



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF SOLID WASTE MANAGEMENT
WILLIAM R. SNODGRASS TENNESSEE TOWER
312 ROSA L. PARKS AVENUE, 14TH FLOOR
NASHVILLE, TN 37243

RECEIVED
APR 17 2023

SOLID WASTE PERMIT-BY-RULE NOTIFICATION Solid Waste Management

1. REVIEW FEE ENCLOSED?

☒ YES ☐ NEW PROCESSING FACILITY (\$1,000) *done*
☐ NO ☐ NEW TRANSFER STATION (\$500)

2. TYPE OF PERMIT- BY- RULE REQUESTED

☒ COMPOST FACILITY ☐ LAND APPLICATION ☐ TIRE STORAGE FACILITY ☐ NEW FACILITY
☐ CONVENIENCE CENTER ☐ PROCESSING FACILITY ☐ TRANSFER STATION ☐ AMENDMENT TO EXISTING PERMIT

PROCESSING FACILITIES ONLY

IS THIS FACILITY SUBJECT TO "THE JACKSON LAW"? ☐ YES ☐ NO

3. FACILITY INFORMATION

FULL LEGAL NAME OF FACILITY

FACILITY LOCATION COUNTY

Cumberland Composting L.L.C.

Cumberland

PHYSICAL LOCATION OR ADDRESS OF FACILITY

CITY

STATE

ZIP

LATITUDE (DECIMAL DEGREES)

35°56'24" N

LONGITUDE (DECIMAL DEGREES)

84°52'58" W

FACILITY MAILING ADDRESS

CITY

STATE

ZIP

FACILITY EMAIL

635 Sawmill Rd. Crossville, TN 38555

635 Sawmill Rd. Crossville, TN 38555

johnsherrillmd@gmail.com

FACILITY MANAGER OR SITE OPERATOR

PHONE (WITH AREA CODE)

AFFILIATION OF SITE OPERATOR (IF DIFFERENT FROM PERMITTEE)

John Sherrill

931-265-5541

4. APPLICANT (PERMITTEE)

APPLICANT NAME

PHONE (WITH AREA CODE)

EMAIL

John Sherrill

931-265-5541

johnsherrillmd@gmail.com

RESPONSIBLE OFFICIAL / TITLE

PHONE (WITH AREA CODE)

EMAIL

Owner/manager same

RESPONSIBLE OFFICIAL MAILING ADDRESS

CITY

STATE

ZIP

635 Sawmill Rd. Crossville, TN 38555

635 Sawmill Rd. Crossville, TN 38555

635 Sawmill Rd. Crossville, TN 38555

LANDOWNER NAME

LANDOWNER MAILING ADDRESS

CITY

STATE

ZIP

The Wilds L.L.C.

635 Sawmill Rd. Crossville, TN 38555

635 Sawmill Rd. Crossville, TN 38555

635 Sawmill Rd. Crossville, TN 38555

John Sherrill

Bothland

John Sherrill

4-3-23

LANDOWNER SIGNATURE

LANDOWNER SIGNATURE

LANDOWNER SIGNATURE

DATE

5. WASTE HANDLING

DESCRIPTION OF ACTIVITIES AND WASTES HANDLED OR PROCESSED

AMOUNT OF WASTE HANDLED, PROCESSED OR STORED

Leaves, wood chips, with permission cow or horse manure for nitrogen source

0.55 tons/day 3.7 CY/day 2000 CY
WEIGHT TONS / DAY VOLUME YARDS / DAY STORAGE MAX CU YARDS

6. CERTIFICATION REQUIRED

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.



SIGNATURE OF RESPONSIBLE OFFICIAL

PRINTED NAME

TITLE

DATE

SIGNATURE OF NOTARY

DATE COMMISSION EXPIRES

(NOTARY SEAL)

INSTRUCTIONS FOR SOLID WASTE PERMIT-BY-RULE NOTIFICATION

COMPLETE THIS FORM FOR EACH FACILITY THAT IS PROCESSING AND/OR DISPOSING OF SOLID WASTE IN TENNESSEE. IF MULTIPLE FACILITIES EXIST OR ARE PLANNED, DESCRIBE EACH FACILITY AND ITS WASTES ON A SEPARATE FORM. SUBMIT COMPLETED DOCUMENT TO THE RESPECTIVE FIELD OFFICE IN YOUR AREA.

1. REVIEW FEE

TYPE OF PERMIT-BY-RULE WITH FEES

A FEE IS ONLY REQUIRED FOR A NEW PROCESSING FACILITY OR A NEW TRANSFER FACILITY.
MAKE CHECKS PAYABLE TO: "TREASURER, STATE OF TENNESSEE"

2. TYPE OF PERMIT- BY- RULE REQUESTED

TYPE OF PERMIT-BY-RULE

CHECK TYPE OF PERMIT-BY-RULE REQUESTED AND DISTINGUISH IF THIS REQUEST IS FOR AN ALREADY EXISTING FACILITY OR A REQUEST FOR A NEW FACILITY.

NEW PROCESSING FACILITIES MUST DETERMINE IF THEY ARE SUBJECT TO LOCAL APPROVAL THROUGH THE "JACKSON LAW" AS SPECIFIED IN TENNESSEE CODE ANNOTATED § 68-211-701.

3. FACILITY INFORMATION

FULL LEGAL NAME OF FACILITY

ENTER THE FULL LEGAL NAME FOR THIS SITE TO DISTINGUISH IT FROM ANY OTHER SITE THE APPLICANT OR ORGANIZATION MAY OWN OR OPERATE IN TENNESSEE.

PHYSICAL LOCATION

INFORMATION (ADDRESS, DIRECTIONS) THAT WILL AID IN FINDING THIS SITE (NO PO BOX NUMBERS!) PROVIDE COUNTY WHERE SITE IS LOCATED. PROVIDE LATITUDE AND LONGITUDE FOR SITE LOCATION IN DECIMAL DEGREES.

FACILITY MAILING ADDRESS

PROVIDE COMPLETE MAILING ADDRESS FOR THIS SITE

NAME OF FACILITY OR SITE MANAGER OR SITE OPERATOR

NAME AND PHONE NUMBER OF PERSON WHO IS RESPONSIBLE FOR THE DIRECTION OF ACTIVITIES AT THIS SITE

AFFILIATION OF SITE OPERATOR (IF DIFFERENT FROM PERMITTEE)

IF SITE IS OPERATED BY PERSON OR ENTITY OTHER THAN PERMITTEE, GIVE NAME OF PERSON, CORPORATION ETC.

4. APPLICANT (PERMITTEE)

APPLICANT NAME

NAME OF LEGAL ENTITY MAKING APPLICATION FOR PERMIT. THIS NAME WILL BE THE PERMITTEE OF RECORD.

RESPONSIBLE OFFICIAL

PERSON AUTHORIZED TO COMPLETE THIS APPLICATION AND WHO MAY BE CONTACTED BY TDEC FOR ANY FURTHER INFORMATION.

LANDOWNER NAME

PERSON(S) OR ORGANIZATION(S) OF THE IMMEDIATE PROPERTY OWNER(S). ATTACH LETTER FROM LANDOWNER(S).

LANDOWNER SIGNATURE(S)

LANDOWNER(S) MUST SIGN AND DATE APPLICATION

5. WASTE HANDLING

AMOUNT OF WASTE HANDLED / PROCESSED / STORED

PROVIDE AN ESTIMATE OF THE DAILY WEIGHT (IN TONS) AND/OR VOLUME (IN CU YARDS/DAY) THAT WILL BE HANDLED AT THE FACILITY. INDICATE THE MAXIMUM AMOUNT OF WASTE THAT CAN BE STORED (IN CUBIC YARDS).

6. CERTIFICATION REQUIRED

CERTIFICATION

AFTER ALL DOCUMENTS HAVE BEEN COMPILED FOR SUBMISSION TO THE DIVISION, THE MANAGER OR OWNER RESPONSIBLE FOR THE SITE MUST SIGN THE CERTIFICATION AND GIVE DATE AND TITLE. THIS SIGNATURE MUST BE NOTARIZED.

Compost Facility Operating Procedure (CFOP)

Narrative

The Compost Facility Operation Plan (CFOP) has been prepared as a reference for our compost facility staff to operate the compost facility in a manner to maintain compliance with the pertinent rules and regulations governing composting. The CFOP provides operational procedures designed to protect human health, the community experience, and the environment. The CFOP will be reviewed regularly, including monthly reviews, an annual report and be updated if the feedstocks or the composting procedures change. Our compost facility will notify TDEC of any changes to any aspect of our compost operation.

