RECYCLING TECHNICAL ASSISTANCE
Project #580

SOUTH LEBANON TOWNSHIP
LEBANON COUNTY, PENNSYLVANIA

PROPOSED COMPOST SITE

MAY 2015

Sponsored by the Pennsylvania Department of Environmental Protection through the Pennsylvania State Association of Township Supervisors

RECYCLING TECHNICAL ASSISTANCE
Project #580

SOUTH LEBANON TOWNSHIP
LEBANON COUNTY, PENNSYLVANIA

PROPOSED COMPOST SITE

Project Completed By:

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1.0 STATEMENT OF PROBLEM

This study was conducted for South Lebanon Township (Township), Lebanon County under the Recycling Technical Assistance program that is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The Township does not host a compost facility for processing yard wastes including leaves, brush, grass, or similar materials. The Township recently acquired land along State Road and is evaluating this property for potential development as a municipal yard waste compost facility. The Township requested a solid waste expert to assist in developing a compost site layout and to provide guidance related to preparing a Permit-by-Rule compost application to the PADEP.

2.0 SUMMARY OF WORK

2.1 Background information

The Township's Public Works Department collects leaves in the fall. Curbside collected leaves are picked up by Natural Soil Products, Co. The Township has an agreement with North Cornwall Township that allows residents to obtain a permit to drop off yard waste including brush at the North Cornwall Township drop-off point. Township brush is chipped and stockpiled for use as mulch at South Hills Park. This drop-off point is used to consolidate organics for transport, not to process or compost yard waste. After consolidation at the North Cornwall Township recycling drop-off site, yard waste is taken to Zimmerman's Mulch & Landscape Center at 75 E. Kercher Avenue in Lebanon, Pennsylvania. Year 2012 through year 2014 yard waste totals (mixed leaves and brush) are presented in the table below.

South Lebanon Township and North Cornwall Township Leaf Waste Totals (2012, 2013, 2014)

Year	South Lebanon Twp. (cubic yards)	North Cornwall Twp. (cubic yards)	Combined (cubic yards)
2012	283.2	75.6	358.8
2013	302.1	89.1	391.2
2014	185.0	139.5	324.5

Since neither South Lebanon Township nor North Cornwall Township operate a compost facility, a host compost facility can benefit residents and add value for both communities. Some of the benefits from proper organics management, a local compost facility, and use of compost, mulch, and similar processed organics include:

- Application of mulch, compost, woodchips, and soil blends on Township projects to improve project quality, to reduce the environmental impacts from pesticides and fertilizer use, and to reduce costs for procuring compost, mulch, amendment, and fertilizer. Project examples include construction, landscaping, erosion control, stormwater management, athletic field maintenance, park maintenance, and other landscaping projects.

- A compost facility would be a convenient location for the Township's Public Works Department, Township residents, local customers, and other permitted customers to deliver yard wastes. A centralized processing location can reduce transportation costs and impacts for collected organics.
- Compost facilities can return valuable processed organics back to the community at an equitable cost. Eligible customers will have access to finished organics products to meet their landscaping and growing needs. The availability and use of quality organics on Township projects and residential properties can improve community aesthetics.

2.1.1 Property Location and Description

The Township acquired a 40-acre wooded property in December 2014. Besides being considered as a site of a municipal compost facility, the property is also under preliminary consideration for the development of a fire station. The site is located just east of the US Veterans Health Administration Hospital and runs parallel to State Drive in South Lebanon Township. The property terminates to the south at Linden Road (See **Appendix A, Project Location Map**). The geology on the 40-acre parcel is limestone and dolomite (**Appendix A, Geology Map**). The elevation within the parcel boundary ranges from 550 feet (high) to 500 feet (low) (**Appendix A, Topograpical Map)**. The slope generally trends to move from higher elevations in the west toward lower elevations on the east side of the property.

2.1.2 Permit-by-Rule for Municipal Yard Waste Compost Facilities

To develop a yard waste compost site, the Township must comply with the Guidelines for Yard Waste Compost Facilities (1997, updated January 2009, Document Number: 254-5403-100). A compost facility that is less than 5 acres is eligible for Permit-by-Rule under PA Code section 271.103(h) provided certain siting, permitting, and operational requirements are met.

