	March	April	May	June	July	August	September	October	November	December	Yearly Average
Arsenic (mg/kg)	4.88	3.49	3.98	3.37	6.17	5.22	3.89	2.23	7.87	7.27	3.76	5.62	**4.81**
Cadmium (mg/kg)	1.29	1.10	1.124	1.081	0.944	1.09	1.700	0.915	1.118	1.130	1.17	0.830	**1.12**
Chromium (mg/kg)	15.93	16.33	15.6	15.9	14.7	16.45	30.0	18.6	19.9	17.7	16.12	18.4	**17.97**
Copper (mg/kg)	574.00	459.00	460.40	447	499	513.00	563	532	618	557	492.00	515	**519.13**
Iron (mg/kg)	12690.00	24225.00	16656.00	20334	25600	21140.00	34467	31400	31833	22623	23160.00	28967	**24424.51**
Lead (mg/kg)	44.58	51.43	45.6	52.8	54.4	52.48	119.2	69.5	72.5	54.6	54.25	60.5	**60.98**
Mercury (mg/kg)	0.32	0.33	0.23884	0.335	0.323	0.38	0.835	0.471	0.477	1.124	0.47	0.551	**0.49**
Molybdenum (mg/kg)	9.15	8.33	6.8	7.4	5.2	4.88	7.6	5.5	6.0	5.3	5.25	5.9	**6.45**
Nickel (mg/kg)	16.10	28.30	25.04	26.3	35.2	27.30	39.0	48.0	38.8	32.4	27.39	39.6	**31.96**
Selenium (mg/kg)	2.16	3.02	1.53	3.89	5.00	5.54	3.10	<	<	7.10	3.07	<	**3.82**
Zinc (mg/kg)	1148.25	993.00	988	1039	864	902.25	1265	1197	1286	1277	1096.25	990	**1087.17**
PCB Aroclor 1016 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1221 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1232 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1242 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1248 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1254 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
PCB Aroclor 1260 (mg/kg)	<	<	<	<	<	<	<	<	<	<	<	<	<
Ammonia Nitrogen %	0.85	0.94	0.66	0.78	0.60	0.58	0.542	0.525	0.472	0.872	0.44	0.426	**0.640**
Nitrite (mg/kg)	8.17	5.56	4.6	61.1	4.3	5.97	25.2	4.3	4.6	56.4	11.51	9.5	**16.766**
Nitrate (mg/kg)	102.75	95.78	64.0	116.2	67.3	59.68	176.4	84.4	57.3	171.6	677.78	21.4	**141.217**
Total KJELDAL Nitrogen %	6.29	7.13	6.28	6.47	6.86	7.95	6.00	5.22	5.65	4.07	1.33	2.56	**5.483**
Total Organic Nitrogen %	5.44	6.19	5.62	5.70	6.25	7.35	5.46	4.69	5.18	3.20	1.50	2.13	**4.892**
Potassium %	0.20	0.21	0.182	0.190	0.170	0.17	0.153	0.113	0.168	0.147	0.16	0.186	**0.172**
Phosphorus %	2.08	2.44	2.296	2.298	2.163	2.60	2.400	2.317	2.727	3.255	2.76	1.968	**2.442**
Chloride (mg/kg)	5567.50	4850.00	5060	5466	4500	4632.50	2063	3557	2804	8635	2390.75	5283	**4567.396**
Percent Moisture %	80.68	79.78	80.12	79.40	78.9	78.48	80.1	72.1	77.6	80.8	78.90	80.8	**78.978**
Percent Solids %	19.33	20.23	19.88	20.62	21.1	21.53	19.9	27.9	22.4	19.2	21.10	19.2	**21.024**
pH	7.33	6.60	6.8	6.8	6.6	6.80	7.0	7.0	6.7	6.9	6.68	7.0	**6.85**
Aluminum (mg/kg)	14445.00	10280.00	16536	12808	11417	17487.50	12123	15923	15640	17528	15625.00	13720	**14461**
Calcium (mg/kg)	13592.50	17875.00	13342	14582	12933	13385.00	19033	16633	14000	12883	14050.00	13567	**14656**
Magnesium (mg/kg)	3080.00	3350.00	2994	2937	2923	2415.00	4760	2553	3027	2510	2915.50	3167	**3053**
Maganese (mg/kg)	911.98	1248.50	830	1248	1920	1697.33	701	1217	3035	2025	1789.18	2046	**1556**
Sodium (mg/kg)	990.25	2913.00	1515	1524	1590	1277.25	1857	1393	1614	1208	2052.75	2699	**1719**
C:N Ratio	2.99	2.88	2.87	2.9	2.11333	1.78	2.90667	5.213333	2.4866667	11.68	53.26	8.9433333	**8.33**
Total Sulfur %	0.45	0.28	0.26	0.366	0.562	0.40	0.266	0.678	0.453	0.712	0.44	0.354	**0.435**
Total Volatile Solids %	61.13	68.00	53.82	53.3	53.7	52.63	62.9	59.8	57.2	57.8	68.68	69.2	**59.84**
Total Soluble Salts (mmhos/cm)	1.82	2.81	2.88	3.2500	3.3767	3.50	2.2703	2.5597	3.0867	2.0733	2.84	3	**3**
Total Organic Carbon (mg/kg)	179250.00	192000.00	168600.00	155200	140333	133500.00	168333	223333.3	140666.67	214250	228000.00	225666.67	**180761**

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