This proposed facility will accept only Tier 1 level feedstock. Mostly leaves and yard debris. The Fairfield Glade Community Club has asked that we be able to accept tree material (stumps, trunks, branches) which need removal from their property. We will store the woody material for up to 6 months or until the storage capacity at our facility is met and then we will retain an independent contractor to grind the woody material into wood chip size. This material will then be transferred to our composting pad and used in our compost process. The intention is to compost this feedstock in an environmentally sound manner while meeting the TDEC guidelines for type 1 commercial compost facilities. We will accept the feedstock from pre-arranged sources who will bring this feedstock to the facility and dump this in a designated receiving area. We estimate up to 1333 CY of a mix of dry or vacuumed leaves or grass in volume annually, mostly in the fall and spring season. In no more than 90 days, the feedstock will be positioned into windrows on the processing pad. The feedstock will then be composted using the aerated static pile method initially with the ability to expand or change to the turned windrow process. The finished compost will then be sold to individual consumers, contractors, or farmers in bulk quantities (skid steer bucket loads) and later in smaller bagged portions to individual consumers.

The facility site was chosen secondary to having existing infrastructure, which served a previous industry, and an opportunity to repurpose barren land. Additionally, the location is well away from any restrictions or buffer concerns. The site is near Fairfield Glade, a growing retirement community which adheres to environmental standards and desires a location to properly dispose of their Tier 1 level feedstock. The entrance to the property is readily identifiable and easy to access from the primary road. The two-lane access road to the site from the entrance is well marked, level and allows for all weather travel.

The facility design allows for a safe and understandable flow for the customers to follow to deposit their Tier 1 feedstock. The site is large and open, providing easy visibility and movement of vehicles and equipment. The composting areas are demarcated and separated from the consumers. The facility design enhances efficiency of the movement of material and the facilities provide protection and support for the staff and equipment.

The mission of our facility is to "Align both the peoples and the planet's activities for the benefit of both."

Security

The security of the facility and all who enter the property is very important. The property and the site is accessed by one road which has gate control and is locked when the facility is not operating. There are natural and physical barriers demarcating the property to discourage incidental encroachment by unauthorized individuals. An employee is staffing the gate house and or monitoring all people who wish to access the facility. Cumberland Composting will control site access to prevent unauthorized traffic from entering the working area and we reserve the right to refuse facility access at our discretion based upon set guidelines. Individuals who gain access to the facility and are considered unsuitable will be escorted off site by the Operator to the extent that the Operator deems it safe to interact with the unauthorized individuals. If staff considers the unauthorized individuals to be a threat to their safety or to the safety of authorized users, then the police – safety officers will be requested.

If the load being deposited is appropriate Tier 1 feedstock, then dumping at the designated sites can proceed after a dumping fee is paid as follows:

Fairfield Glade Residents/Consumers	No charge/paid by the community club	Verify by FFG card
Fairfield Glade Grounds Staff	No charge/contracted service	Verify by FFG truck
General consumers	Fee per size and type chart	
General contractors	Fee per size and type chart, option to establish a contracted service	

To discourage unlawful dumping, the vehicle, plate and load of customers denied entry and dumping will be recorded. Security cameras at the front gate area will also be in place.

Stray animals or threatening animals will not be allowed at the facility. If these are identified and cannot be safely redirected from the premises, then animal control will be requested.

Communication

Compost site personnel carry mobile phones with which to communicate with other management and each other if necessary.

Safety

No smoking, alcohol use or drug use will be allowed on the property, or facility site.

General Consumers

Signage and the facility staff will direct customers regarding how to properly use the facility. They will have instructions on what is appropriate feedstock to deposit and what cannot be received. The loads will be inspected with further details outlined below should inappropriate material be identified. If approved to proceed, the customer will then drive to the appropriate deposit site where they will then be instructed to turn off their vehicle before exiting and prior to unloading. At no time will someone be allowed to stand between two vehicles close to each other. Those consumers that appear to need assistance in unloading will be helped as much as possible by the Cumberland Composting staff. At no time will consumers be allowed to leave the proximity of their vehicle to wander about the site and they will not be allowed onto the working areas of the facility site. Similar methods are to be followed for finished compost purchasing.

Contracted Clients

These are vetted and contracted clients with pre-arranged loads of appropriate feedstock as outlined. They will typically be bringing in large loads via trucks. They will have access to the site during operating hours when the facility is not open to the public, to account for peak season needs. They will be pre-trained and directed as to gate control and safety measures and where they are to deposit their feedstock.

Personnel

The safety of the staff of Cumberland Composting is emphasized with them by outlining expectations, potential hazards, initial and on-going training and provided safety equipment and processes. The following safety procedures exist to minimize health risks to personnel working in and around the Cumberland Composting facility.

Therefore, staff are expected to up-hold the following standards:

- Equipment must be kept clean and operational
- Wear, at a minimum, Personal Protective Equipment (PPE) such as gloves, safety glasses, dust mask or respirator, and CSA certified steel-toed boots when in the processing areas of the facility.
- Appropriate coveralls or a safety vest with a reflective X on the back must be always worn.
- Traffic safety is paramount, take precautions when approaching vehicles and direct drivers how to safely navigate the facility.
- Follow the training and safety guidelines when using or operating any equipment on site.
- Follow applicable safety policies, procedures, regulations, WHMIS, SDS, and the Hazardous Waste Management Plan for the handling of compost, waste materials, and hazardous wastes encountered.
- If staff members are not wearing coveralls, they need to wear pants;
- Wash hands frequently, as a minimum before eating and after work; and
- Personnel shall receive appropriate vaccinations and ensure they are kept up to date.
- Please contact the Department of Health for a list of the appropriate vaccinations.

Specific hazards

The Cumberland Composting facility's potential hazards include vehicles and mobile equipment safety, noise, dust and bioaerosols, spontaneous combustion, fires, runoff liquid, and hazardous materials. In order to minimize risks, all staff must read through this manual, as well as associated plans and manuals, and understand their responsibilities. If there is an incident, it must be reported to the operator/supervisor.

Vehicles and Mobile Equipment

Mobile machinery and staff often work with people on the ground, as well as people operating heavy machinery. Site staff must never assume operators know they are there or have seen them and need to stay within sight of the operator whenever possible. Understand where the blind spots are on equipment (remember: if you can't see the operator, they can't see you). Make eye contact with the operator and have radio communication prior to moving around equipment. Staff must comply with all safety regulations that come with any of the machinery and must take extra precautions to be aware of what is going on around them when wearing ear protection.

Dust and Bio-Aerosols

Dust is generated from dry, uncontained organic material, especially during screening and turning operations, or vehicle traffic. Dust can also carry bio-aerosols, tiny biological particles that include fungi (like *Aspergillus fumigatus*), bacteria, mycotoxins and viruses. Yard waste from landscape or agricultural/horticultural operations may contain Volatile Organic Compounds (VOCs) that can be hazardous to human health. Bio-aerosols and VOCs are typically carried on dust particles. This makes dust control measures particularly important to control worker exposure and reduce the risk of disease. To minimize dust generation at the facility, keep compost, feedstocks, and bulking agents moist or covered. Apply water to roadways (or construct with asphalt in future). Time composting processes with care; there is usually less wind during early morning and evening hours. Ideally, mixing, turning or screening compost should not take place on extremely windy days. Keep machinery and surfaces clean of dust. In the gatehouse storage area, practice good housekeeping and keep surfaces clean and organized.

Workers on the site shall wear dust masks or respirators with an HEPA filter to prevent exposure to fungal spores (N95, N99, and N100) especially under dry and dusty conditions and when compost is being turned or screened. Respirators shall be either cleaned thoroughly after each use or kept for use by only one individual. Filters shall be changed with regularity to ensure adequate functionality. To isolate themselves from spore-dispersing components during mechanical turning, staff in front-end loaders/tractors shall keep their cabs closed.

Emergency Response Events which require emergency or corrective action may include:

- Unauthorized access to the Facility (see above)
- Fire
- Severe storm
- Serious injury
- Delivery of unacceptable materials

The person responsible for all emergency responses is the site manager. Employees are trained in the proper response to emergencies. The Facility has a fully stocked first aid kit. Staff regularly attend scheduled safety meetings and is trained in emergency procedures.