2.2 Field Investigation

On April 10, 2015, Gannett Fleming conducted preliminary observations of the 40-acre property to support recommendations regarding a preferred siting location and permitting for a municipal yard waste compost site. A Gannett Fleming representative walked three (3) portions of the property, but did not conduct a comprehensive or detailed field investigation.

During the field investigation the Gannett Fleming representative was accompanied by the South Lebanon Township Recycling Coordinator, Township Manager, and Public Works Department Manager. Gannett Fleming selected three access points for observation to provide representative observations from the top (north), middle, and bottom (south) sections of the property. The **Access Points Map** in **Appendix B** provides the approximate location of each access point and the approximate extent of the area observed during the field surveys.

- **Access 1**: From State Drive to the north approximately 200 yards from the northern property boundary and within sight of Stone House Manor residential development.
- **Access 2**: From State Drive near the middle of the property in the area where the power lines are immediately accessible from State Drive.
- **Access 3**: From Linden Road.

2.2.1 Site Visit Observations and Findings

General: Portions of the site that were accessed are reasonably level and appear suitable for clearing, grubbing, and development of a 5-acre (or less) compost facility. The northern edge of the property borders the residential development, Stone House Manor. A rock outcrop and steep grade was observed in one area (Access 2). Trees are moderately dense with some, but not many, mature hardwoods. The underbrush and shrubs are sparse to moderately dense and could be cleared with minimal difficulty. A power line cuts through the property to the north leaving a wedge of wooded property adjacent to State Drive that is approximately 6 acres. No wetland plants were observed, but soil and plant data was not obtained for verification. Minor erosion was observed at the southern end of the property. One sinkhole was observed at the southern end of the property. An old rock wall spans the eastern property border separating the Township's wooded lot from the adjoining property. The property to the east is active agricultural fields. Two yard waste deposition areas including brush, grass, leaves, garden residues, shrubs, and Christmas trees were observed and appear to be used regularly. There was no evidence of accumulated trash, abandoned equipment, or other illegal dumping activity. Findings specific to each access point include the following (refer to the **Access Points Map**, **Appendix B**):

Access Point 1 (photo 1 below): This access point was selected because an existing clearing was observed from State Drive. This area was actively used for dumping yard waste as shown in **Photo 1**. Residential households were visible through the trees.

Access Point 2 (photo 2 and 3 below): This access point was selected because it was centrally located within the property and could be easily accessed from State Drive via the power lines and associated clearing beneath the lines. The power lines run north-south and divide the northern part of the property into separate wooded sections (Photo 2). This area becomes fairly level on the eastern part of the parcel, with increased grade and elevation near the power line. A rock outcrop area was observed near the edge of the power line (photo 3).

Access Point 3 (photo 4 below): This access point was selected because it was accessible from Linden Road and is representative of the southern portion of the property. This area was actively used for dumping yard wastes near Linden Road. This area is relatively level with some increased elevation and grade moving west and north. Erosion rills were observed and traced upgradient and downgradient. Upgradient, two adjacent stormwater pipe outfalls were observed that are located approximately 3 feet beneath State Drive. These

pipes contribute to the observed erosion. Downgradient, the majority of the stormwater terminates into a sinkhole approximately 3 feet deep and 8 feet accross (**photo 3**).

Photo 1: Existing Yard Waste Deposition area located in just off State Road (Access Point 1).

Photo 2: Power line; looking north. (Access Point 2)

Photo 3: Rock outcrop near eastern edge of power line (Access Point 2)

Photo 4: Sinkhole approximately 200′ east of stormwater pipe outfalls off State Road (Access Point 3)

2.3 PNDI Environmental Review

To screen for potential impacts to threatened and endangered species and/or special concern species and resources, Gannett Fleming conducted a PNDI environmental review using the online PNDI ER Tool located at: www.naturalheritage.state.pa.us/. The project category used was "waste transfer, treatment, solid waste disposal, recycling facility". The project area was delineated using the polygon that approximately traced the property parcel boundary. The PNDI search resulted in no known impacts to species or resources (See **Appendix C, PNDI Project Environmental Review Receipt**.) The Township is still obligated to meet the bog turtle habitat screening requirements of the Pennsylvania State Programmatic General Permit (PASPGP).

2.4 GIS Mapping

Gannett Fleming prepared the GIS maps listed in the bullets below to support recommendations pertaining to site selection and permitting for the proposed compost facility. The geology, elevations, floodplain data, and similar information presented in these maps was used to guide site location and conceptual layout development. Parcel boundary data was provided to Gannett Fleming by South Lebanon Township. Other data sources are referenced on the GIS maps.

- Project Location Map
- Geology Map
- Topographical Map
- Site Parcel Map
- Flood Plain Map
- Site Layout Buffers Map

2.5 Compost Facility Siting and Permitting

Based on Gannett Fleming's preliminary field investigations, review of siting criteria for municipal compost facilities, and review of pertinent environmental and site data, there are one or more locations of the 40-acre site that appear suitable for the development of a municipal yard waste compost facility less than 5 acres. A favorable location for siting the compost facility is delineated in the GIS maps included in this study. Siting the compost facility near Access Point 3 is preferred for the following reasons:

- Access from Linden Road has advantages over accessing the site from State Drive and beneath power lines. Advantages relate to traffic (safety), zoning requirements, permitting requirements, right of ways, and the ability to work with local Township zoning officials, etc.
- The selected location is at least 300' from occupied establishments. Adequate buffer distance from residential receptors is required to meet permit siting criteria and is particularly important for compost facilities due to the potential for odors that may impact residential receptors.
- The location is relatively level which would reduce earthwork requirements for site prep when compared with some other portions of the 40 acre site.

Other areas of the 40-acre site present the following development concerns for development:

- Site access from State Drive and associated traffic impacts, permitting, etc.
- Power line easement.
- Proximity to residential establishments in the northern portion of the property.
- Areas of high elevation and steeper grade along the eastern side of the power line. Exposed rock was observed.
- Low points and down gradient areas are expected to capture surface runoff and could potentially be problematic for stormwater management or may contain wetland habitat. An example starts at the bend in State Drive moving east and north east to the opposite property line. As shown in the green and yellowish areas on the Topography Map (**Appendix A**), this area is fairly level and may be a potential candidate location for compost site development. However, the topographical contours show that surface water runoff is conveyed toward the northeastern corner of the property and eventually into the adjacent property (farm fields). As seen in the aerial photography on the Flood Hazard Areas Map (**Appendix A**), a gully passes through the farm fields toward Hazel Dyke Creek.

2.6 Compost Facility Conceptual Layout or Site Plan

Gannett Fleming prepared a draft conceptual layout for a municipal yard waste compost site (**Appendix D**). The conceptual layout considers the site plan requirements identified in the Guidelines for Yard Waste Compost Facilities (1997, updated January 2009, Document Number: 254-5403-100). Only four (4) acres, not five (5) acres, were delineated due to the increased elevation to the north and observation of a sinkhole roughly 200' from Linden Road. The conceptual layout presents a typical workflow for municipal yard waste compost facilities that will compost leaf wastes using windrows (long parallel rows of leaf waste constructed about 8 feet high to promote active composting):

- The public drop-off area is near the entrance/exit to the facility.
- Finished compost material is near the entrance/exit to the facility.
- Loop traffic patterns are used.
- Windrow composting, heavy equipment, and truck drop-off areas are separated (by distance) from public drop-off and pick up areas.
- Adequate queuing distance from the entrance or gate is provided to prevent traffic backup onto roadway.