Fire Prevention and Management

Fires and Spontaneous Combustion

The risk of fires occurring at composting facilities is a significant safety concern. The three (3) inputs required to start a fire are oxygen, fuel, and heat. Composting materials can present oxygen and fuel such as amendment stockpiles (woodchips, paper), dry compost, fine compost that accumulates around screeners, dust accumulation, methane pockets, and potentially gasoline or oil leaked from equipment. Keep ignition sources away from flammable and combustible materials. Sources of ignition can be engine manifolds and exhausts, cigarettes, lightning, electrical arcs, short circuits, and wildfires. Reduce risky practices that could introduce a source of ignition near composting materials. **NO SMOKING!** Spontaneous combustion is combustion in the absence of 'forced ignition' and instead results from a series of heat-generating processes, each of which sets the next process off: Biological (50-80°C) Chemical oxidation (100°C – H₂O evaporates) Slow pyrolysis (150°C) Reaction rates double with each 10°C rise in temperature. Typical composting materials ignite at 150-200°C. Dry materials (20-40% moisture), large piles that are self-insulating, or piles with poor porosity create ideal conditions for spontaneous combustion. Spontaneous combustion occurs more commonly in feedstock or product

storage piles than active composting. Materials burn by smoldering if oxygen is limited, but more oxygen could cause glowing fire and then open flames. Opening up a pile or otherwise introducing oxygen can allow a smoldering fire to quickly turn into an open flame. Smoldering fires can persist for long periods of time (months)

Fire Prevention

The following procedures shall be followed to minimize fire hazards and associated risks:

- Fire department to have a tour of site and be aware of hazards, work through procedures in advance so they are familiar.
- Maintain proper aisles between piles to allow for equipment and firefighter access.
- Limit pile height to 3.7 m (12 feet).
- Maintain moisture content in stockpiles (feedstocks) >40%.
- Reduce dust accumulation on machinery and throughout site.
- Monitor stockpiles for fissures of steam or wet spots on the surface that might indicate a subsurface hotspot. Always use temperature probes; if there is a smoldering fire you could fall into ember pockets if you are walking on the pile.

In Case of Fire

Internal or smolder fires are difficult to extinguish because it is hard to tell exactly where and exactly how big they are. These fires must be dug out and smothered. If a small fire or smoldering materials are identified, staff may separate the fire from the bulk of the materials and attempt to extinguish it by using facility fire extinguishers and/or water hoses/water truck. Following a fire, the facility will be inspected for any sign of damage or hazard prior to reopening.

If the fire appears to require more than simple remediation, then do the following:

- Call the fire department or 911. The staff shall meet the fire department at the SWF's entrance and guide them to the site.
- Do NOT walk on the smoldering pile, as ember pockets could be present.
- Plan how you will extinguish the fire and make sure everyone understands their role. Make adequate space available for the next steps.
- The stockpile containing the fire must be broken down completely with mobile equipment, and the hot material spread out and cooled or wet. Material from the exterior of the pile should be moved away first instead of digging into the heart of the pile.
- Use spotters who are in radio communication with the equipment operator.
- Have hoses ready to wet down any open flames.

All incoming loads will be inspected for any unacceptable materials that might present a fire hazard. Any loads that would present a fire hazard will be rejected and returned to the hauler. Fire extinguishers are located on site near equipment and by the gate attendant. Woody material is processed in a timely manner. The mulch stockpiles will not exceed 20 feet.

In the event a fire does occur, the site manager will determine if it is necessary to shut down the facility.

Serious Injury

The probability of personal injury will be minimized through operator training. Signage clearly indicates traffic patterns into and out of the facility. Facility employees will be trained in basic first aid so that in the event of bodily injury, first aid will be administered. 911 will be called while first aid is in progress.

Appropriate authorities, as outlined above, will be notified of the accident and a follow-up report will be produced.

Severe Storm

In the event of a severe storm, which includes high winds, lightning, hail, snow, sleet, and heavy rainfall the facility may be damaged, and/or the staff and customers may risk injury or death. If the site attendant considers the weather to be dangerous, then the facility will be temporarily closed, and all people are advised to seek shelter and cease activity on the facility site until all clear is given by the attendant. After a severe storm, the facility employees will inspect the facilities and equipment and report any damage or safety hazards.

Unauthorized Material or Contaminated Liquids

Only Tier 1 feedstock (leaves, natural woody material, plant and yard debris) is acceptable. No hazardous waste, infectious waste, waste oil or radioactive waste will be accepted at the facility. The delivery of these materials is highly unlikely since this is a yard waste facility only and the dumping process is monitored. Should any of these materials inadvertently be delivered, the generator and/or hauler will be identified and required to remove the waste. Any hazardous waste will be handled as hazardous waste.

Training

Currently there is a facility manager and 2 employees who are responsible for the production of compost. If qualified, all may operate the needed equipment and carry out the required processes to run the facility. The equipment operator handles daily construction/removal of piles, recording temperatures, maintenance, screening, fire suppression, and loading large bulk customers. The facility manager is primarily responsible for overseeing public purchases, recording temperatures, sampling, and supervising compost production. The gate attendant monitors and records all incoming material.

Personnel will be trained in all procedures relevant to their positions including contingency action implementation and compost quality data collection.

Training will be provided in but not limited to the following areas:

- Using, inspecting, repairing, and replacing Facility emergency and monitoring equipment
- activating communication and alarm systems
- procedures for ceasing feedstock deliveries.
- appropriate response to fire and other emergencies
- responding to surface water pollution incidents
- procedures for managing incoming waste other than acceptable wastes.
- rejecting waste not accepted at the Facility.
- feedstock quality control
- mixing feedstocks
- temperature reading in compost system.
- data entry and record keeping
- safety
- equipment operation
- Compost site employees will be sent to one of several compost courses such as those offered by qualified organizations such as the United States Composting Council. Re-training will take place when needed.
- Receive and record all tipping fees and inbound/outbound materials

- How to maintain accurate clientele information database
- How to direct users to proper disposal areas
- Complete hazardous waste manifests as required
- Handle inquiries and concerns of residents.

Cumberland Composting Worker Job Description

PURPOSE OF JOB

To be the face or customer interface of Cumberland Composting. To manage the Cumberland Composting facility and related tasks. To supervise and manage the intake of feedstock from contracted entities and the public as arranged. To greet, direct and ensure the safety of the customers from the moment that they enter the business premises until they leave. To ensure good relations with the public and customers through excellent service. To help run, improve, and build the business of Cumberland Composting. Performs other work as required.

EQUIPMENT/JOB LOCATION

- The employee may operate various types of tools/equipment including, but not limited to: hand tools, power tools, mowers, tractors, weed eaters, shovels, rakes, mops, brooms, hand sanders, belt sanders, wrenches, hand saws, power saws, dump trucks, loaders, back hoe, dozer, rock hammers and other related tools/equipment.
- Operates various equipment as necessary and appropriate.
- The use of equipment or the job of direct composting work will not occur until the employee is trained and or certified competent to proceed.
- Work will be performed outdoors, and tasks will be completed regardless of weather.
- The employee may be exposed to loud noise, dirt, dust, grease, oils, fumes, chemicals and a variety of weather conditions including snow, sleet, cold, rain, heat.
- The employees will be required to wear appropriate uniform as provided by Cumberland Composting.
- Appropriate protective footwear is required to be worn each workday.
- Appropriate protective gear (face mask, respirators, hard hat, gloves, safety glasses, hearing protection) pending the hazards are required.
- To carry a personal or business always provided cell phone while on the premises.
- Job location is at the Cumberland Composting site on 8812 Chestnut Hill Rd. Crossville, TN.

ESSENTIAL FUNCTIONS

- **The following duties are normal for this job. These are not to be construed as exclusive or all-inclusive. Other duties may be required and assigned.**
- Open the gate for customers on the designated time and date (currently Tuesday, Thursday and Saturday, 730AM to 330PM).
- Greet customers, check that what they intend to dump is appropriate and direct them to the appropriate unloading location.
- Ensure customer safety: no smoking on the premises to avoid fire, proper traffic direction to avoid vehicle crashes or customers from being hit by vehicles, some customers may need help unloading safely, customer directions in and out of the facility.

- Ensures that material and equipment are properly used and cared for and is responsible for keeping equipment clean and in proper working condition.
- Observes proper safety standards and precautions.
- Performs custodial work as indicated at the facility.
- Cleans, mops, sweeps and washes areas such as restrooms, shops, break rooms, shelters, facilities, sidewalks, pavilions, parking lots, pedestrian walkways, etc.
- Washes windows and walls of offices and buildings.
- Responsible for landscaping, weedeating, mowing, mulching, pruning, right-of-way mowing and related general maintenance of the Cumberland Composting grounds, buildings and facilities.
- Cleans up trees, brush and other litter/debris from the grounds.
- May be asked, if qualified, to drive trucks to haul gravel, dirt, mulch and other material/equipment.
- May be asked to perform a variety of multi-craft related maintenance duties including, but not limited to: plumbing, including repair of leaks, pipes, urinals, etc; painting of buildings, facilities and fixtures, carpentry including construction and/or repair of structures and facilities, changes bulbs and lights, installs light fixtures, masonry work such as block and brick laying and pouring concrete.
- May be asked to perform general maintenance of vehicles and equipment as required including: changing oil, greasing, changing tires, minor equipment installation, cleaning and/or changing air filters, painting, washing and cleaning.
- Performs snow and ice removal from the grounds as indicated for customer safety.
- May be asked to perform additional duties or emergency duties after normal work hours.