3.0 SOLUTIONS

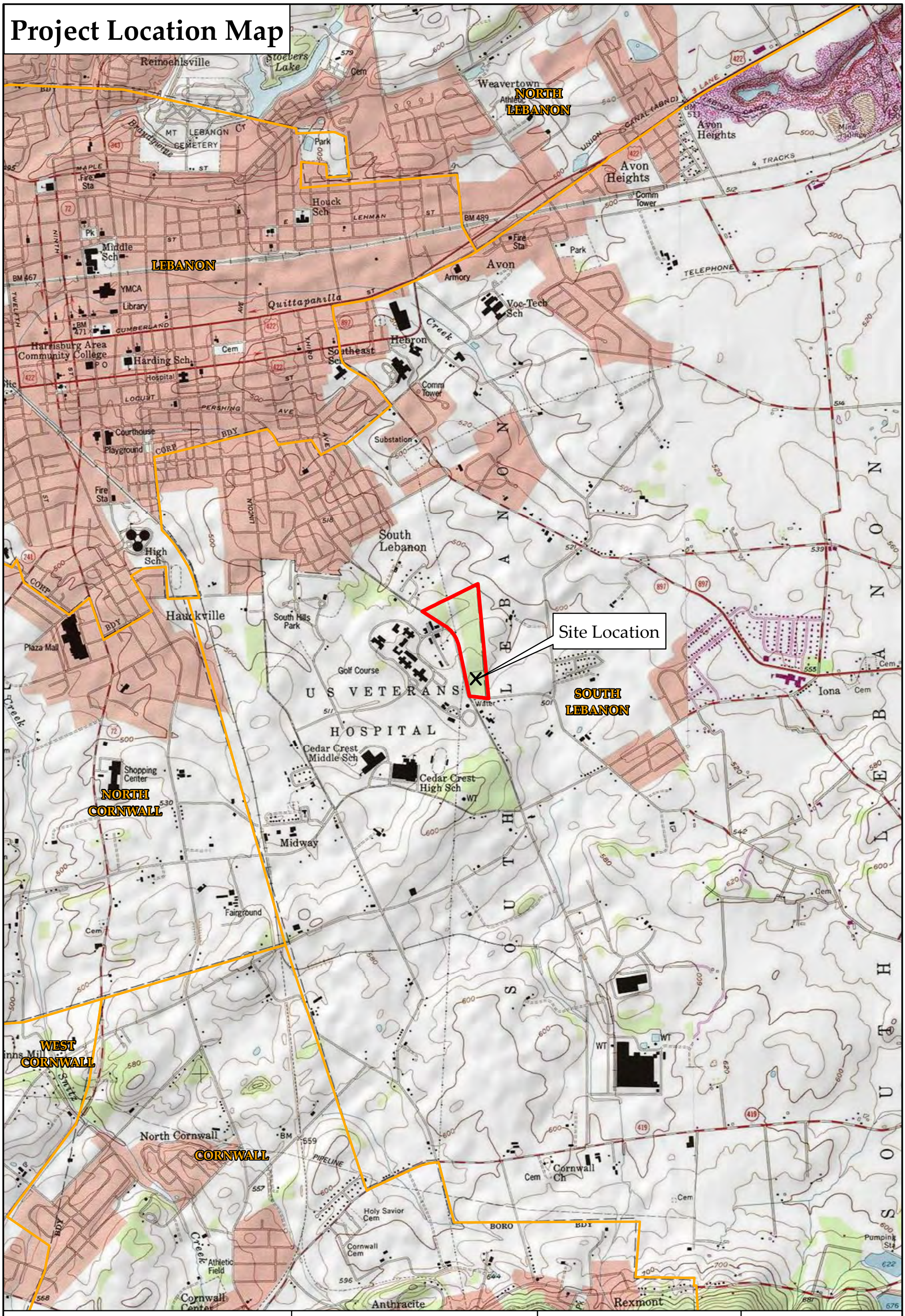
Through this preliminary study and site investigation, Gannett Fleming did not confirm the feasibility of developing a municipal yard waste site within the 40-acre parcel along State Drive. It is recommended the Township review the following recommendations and considerations and continue this planning, site evaluation, and permitting process to make final determinations regarding compost site permitting, development, and operation.

- It is understood that the 40-acre parcel may be considered for the development of a fire station. It is recommended the Township evaluate the synergies for planning and constructing the compost facility and fire station to complement each other. This could include building the compost facility first with the fire station constructed in a later phase and adjacent to the compost facility. Potential synergies include:
    - Shared and reduced development, permitting, and construction costs.
        - Shared stormwater management features.
        - Shared roadway and paved surfaces. Ideally, the windrow compost pad would be paved for improved material handling and reduced issues with potholes, water ponding, etc.
        - Clearing and earthwork.
    - Reduced impact to existing woodlands.
    - Improved security oversight of compost facility.
- Gannett Fleming has identified the 4-acre area presented in the Conceptual Layout Site Plan (**Appendix C**) as a preferred compost facility location. However, additional investigations are required for final site selection including verification that the proposed location complies with the siting restrictions identified in the Guidelines for Yard Waste Compost Facilities. Additional investigations include:
    - Identification of sinkholes that must be at least 100 feet from the site.
    - Wetlands presence/absence determination on site or within 300 feet of site.
        - Phase I bog turtle screening. Submit a signed bog turtle section of the PNDI form.
    - Present the project location and concept to local Township zoning and permitting officials to verify all zoning and permitting requirements and costs and to identify other potential project barriers.
- Because stormwater discharges from State Drive onto the Township property contribute to erosion, it is recommended the Township evaluate a stormwater easement that could result in modification to the discharge area to improve stormwater management. Other upgradient stormwater discharge points should be identified. Any discharges onto the Township's property may potentially affect surface runoff conditions and affect stormwater requirements, including permitting, and construction of stormwater management facilities.
- It is recommended that the Township obtain several cost estimates from several companies for tree removal and land clearing and grubbing. The Township should work closely with tree clearing and grubbing companies to assure the logging activities produce a site that is prepared for the next stages of earthwork and compost site development. The logging plan and cost estimates should reflect this approach.
- Provided that additional site, zoning, and permitting investigations confirm that the area near Linden Road is suitable for compost facility development, it is recommended the Township prepare a Permit-By-Rule Application for Municipal Yard Waste Composting. A sample draft for use as an example Permit-By-Rule application is provided in **Appendix D**.

APPENDICES

Appendix A – GIS Maps
Appendix B - Access Points Map
Appendix C - Conceptual Layout_Site Plan
Appendix D - PBR Application (Rough Draft)

Project Location Map



South Lebanon Township
Conceptual Compost Site Location
Lebanon County, PA

Gannett Fleming

Legend:
- Project Parcel
- Municipalities

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
USGS 7.5' Quad - Lebanon, Richland, Manheim, Lititz

April 2015

1:24,000

N

0 0.25 0.5 Miles

Geology Map

~4 Acres

State Road

Linden Road

South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:
- Site Layout
- Project Parcel
- State Road
- Local Road

Geology:
- Dolomite
- Limestone

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Geology - PA DCNR, 2001.
Aerial Imagery - USGS, 2008.

April 2015

1 in equals 200 feet

N

0 100 200 Feet

Topographical Map

~4 Acres

State Road

Linden Road

South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:

- Site Layout
- Project Parcel
- State Road
- Local Road

Elevation

- High : 563.438
- Low : 483.715
- Contours 2-ft

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Elevation & Contours - USGS, 3-Meter DEM, 2008.
Aerial Imagery - USGS, 2008.

April 2015

1 in equals 200 feet

N

0 100 200 Feet

Site Parcel Map

~4 Acres

State Road

Linden Road

South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:
- Site Layout
- Project Parcel
- State Road
- Local Road

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Aerial Imagery - USGS, 2008.

April 2015

1 in equals 200 feet

N

0 100 200 Feet

Flood Plain Map

Hazel Dyke Creek

State Road

~4 Acres

Linden Road

South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:

- Site Layout
- Project Parcel
- State Road
- Local Road

Flood Hazard Areas:

- Floodway
- 100 Year Flood
- 500 Year Flood
- Hydrography

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Flood Hazard Areas - FEMA, Effective, 2012.
Aerial Imagery - USGS, 2008.