REQUIRED KNOWLEDGE AND ABILITIES

- Ability to be pleasant and interactive with customers.
- Ability to be a knowledgeable resource regarding composting and the facilities operations for customers
- Ability to handle customer complaints and what is perceived as unreasonable, abusive customers.
- Ability to use a variety of tools and equipment as required for job.
- Requires demonstrated mechanical aptitude and experience in multi-craft maintenance and repair.
- Requires moderate physical stamina and manual work possibly for extended periods of time
- Ability to operate a variety of light and heavy equipment as identified.
- Ability to understand and follow instructions from supervisors.
- Ability to maintain a high level of discipline and morale.
- Ability to keep accurate records and make reports if required.
- Ability to communicate clearly and effectively orally and written.
- Ability to understand and conform to safety standards and precautions.
- Ability to establish and maintain an effective working relationship with the public, other employees and supervisors.

MINIMUM TRAINING AND EXPERIENCE REQUIRED TO PERFORM ESSENTIAL JOB FUNCTIONS

Any combination of training and experience equivalent to the following can be approved at the discretion of Cumberland Composting.

- High school diploma, or equivalent, plus a minimum of 1 years of related experience.
- Valid Tennessee driver's license and ability to obtain a Tennessee Class B commercial driver's license within first year of employment.
- Must be examined by a physician or Advanced practice professional to make a determination if applicant will be able to perform all essential duties required of this position.

MINIMUM QUALIFICATIONS OR STANDARDS REQUIRED TO PERFORM ESSENTIAL JOB FUNCTIONS

PHYSICAL REQUIREMENTS: Must be physically able to operate a variety of machines, tools and equipment. Must be able to use body members to work, move or carry objects/materials. Requires sitting, standing, bending, crouching, stooping. Must be able to lift assemblies of various weights; however, assistance (both physical and mechanical) is provided when necessary. Requires lifting generally 15pounds, occasionally up to 30 pounds unassisted. Physical demand requirements are at levels of those for mild to moderate heavy work.

ENVIRONMENTAL FACTORS: Performance of essential functions may require exposure to adverse environmental conditions such as dirt, dust, oil, fuels, grease, odors, wetness, fumes, extreme temperatures, noise extremes, machinery, vibrations, electric currents, toxic agents. Work includes indoors and outdoors as required for maintenance activities.

DATA CONCEPTION: Requires the ability to compare and/or judge the readily observable functional, technical, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people or things.

INTERPERSONAL COMMUNICATION: Requires the ability of speaking and/or signaling to convey or exchange information.

LANGUAGE ABILITY: Requires the ability to read a variety of informational documentation, directions, instructions, and methods and procedures related to the job. Requires the ability to write reports with proper format, punctuation, spelling and grammar, using all parts of speech.

INTELLIGENCE: Requires the ability to learn and understand basic to complex principles and techniques; to make independent judgments in absence of supervision; to acquire knowledge of topics related to the job.

VERBAL APTITUDE: Requires the ability to record and deliver information to supervisors and officials; to explain procedures and policies; and to follow verbal and written instructions, guidelines and objectives.

NUMERICAL APTITUDE: Requires the ability to utilize mathematical formulas; add and subtract totals; multiply and divide; determine percentages; determine time and weight.

FORM/SPATIAL APTITUDE: Requires the ability to inspect items for proper length, width, and shape, visually and with equipment.

MOTOR COORDINATION: Requires the ability to coordinate hands and eyes in using automated equipment.

MANUAL DEXTERITY: Requires the ability to handle a variety of items, equipment, control knobs, switches, etc. Must have the ability to use one hand for twisting or turning motion while coordinating the other hand with different activities. Must have average levels of eye/hand/foot coordination.

COLOR DISCRIMINATION: Requires the ability to differentiate colors and shades of color.

INTERPERSONAL TEMPERAMENT: Requires the ability to deal with people (i.e. staff, supervisors, general public, and officials) beyond giving and receiving instructions such as in interpreting departmental policies and procedures. Must be adaptable to performing under minimal stress when confronted with an emergency related to the job.

PHYSICAL COMMUNICATION: Requires the ability to talk and/or hear: (talking – expressing or exchanging ideas by means of spoken words). (Hearing – perceiving nature of sounds by ear.)

Note: This job description does not constitute an employment agreement between Cumberland Composting and the employee and is subject to change by the employer as the needs of Cumberland Composting and requirements of the job change. Cumberland Composting does not discriminate based on race, age, sex, religion, color, disability or national origin.

Facility Use and Maintenance

Access Road

On a regular basis, the road is to be maintained (potholes filled in, surface levelled) so as to provide a reasonably smooth surface for vehicles. At least twice per year, the road is graded smooth and the surface reshaped; and during the winter, snow is removed to ensure unrestricted access to the site for vehicles. The road is properly ditched to prevent water damage or ponding. Clear any debris or other obstructions from the ditches as they occur.

Buildings

Inspect all buildings on site each day of operation to ensure that they are functionally sound and safe. Look for structural damage, infestations, evidence of vandalism or robbery, water damage or leaks, electrical receptacle, or line damage. Note any unusual smells or noises, keep moving parts and lights in working order. Ensure all doors and locks are functional.

Contact Water Management

The site is graded to prevent the ponding of water. The general 2% grade of the working and storage pad for compost material runs northwest from the high point to the low point which is the retention pond. The pad is compacted clay and is surrounded by dirt and rock berms and a drainage ditch.

Pad Management

The compost windrows are constructed so that they will encourage rather than obstruct water flow from the pad to the retention pond. Runoff Liquid Storage/Treatment Lanes between piles and in the mixing area of the base pad must be smoothly graded to reduce runoff liquid ponding and ensure drainage to the retention pond. Fix ruts and depressions, grade the site if necessary, and keep ditches and swales clear of debris. Care must be taken when turning the compost piles to ensure the base pad is not scraped. Staff will conduct ongoing inspections to ensure that any unwanted ruts or depressions are fixed promptly to prevent pooling of runoff liquid.

Equipment Use and Maintenance

Equipment will be maintained in good working order with intact safety features. All motorized equipment will be maintained following the service manual guidelines. Any deviation from baseline function or suspicion of equipment problems will be reported immediately and investigated. Use of the suspect equipment will not restart until the problem has been remediated. Any running equipment will be turned off prior to the operator exiting the equipment. No equipment will be used by staff until they have satisfied the appropriate safety and use training and have demonstrated competence in the use of the equipment.

Operating Equipment

Cat 299 D2 skid steer with landscaping package; Skid steer attachments (forks, small and large capacity buckets, grapple bucket), Skid steer compost turner; Pickup truck; Dump trailer; Tub Grinder rental as needed; Straw/Erosion socks; Blowers, 6 inch convection piping, Trash cans; shovels/scoops; Assorted power tools; Safety wear for employees (goggles, steel toe shoes, visibility vests, hearing protection, masks).Extension cords.

Monitoring equipment: Compost thermometers and moisture meters

Operational Processes

Customer Relations

Staff will greet the customers in a friendly and helpful manner. They should be able to share knowledge of the processes and requirements in this facility operating plan and about the process. Resident and customer questions or complaints will be recorded and forward to the facility manager.

Receiving Feedstock

Yard waste (leaves, grass trimmings, plant trimmings) and tree parts (stumps, trunks, large branches) are Tier 1 feedstock that are accepted. Once a customer and their load have been approved to dump, as outlined in the security and safety sections above, the gate attendants will then direct the customers to the appropriate location to unload their feedstock.

Once on site, yard waste is stored in the yard waste holding area and containers demarcated by concrete barriers. Yard waste is used as a bulking agent and carbon amendment. Tree parts greater than 25 mm in diameter must be removed and/or stored in a designated separate location to be processed into woodchips before being incorporated into the windrow. The yard waste and wood chips are stored on the working pad at the feedstock storage location. No piles over 6 feet are allowed. This material will then be transferred to the adjacent composting location on the pad when ready for composting (within 30 days).

Composting Process

Effective Composting

The purpose of the Cumberland Composting facility is to reduce the amount of material entering the landfill, reduce greenhouse gas emissions, and produce a usable resource by recycling organic matter. Compost is a product that increases soil organic matter and nutrients, eliminates and suppresses pathogens, and stabilizes chemicals that may otherwise be released into the environment; thus, it is a resource that has many applications for agriculture, site remediation, and erosion control.

Centralized composting is a managed process through which organic substrates biodegrade in an aerobic and thermophilic environment. 'Aerobic' means 'in the presence of oxygen', and 'thermophilic' describes the range of temperature that is required to kill pathogens (approximately 40°C to 70°C).

3.1.1 Compost Microchemistry

Composting is a biological process carried out by microorganisms such as bacteria, fungi and actinomycetes, as well as macro-organisms such as nematodes, flatworms, rotifers, and mites. The goal of centralized composting is to maintain conditions that encourage a healthy microbial community. Monitoring and manipulating six (6) main process parameters help achieve this goal, namely:

1. Oxygen
2. Nutrients
3. Temperature
4. Particle size, porosity and structure
5. Moisture
6. pH.

The Cumberland Composting staff must work collaboratively to ensure that the composting process is as safe and efficient as possible.