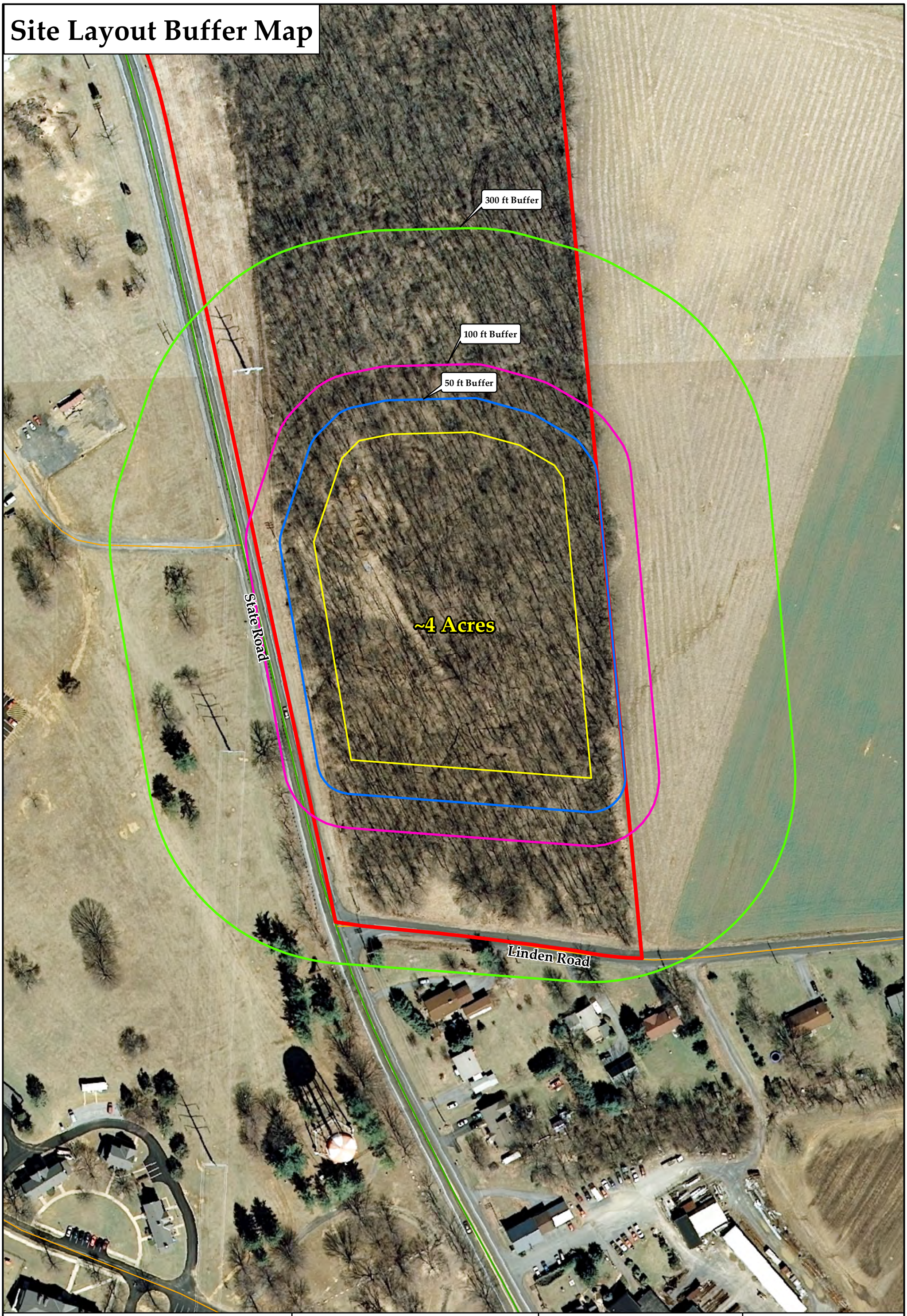
April 2015

1 in equals 200 feet

N

0 100 200 Feet

Site Layout Buffer Map



South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:
- Site Layout
- Project Parcel
- State Road
- Local Road

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Aerial Imagery - USGS, 2008.

April 2015

1 in equals 125 feet

N

0 62.5 125 Feet

Acess Points Map
South Lebanon Township
Lebanon County, PA

Gannett Fleming

Legend:
- Site Layout
- Project Parcel
- State Road
- Local Road

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township

April 2015

1 in equals 200 feet

N

0 100 200 Feet

Conceptual Layout/Site Plan

Site Features

- Access Gate
- Compost Curing/Stock Pile Area
- Finished Compost Pick-up Area
- Public Yard Waste Drop Off/Receiving Area
- Storm Water Management Area
- Windrows
- Wood Chip Filter Berm

~4 Acres

State Road

Linden Road

South Lebanon Township
Conceptual Compost Site Layout
Lebanon County, PA

Gannett Fleming

Legend:

- Site Layout
- Project Parcel
- State Road
- Local Road

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Linear Unit: US Foot
Municipalities. - PennDOT, 2014.
Counties - PennDOT, 2014.
State & Local Roads - PennDOT, 2015.
Project Parcel - South Lebanon Township
Aerial Imagery - USGS, 2008.

April 2015

1 in equals 60 feet

N

0 30 60 Feet

PERMIT-BY RULE APPLICATION

DOCUMENT NUMBER 254-5403-100

MUNICIPAL YARD WASTE COMPOSTING

SOUTH LEBANON TOWNSHIP

PROPOSED COMPOST FACILITY

South Lebanon Township
Lebanon County, Pennsylvania

_____, 2015

Plan Preparer

Gannett Fleming

MUNICIPAL YARD WASTE COMPOSTING
PERMIT-BY-RULE APPLICATION

PERMIT-BY-RULE APPLICATION
FOR
MUNICIPAL YARD WASTE COMPOSTING

FOR

PROPOSED COMPOST FACILITY

_____, 2015

For Submission To:

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Prepared For:

South Lebanon Township
1800 S. 5th Ave.
Lebanon, PA 17042

Prepared By:

GANNETT FLEMING, INC.
P.O. Box 67100
Harrisburg, PA 17106

South Lebanon Township
Municipal Yard Waste Compost Facility

PERMIT-BY-RULE APPLICATION
FOR MUNICIPAL YARD WASTE COMPOSTING

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1.0 MUNICIPAL YARD WASTE APPLICATION FORM

2.0 NARRATIVE

SOUTH LEBANON TOWNSHIP
YARD WASTE COMPOSTING FACILITY
PERMIT-BY-RULE

Question 5. Narrative Supplement

2.1 List of Yard Waste Source(s)

The South Lebanon Township Compost Facility ("Compost Site or Facility") is proposed to be located at the intersection of State Road and Linden Road in South Lebanon Township Pennsylvania. The property is owned by South Lebanon Township (**Appendix A.1**). Incoming yard waste sources include:

- South Lebanon Township leaves (Curbside residential leaf wastes).
- Residential drop-off of yard wastes, including leaves and woody materials, and grass. Grass will be prohibited initially.
- North Cornwall Township (_____)

2.2 Yard Waste Collection and Receiving

Refer to Figure 2 – General Site Plan for clarification on material receiving and tipping areas, as further described below. **Figure 3 - Siting Criteria**, presents buffer distances for environmental criteria.

Curbside Leaf Waste Collection and Receiving

Leaf waste is collected at the curbside throughout South Lebanon Township by the Public Works Department. Incoming leaf trucks will deliver leaf waste directly through the public gate entrance and tip material to the rear of the facility in designated leaf waste tipping areas or directly onto the active compost pad. A front-end loader will be used to move and shape leaf wastes into windrows approximately 8 feet high, 18 feet wide, and 100 feet to 200 feet in length.

Loads with plastic bags, metals, or trash are prohibited. Finished organics materials will be available to eligible residents. Compost facility visitors must be able to provide proof of residency.

South Lebanon collects _ tons of yard waste annually based on 2012, 2013, 2014 data.

2.3 Material Inspection and Debris Removal

The Publics Work Department visually inspects leaf waste during curbside collections, removing obvious debris and trash. Compost equipment operators will continue material inspections when receiving and moving yard waste materials on the compost site and during windrow construction.

Unwanted materials including inorganics that may damage equipment or material that will degrade material quality will be removed and placed in trash cans for disposal.

All incoming loads will be visually inspected during arrival and check in. Routine visual inspections will continue by compost facility staff during unloading and routine material handling.

2.4 Windrow Construction Methods and Equipment

Truckloads of leaves will be dumped in rows within the designated active compost area. Temporary staging or stockpiling will occur as needed. Front-end loaders will be used to form active composting windrows. Parallel windrows will be constructed using the front-end loader and combined using the front-end loader after pile reduction occurs from the composting process.

Windrows dimensions: Initial dimensions are: 8'-10' wide x 4'- 8' high x 100'- 200' length, with ~ 7' between rows (edge to edge).

2.5 Supplemental Water Sources for Maintaining Optimal 40% to 60% Moisture Content

During active composting, compost will be monitored to verify material is maintained at 40% to 60% moisture content.

2.6 Windrow Turning and Temperatures

Turning Frequency: A minimum of once per month.
Temperature Maintained: 100°F to 140°F (32°C to 60°C)
Windrow Turning Methods: (See below)

Windrow Turning: Front-end Loader
As needed (e.g. windrow turner is down for repairs), on site front-end loaders are utilized to turn windrows. Loaders lift material from the bottom of the windrow and shake the bucket while returning and loosely mixing the material back into the pile. Compaction is minimized by avoiding driving up onto piles.