Optimal Pile Oxygen Percent: ~16-18.5% **Passive aeration:** chimney effect – free airspace in material for air to travel through **Mechanical aeration:** windrow turner.

Nutrients Need: carbon (C), nitrogen (N), phosphorus (P) and potassium (K) **Target is a C:N Ratio of 25:1 to 30:1** **Mixing various feedstocks and bulking agents to get the desired result, and accurately tracking amendments help control the C:N ratio.** **Temperature** Ensure proper levels are achieved to destroy pathogens, optimize microbial activity, and to watch for fire safety **Material shall attain a temperature of 55°C or greater for at least 15 days during the composting period and must be turned at least 5 times in that period.** **Temperatures must be monitored at least once a week and be recorded.** **If hot spots are found, they are to be turned.** **If temperatures begin to decline, the compost may be entering the curing stage or there may be a porosity problem.** **CPC to refer to data tracking to help gauge best course of action.** **Particle Size, Porosity, & Structure** Proper airflow, limit compaction, increases rates of decomposition **Best initial pile porosity: ~50-60%, best final porosity: ~35%** **Particle size requirements fall within range of 1/8" – 2"** **These parameters are adjusted primarily during the initial feedstock mixing step and are enhanced by adding bulking agents** **Moisture** Necessary for chemical reactions, fire suppression **Moisture content should range from 40-60%** **Add water with hose, remove water by aeration (turning the pile), evaporative cooling, or let it leach out** **pH** Important for the decomposer organisms. **Target range is 6.5 – 7.5** **Adjusted by mixing feedstocks and bulking agents at the outset of process.** **If pH drops to 5 add oxygen (turn pile), drywall/lime, and/or cut back on contamination.** **The composting process involves two (2) distinct stages: active composting and curing.** **The time requirements for these are dependent on the ability of the microorganisms to complete the two (2) stages, and so minimum time requirements (outlined below) must be respected.** **The completion of both stages is required to produce a pathogen-free, stable, and high-quality product.**

Active Composting The first stage of composting is characterized by the following events:

- Mesophilic, or moderate-temperature (around 45°C), phase may last for one (1) day or more. Easily degradable compounds, such as sugars, organic acids and amino acids, are decomposed.
- Thermophilic, or high-temperature (55-75°C), phase can last from a few days to several weeks. High temperatures accelerate the breakdown of proteins, fats and complex carbohydrates. The active composting stage may last four (4) or more weeks.

Curing Stage Once the supply of high-energy compounds is consumed, the compost mass will gradually decrease to mesophilic temperatures. The process will shift to the decomposition of more complex organic molecules, but also to the formation of

biologically stable humic substances, or biological polymers. Fungi and actinomycetes dominate as they consume more complex organic matter such as lignin, chitin, and cellulose. The curing stage may last for several months. Curing is a critical stage for the compost to become stable and safe for use. The recommended minimum curing time is one (1) month at 40% moisture.

Composting in windrows is Cumberland Composting's preferred method. Windrows should be no wider than 10-12 feet or taller than 9 feet. Windrows should be oriented so runoff can drain freely away. Runoff should be properly collected and treated or stored as part of a comprehensive nutrient management plan. Compost should be well aerated to maintain nitrogen loss by denitrification. Keep pH at neutral or slightly lower to avoid nitrogen loss by ammonification. High amounts of available carbon will aid in nitrogen immobilization. Include compost nutrients in nutrient management plans. Prevent loss of nutrients and pollutants to surface and ground water resources. Organic material should be readily available and should be porous and not too wet. To reduce offensive odors, increase the amount of carbon in the mix. A carbon to nitrogen ratio of 30:1 in the initial mix should have minimal odors. Minimize nitrogen loss by selecting carbonaceous material (wood chips, sawdust, etc.) that, when blended with the nitrogenous material (manure, etc.) provides the proper carbon nitrogen ratio and porous texture for aeration. Aeration is important as it also reduces odors. A chemical neutralizing agent or other additive agents should be used if structural components do not provide adequate odor reduction. Organic material can be wood chips, spoiled silage, composted manure, etc. Organic absorbent material shall also be available such as sawdust or cured compost. Do not add frozen material to the composting mix. This will lengthen the time needed for composting and will require added management.

Cumberland Composting will use both a turned windrow composting method and an aerated static pile method.

Aerated Static Pile

The aerated static pile has an aeration system attached. If needed for odor control or if anaerobic conditions occur, wood chips are placed around and on top of perforated polyethylene pipe connected to an aeration blower. The mixed pile is then added over the wood chip/piping layer. A layer of unscreened finished compost is then added to the top and sides of the static pile. This system can push or pull air thru the piles. If odors persist the system is run in a negative mode pulling air thru the pile then to a biofilter made up of unscreened compost. The composting process is initiated.

The new aerated static compost pile/ static compost pile will be given a consecutive ID number and recorded in a log. Historically, this log contains all data relevant to the individual aerated static compost pile and includes the amount of amendment (leaves or wood chips) in cubic yards. Dates with temperature readings.

Temperatures will be measured daily in each active pile with a 1 m thermometer and recorded in °F. Typically, 20 measurements of each pile are taken in the morning by composting personnel. On weekends, plant operators are charged with recording temperatures. All temperatures are recorded in the log with dates and a calculated average for each date. After 3 days of temperatures above 55 degrees Celsius, pathogen standards are achieved. Material is maintained at a minimum average temperature of 55°C (131°F) or higher for three continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

After standards have been achieved the composted material is removed and placed in a curing pile and allowed to cure for an additional 2-6 months or until the natural composting procedure ceases.

Windrow turning

Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) or higher, there shall be a minimum of five turnings of the windrow with a minimum of 3 days between turnings. The 15 or more days at or above 55°C (131°F) do not have to be continuous.

An appropriate size for a windrow on the current base pad is approximately 4-6 m wide, 2.5-3.7 m tall, and 35 m long. It is possible that the exact dimensions of the windrows change; however, windrows shouldn't be much taller or wider than this in order to ensure proper aeration. Typical spacing of windrow piles is a minimum of 3-4 m. Orient windrows to prevent ponding or runoff. First lay down a 24" layer of porous material, i.e. wood chips. Monitor temperature on a weekly basis. Operating temperature of the composting material should be 131 degrees F to 170 degrees F. Ideal temperature of the compost should be around 140 degrees F. Operating temperature should be reached in about seven days and remain elevated for up to 14 days. The pile should remain at or above 110 degrees F for the remainder of the designated composting period. Compost managed at the required temperatures will favor destruction of pathogens, plant diseases and weed seeds. Closely monitor temperatures above 165 degrees F. Take action immediately to cool piles that have reached temperatures above 185 degrees F. Moisture – maintain moisture in the compost within a range of 40-65% (wet basis). Collapse - If the windrow sinks or collapses, add more organic material to the windrow. e. Test compost material for carbon, nitrogen, moisture, and pH if compost fails to reach desired temperature or if odor problems develop. Test finished compost material for constituents that could cause plant phytotoxicity when applied to crops. Composted materials that are prepared for the retail market require testing for labeling purposes. Heat generated by the process causes piles to dehydrate. As the process proceeds, material consolidates, and the volume of voids decreases, restricting airflow. Select materials for the composting mix that will insure adequate air movement throughout the composting process. Periodically turning the pile and maintaining proper moisture levels for windrows and static piles will normally provide adequate aeration. For each new windrow, record data such as date of pile construction and type/amount of material added. b. Check windrows weekly and note such data temperature, scavenging, leaching, moisture, odor and maintenance needs.

The average time for processing materials is one (1) summer season for active composting and one (1) summer season for curing. To avoid cross-contamination of windrows, the most active windrows are to be placed closest to the retention pond. Also, the windrow should not be perpendicular to the main slope and should be place in an orientation that optimizes drainage.