2.7 Method for Determining Turning Frequency

The frequency of turning is based on maintaining adequate moisture and microbial activity within windrows with consideration of accelerating material size reduction through mechanical breakage. Windrow turning is most important in the first month the material is received and formed into windrows. The established turning frequency schedule is every 7 – 10 days initially and not less than once per month during active composting. Turning frequency will be confirmed by visual inspections by compost operators who consider these factors:

- Targeting an internal windrow temperature range of 120°F to 140°F during active-phase composting. Turn windrows when the pile temps exceed 140°F or falls below 100°F.

- The addition of nitrogen bearing organics (e.g. grass). If grass is added to the piles, it will be turned/mixed into the windrows within 24 hours from arrival in accordance with PADEP guidelines.

- Generally, when piles appear dry (below 40% moisture), they will be turned after a rainfall or after water is applied.

2.8 Approximate Duration of the Composting Cycle

The compost cycle for windrowed leaves, grass and manure is as follows:

Active Phase: 90 - 120 days
Curing Phase: 60 days (minimum)
Storage and Distribution: After curing, finished compost is stored 0 - 180 days.
Total Time for Composting Operation: 180 days (min) - 360 days (max).

2.9 Composting Process Description

Leaf waste will be composted using windrow composting methods. Windrows are typically turned every 7-10 days during active composting, and not less than once per month, using a front-end loader. Active windrow composting is accelerated by turning and takes three (3) to five (6) months. After active composting, compost is placed in curing windrow and allowed to cure at least two (2) months prior to marketing to end users.

2.10 Operating, Stormwater and Leachate Best Management Practices

The compost facility will utilize a variety of best management practices (BMP's) for its operations and ongoing stormwater and leachate management. The BMP's employed are consistent with the Pennsylvania Stormwater BMP Manual (2006) and the PADEP Guidelines for PBR Municipal Yard Waste Compost Facilities. The operation and BMP's utilized are consistent with many other similar municipal yard waste composting facilities in Pennsylvania. The Compost Site operations include appropriate measures to abate potential nuisances (e.g. compost odors) and environmental harms.

Isolation distances from surface water, ground water tables, public/private wells are important to environmentally safe management of organics. In addition to meeting the environmental siting criteria for PBR Municipal Yard Waste Facilities, operations, stormwater and leachate features and BMP's include:

- Site stormwater is separated from compost leachate via _____.
- Stormwater runoff is diverted away from the processing, staging, curing and storage areas. Leachate from the active compost areas is separated from the designated areas for other material staging and handling.

- Compost leachate flows to _____ .

- A woodchip berm is constructed at the end of the windrows to absorb leachate and to prevent leachate runoff.
- Moisture content of active composting piles in maintained to assure compost piles do not get too wet (over 60% moisture content), which allows staged windrows to effectively absorb and retain leachate, dramatically reducing the volume of leachate that leaves the active compost area.

2.11 Finished Product Marketing and Distribution

Projects: Distribution and application of finished organic products in various municipal projects (e.g. parks, construction, stormwater, street maintenance, etc.).
Eligible Residential and Commercial Customers: Upon arrival at the Compost Site, visitors must provide proof of eligibility.

- Finished compost products can be self-loaded or loaded into trucks and trailers via the front-end loader.

2.12 Residue Disposal Plan and Disposal or Processing Sites

Wastes/residue collected at the Compost Site will be collected will be deposited in either on site trash cans and dumpsters and collected and disposed by a local private waste hauling company.

2.13 Emergency Response Plans

See corresponding Permit-by-Rule **PPC Plan (Appendix _)**

2.14 Public Information and Education Program

The Township educates residents about recycling and organics management via the Township website and periodic newsletters at least once every six (6) months in accordance with Act 101 requirements and PADEP policies.

FIGURES

Figure 1
USGS 7.5 Minute Quad (Location Map)

Figure 2
General Site Plan

Figure 3
Siting Criteria (Map)

Figure 4
Compost Pad Topographical Drawing

APPENDIX

Appendix A.1
Proof of Property Ownership

Appendix A.2
PPC Plan