Active Windrow Summer Management Between mid-May and mid-October, active windrows are turned with a loader once to twice per week. Turning Operations The loader operator turns the windrows by lifting the materials on one side of the windrow with the loader bucket, and letting the materials slowly fall back to the ground. This is repeated for the entire length of the windrow, and then repeated on the other side of the windrow. Note, this process will change when we obtain a large windrow compost turner. The purpose is to increase airflow into the materials to maintain proper oxygen levels for aerobic decomposition. Watering Operations The purpose of watering the windrow is to maintain moisture levels of 40-60%. The moisture level in the windrow can be measured by a hand squeeze test, explained in section 5.3, or as observed by the loader operator (if the material has too much moisture it will be difficult to lift and turn). Watering is most effective when carried out at the same time as windrow

turning, as it increases absorption and distribution throughout the windrow. If there is not enough water in the retention pond to water active windrows, water from an outside source (e.g., water truck) will be used. Prior to reaching an average temperature of 55°C for 15 days, the active windrow piles may be watered using liquid from the retention pond with a water pump and fire hose on site. The end of the pump must be fully submerged in the retention pond in order for the pump to work properly. Extra care must be taken when handling the pump and hose in the retention pond as not to damage the retention pond liner. Once an active windrow has reached an average temperature of 55°C, which it will maintain for 15 days or more, it should be watered with clean water only for the remainder of the composting process. Clean water is important at this stage of the composting process to ensure that no new pathogens are introduced, to prevent contamination, and to help with the maturation and stabilization process. At this point, the windrow will also be relocated further away from the retention pond, as necessary, to prevent cross-contamination from other windrows. Clean water will be obtained from the water truck on site, which will be filled on an “as-needed” basis (currently once a week) from an approved water source.

Finished Compost Processing and Handling

Processing Finished Compost Curing should take place for at least four (4) weeks. The time period for curing may be longer if turning frequency is lower or there is limited aeration; at some facilities, compost is cured for six (6) months. Once curing has been completed, the operators may screen finished compost to remove unwanted material such as rocks, wood, and to remove bulking agents such as woodchips. If possible, a coarse screen (greater than 1/2”) should be used to carry out a preliminary screening. ONLY clean loaders and/or skid steers should handle finished compost. The finished compost will be moved to the designated storage area for this material.

Sale of Finished Compost

When finished, cured and acceptable compost is produced and ready for sale, a notification sign will be placed at the entrance, contracted consumers will be contacted and messages will be sent through social media to potential customers. They will then be directed upon arrival to the loading area where the appropriate amount of compost by size and weight will be loaded onto an appropriate vehicle for transport and the financial transaction will be completed.

Foreign Matter

Foreign matter includes pieces of plastic, rubber, glass, and gravel. Category ‘A’ compost must satisfy the following specifications with respect to foreign matter and sharp foreign matter: Compost shall contain no more than one piece of foreign matter greater than 25 mm in any dimension per 500 mL. Also, the compost must not contain any sharp foreign matter of dimension greater than 3 mm per 500 mL sample. If compost is Category ‘B’ due to the presence of sharp foreign matter, it “cannot be used in pastures, parks, or for residential purposes.”

Moisture Monitoring

The compost pile should have the moisture of a wrung-out sponge, which can be determined by a simple ‘hand squeeze test’. Staff is encouraged to familiarize themselves with how different moisture levels feel so they can quickly assess the pile and respond to problems. Over-saturated: water will leak when the sample is compressed and the sample will feel dense and heavy. Another way to assess this is if it takes force to push a temperature probe into the pile. Good moisture: compost will be moist but excess water won’t be dispelled, sample will have some springiness and will feel like a wrung-out sponge. The temperature probe will slide in easily. Dry: sample will be dusty and will not hold together well.

Bulk Density & Porosity

Cumberland Composting should measure bulk density prior to distributing compost for use, and to calculate the total amount of compost for end of year reports, PR, etc. To measure bulk density and porosity in a simple way, a 'bucket test' may be performed. This is achieved through the following steps: 1. Weigh an empty five (5) gallon pail, measure the exact volume by filling it with water (Volume (V)). 2. Fill the empty pail one-third full of material and drop the pail once from a height of 150 mm onto a firm, flat surface to compact the material. 3. Add more material until the pail is two-thirds full. Drop the pail ten (10) more times from a height of 150 mm. 4. Fill the pail to the top. Drop the pail ten (10) more times from a height of 150 mm. 5. Fill the pail to the brim, do not drop to compact the material. 6. Weigh the pail and sample. Subtract the Weight (W) of the pail to calculate the W of material. 7. Calculate the bulk density of the material: Bulk density (Density) = W / V .

Litter Control

Trash cans have fixed lids, and if any litter is noted, staff will be dispatched immediately to clean up the problem area.

Odor Control

Odor generation can be minimized through process control in material handling, good housekeeping, and maintaining aerobic conditions in the static piles. Documentation will be made of all odor complaints, causes and steps to remediate cause of odors will be taken in a timely manner. Personnel will walk the facility to identify the source of the odor including the scale, pads and pond. Operations will also be investigated. Once the source of odor has been identified, procedures to alleviate the problem will be implemented. This may include ceasing to turn piles, adding moisture, mixing in bulking agent and others. If odor from the composting process occurs, the odor characteristics may assist in identifying the cause and provide solutions for remediation. A table is provided that outlines different odor types and possible sources.

Vector Control

Good housekeeping and operation measures will be the primary methods for controlling insects, rodents, and other vermin. The facility and material handling equipment will be cleaned regularly to help minimize odors and vectors. If a nuisance problem develops, remedial measures will be initiated. Documentation of any vector issues and corrective measures will be maintained.

Wildlife Control

Good housekeeping and operational measures will be the primary methods for not attracting wildlife. Compost facilities may attract wildlife due to the availability of food. Tier 1 composting material does not include food waste. Keep personal foods secure and food waste removed from the premises at the end of each working day.

Noise

Noise associated with the compost operation includes truck traffic, fixed equipment, and safety signals on mobile equipment. Most equipment associated with this type of operation typically create noise levels of about 80 db measured at 50 feet. A regularly scheduled maintenance program will be followed to ensure all equipment is kept in good working order. Documentation of any noise complaints and corrective measures will be maintained. Hearing protection is required when operating or being around running equipment.

Final Closure Procedure

If there is reason to close the facility permanently, the appropriate authorities will be notified in the appropriate time frame, and the site will be cleaned up of any residual related to the composting facility. An estimate has been provided for the expense to remove and transport all remaining waste to an appropriate composting facility, remove all finished compost off site, remove all equipment off site and to provide for the continued security and maintenance of the Facility

Record Keeping and Reporting

Copies of records pertaining to the operation and maintenance of the Cumberland Composting facility will be kept up to date and going back to at least 3 years.

Information in these records includes:

- The type and quantity of feedstock and the source of the feedstock received (e.g. Residential) both monthly and annually
- Quantity of compost produced.
- The quantity of compost removed for use or for disposal, and the market or permitted disposal facility.
- Temperature measurements throughout the composting process demonstrating that PFRP has been met.
- Details of any maintenance, repairs, or remedial measures undertaken at site
- Record sheets and data regarding turning, watering, and added amendments
- Records of any runoff liquid analysis and quantities disposed off-site.
- Records of any complaints and corresponding investigation and remedial measures
- Safety records
- Visits by regulatory authorities
- Copies of all manuals pertaining to the operation and maintenance of the facility
- Copies of spill reports and related regulations
- Copies of annual reports submitted to the pertinent Tennessee agencies.

Owners and operators of facilities producing compost shall submit to the Department an annual report by March 1 of each year.

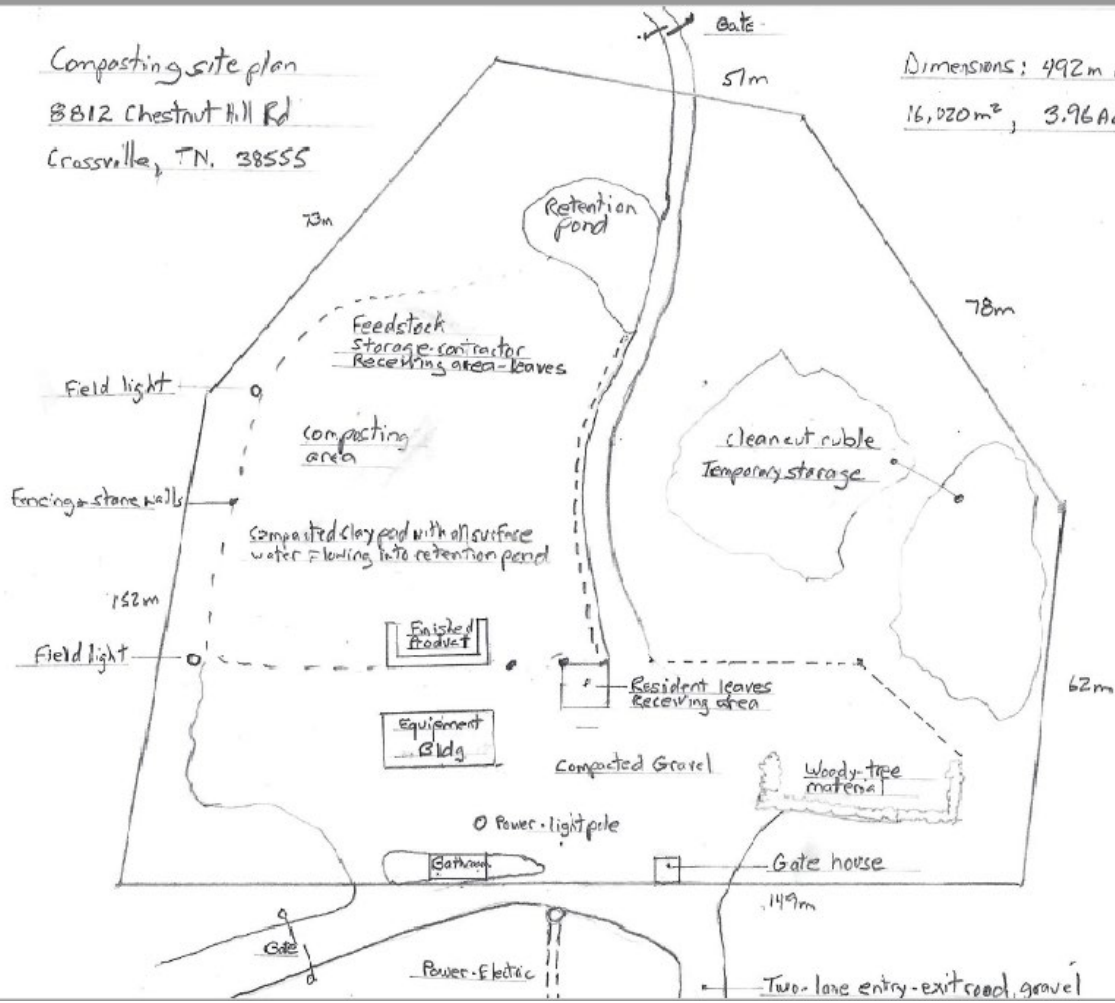
Composting site plan

3812 Chestnut Hill Rd

Crossville, TN. 38555

Dimensions: 492m Perimeter

16,020m², 3.96 Acres



Rule 0400-11-01-.02 Criteria: Tier One Composting Facilities

By each red response prompt, describe in detail how each criteria will be met or reference where in the operations manual or application material each is addressed if applicable.

(2) Facility Standards - Unless specifically noted otherwise, the standards of this paragraph shall apply to all compost facilities subject to a permit as provided at paragraph (3) of Rule 0400-11-01-.02 and Tier One permit by rule facilities.

(a) General Facility Design and Operating Standards

1. All compost facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:

Summary of Compost Demographics

Type Compost Facility: Tier 1

Tier 1 Compost Feedstocks: Agricultural residuals, yard debris, leaves, clean shredded wood waste

Estimated Volume of Feedstock Annually: 200 tons/ 1333 CY

Feedstock Storage Description: Compacted clay all weather pad with drainage to retention pond;
Dimensions: 8959 square ft; Capacity: 2,000 CY

Composting Pad Description: Compacted clay all weather pad with drainage to retention pond;
Dimensions: 8494 square feet; Capacity: 2,202 CY

Compost Storage Pad Description: Compacted clay all weather pad with drainage to retention pond;
Dimensions: 659 square feet; Capacity: 146 CY

Woody Material (tree parts) Storage Pad: Compacted clay all weather pad; Dimensions: 3,237 square feet; Capacity: 1,439 CY

Retention Pond: Dimensions: 312 linear feet perimeter, average depth 6 feet; Capacity: 318,648 gallons

Compost Method: Aerated Static Pile, Turned Windrows

Minimum Volume of Finished Compost Produced Annually: 70 tons/300 CY

Access Road: Aggregate, two lane, wide shoulders, well drained and flat grade

Compost Facility Buffers

Closest Residence: 2067 feet

Property Line Buffer: 1931 feet East; 1777 feet Southwest; 870 feet Northwest

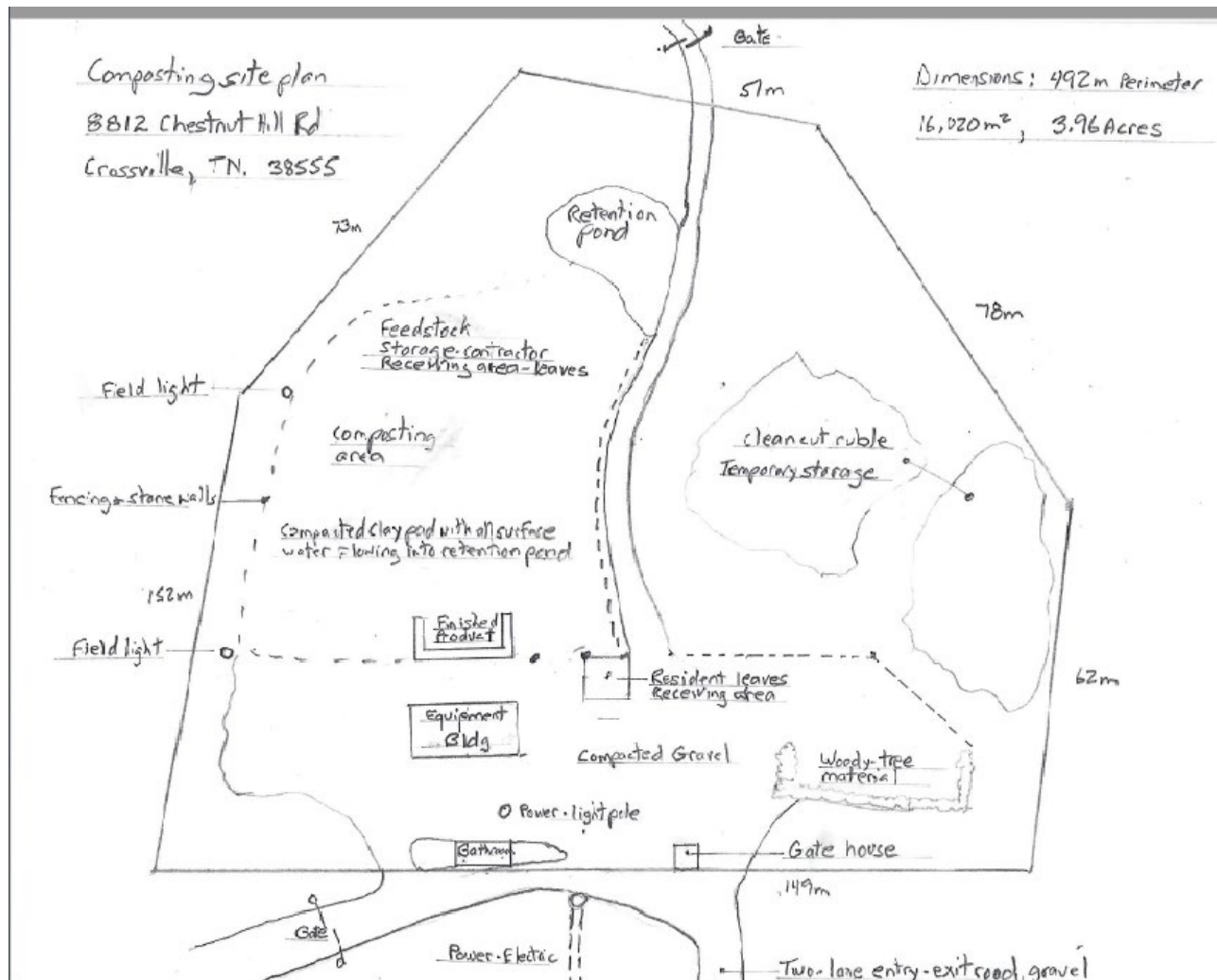
Drinking Water Well Buffer: Closest potential well is 2067 feet

Streams, Springs, Lakes Buffer: minimum buffer 800 feet

- (i) The feedstock receiving, processing and storage areas must be clearly defined and the maximum throughput and capacity specified.



The location of the receiving, processing and storage areas will be on the highest point of the property and at the previous site of an industrial mining processing area. Total area of approximately 4 acres is being developed and repurposed for the Composting site.



(ii) The composting facility shall have all-weather access roads. The facility shall be designed such that access to the composting facility shall be limited to authorized entrances, which shall be secured from public access when the facility is not in operation.

Response: A two lane compacted gravel road with easy access from the county road has been created. It is a level grade, safe and well marked. There are stone barriers with a gate at the entrance, prohibiting entry onto the property when the facility is not in operation.

(iii) Contact Water Collection

(I) The facility shall have a contact water collection system that is properly managed.

Response: The pad is compacted clay with a surrounding dirt and rock berm and 2% grade that drains the entire pad into a retaining pond. The composting area is estimated to be 0.2 acre actively, the retaining pond capacity is 318,648 gallons

(II) Contact water shall be reused in the process or otherwise properly managed as per all applicable laws and rules.

Response: The water from the retaining pond will be reused to wet the compost material as indicated for proper composting using a gasoline powered trash pump initially, and then an electric water pump.

(iv) Litter Control - Fencing and/or other control shall be provided to confine loose waste to the area designated for storage or processing; Accidental dispersal from the designated areas shall be recovered daily.

Response: The leaves will be deposited into a receptacle by residents and onto the receiving pads directly by contractors. The entire work area will be surrounded by fencing adequate to catch blown debris. There will be a staff attendant when the facility is in operation and any debris will be retrieved and properly disposed of on a daily basis.

(v) Personnel Facilities - There shall be provided:

- (I) A building or other shelter which is accessible to facility personnel which have adequate heating and light.

Response: A 6 foot by 8 foot attendant booth is located at the entry point to the composting site. This is a climate controlled living area and shelter with electricity, communications and site monitoring equipment along with first aid, safety devices and food storage

- (II) Potable water for washing and drinking.

Response: Bottled water and a refrigerator at the attendant booth, running water from municipal supplies are located at the bath house

- (III) Toilet facilities.

Response: A bath house with two toilets and a shower is located on the compost site adjacent to the attendant booth. The bath house has a permitted septic system.

(vi) Operating Equipment - The facility shall have on-site operational and monitoring equipment capable of maintaining the waste processing as designed.

Compost Operating and Monitoring Equipment

Operating Equipment: Cat 299 D2 skid steer with landscaping package; Skid steer attachments (forks, small and large capacity buckets, grapple bucket), Skid steer compost turner; Pickup truck; Dump trailer; Tub Grinder rental as needed; Straw/Erosion socks; Blowers, 6 inch convection piping, Trash cans; shovels/scoops; Assorted power tools; Safety wear for employees (goggles, steel toe shoes, visibility vests, hearing protection, masks).

Monitoring equipment: Compost thermometers and moisture meters

(vii) Endangered Species - Facilities shall be located, designed, constructed, operated, maintained, closed, and cared for during the post-closure care period in a manner that does not:

- (I) Cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife; or

Response: refurbishing an industrial area, no identified endangered species seen or expected

- (II) Result in the destruction or adverse modification of the critical

habitat of endangered or threatened species.

Response:refurbishing an industrial area, no identified endangered species seen or expected

(viii) Location in Floodplains- Facilities shall not be located in a 100-year floodplain, unless the demonstration is made to the Commissioner as required at subparagraph (2)(n) of Rule 0400-11-01-.04.

Response: highest location on property, well away from streams or springs

(ix) Wetlands - The facility shall not be located in a wetland unless the demonstration is made to the Commissioner as required at subparagraph (2)(p) of Rule 0400-11-01-.04.

Response:highest location on property, well away from streams or springs

(x) Buffer Zone Standards for Siting New Facilities - All waste management areas shall be located so as to conform to the distance standards at subparagraph (3)(a) of Rule 0400-11-01-.04.

Response: no encroachment via buffer standards on local landowners or homes

2. All compost facilities shall meet the following operational standards:

(i) Contingency operations shall identify proper management of all waste in the event of equipment failure, facility disaster, or receipt of unauthorized material such as oil, hazardous waste, etc.

Response:accidentally unauthorized material will be properly handled and shipped to a proper receiving facility immediately. Equipment and or facilities will be rented, purchased or repaired to replace faulty equipment or facilities to continue the processing of the feedstock to compost.

(ii) Fire Safety

(I) No open burning is allowed.

Response: none of the received feedstock will be burned

(II) The facility shall have, on-site and continuously available, properly maintained fire suppression equipment capable of controlling accidental fires. If available, local firefighting service shall be acquired.

Response: We will have a protocol on when and how to contact local firefighting resources if needed and will pre-arrange with the fire department our location, best route of access to the facility and an explanation of our facility type. Prior to our initial composting operation, a meeting with the local fire department will be performed. We will discuss compost related fires and will agree on guidelines of how to manage compost fires once they begin. Composting staff training will include ways to prevent fires such as ensuring adequate ventilation of contained feedstock and compost, constructing shallow piles, generally less than 6-8 feet deep and not greater than 10 feet. Temperature of the piles will be monitored frequently, at least weekly, and any hot spots will be identified before it turns into a fire.

Fire extinguishers will be available at the bath house, attendant booth and equipment shed. Water hoses will be adequate to reach all areas of potential

fire with the water source being with the municipality and or from the retention pond. .

(iii) Communication - The facility shall have available during operating hours equipment capable of summoning emergency assistance as needed.

Response: The facility attendants have or are provided an operational cell phone, the area has reliable cell signals and there will be broadband internet at the location.

(iv) Dust Control - The operator must take dust control measures as necessary to prevent dust from creating a nuisance or safety hazard to adjacent landowners or to persons engaged in supervising, operating, and using the site. The use of any dust suppressants (other than water) must be approved in writing beforehand by the Department.

Response:yes, water spraying as indicated will be enabled

(v) The owner/operator of a compost facility permitted pursuant to paragraph (1) of Rule 0400-11-01-.02 shall file with the Commissioner a performance bond or equivalent cash or securities, payable to the State of Tennessee. Such financial assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility. The types of financial assurance instruments that are acceptable are those which are specified in subparagraph (3)(d) of Rule 0400-11-01-.03. Such financial assurance shall meet the criteria set forth in T.C.A. § 68 211 116 and at subparagraph (3)(b) of Rule 0400-11-01-.03.

Response: Clark Excavating has provided an estimate of \$4800 to accomplish the above (see separate sheet inserted). If another financial instrument is felt required as support, First National Bank of the Cumberland (Randy Graham President/contact) has agreed to issue a letter of credit on my behalf.

Clark Excavating and Sales
Owner – Glenn Clark
348 Crabtree Rd.
Crossville, TN. 38571

Clean Closure Estimate: for the maximum amount of waste/material/feedstock/compost to be stored at Cumberland Composting at 8812 Chestnut Hill Rd. Crossville, TN.

Estimated maximum amounts:

Waste - 4 cubic yards, 2800 pounds
Material (woody material, yard debris) – 100 cubic yards, 7000 pounds
Feedstock (leaves) – 800 cubic yards, 200,000 pounds
Compost – 14 cubic yards, 16,800 pounds

Estimated Additional Services:

Clear pads and storage areas back to the original pad/grounds
Move material to a suitable location per TDEC
Loose trash removal
Provide equipment and operators to load the waste/material/feedstock/compost into trucks to be removed.

Amount: \$ 4800 ⁰⁰

Glen Clark: 

John Sherrill:  3-25-23

(vi) Facility operations manager, person responsible for the day-to-day operation, must be able to document training in the basics of compost facility operations within the first year of supervising the facility. Training must consist of classroom and hands-on course work and conclude with a certificate of completion that must be kept on site at all times. Appropriate compost operations training must be approved by the Department.

Response: The facility operations manager who is responsible for the day to day operations of the facility, will receive training specific to the basics of composting operations. The facility has also applied to the UA composting council and will be scheduling classroom certifications as indicated. The facility manager and other employees will also receive training on an as needed basis. The education certifications will be kept on file for review. Our staff will attend a seminar in Nashville for composting basics 6-23 as well.

(vii) Facilities must follow a Composting Facility Operations Plan (CFOP) — reviewed and approved as part of the permit application — that describes operational procedures (methods and practices) to comply with the intent of regulations to protect human health and the environment and not create nuisances. This includes measures to control nuisance odors, vectors, fires, contact water and stormwater, provisions for the annual maintenance of the all-weather composting pads, as well as provisions for prompt equipment repair or replacement when needed. The CFOP must be internally reviewed annually to ensure it continues to reflect current procedures, equipment and feedstock(s). The CFOP must be updated when there is a change to procedures (including equipment) or the types of feedstocks processed, and reflect how the facility will continue to comply with the intent of the rules. The CFOP must be available to the permitting authority upon request. The Department shall be informed in writing of any proposed changes to the CFOP for approval prior to

implementation.

The Compost Facility Operation Plan (CFOP) has been prepared as a reference for our compost facility staff to operate the compost facility in a manner to maintain compliance with the pertinent rules and regulations governing composting. The CFOP provides operational procedures designed to protect human health, the community experience, and the environment. The CFOP will be reviewed regularly including an annual report and be updated if the feedstocks or the composting procedures change. Our compost facility will notify TDEC of any changes to any aspect of our compost operation.

This proposed facility will accept only Tier 1 level feedstock. Mostly leaves and yard debris. The Fairfield Glade Community Club has asked that we be able to accept tree material (stumps, trunks, branches) which need removal from their property. We will store the woody material for up to 6 months or until the storage capacity at our facility is met and then we will retain an independent contractor to grind the woody material into wood chip size. This material will then be transferred to our composting pad and used in our compost process. The intention is to compost this feedstock in an environmentally sound manner while meeting the TDEC guidelines for type 1 commercial compost facilities. We will accept the feedstock from pre-arranged sources who will bring this feedstock to the facility and dump this in a designated receiving area. We estimate up to 1333 CY of a mix of dry or vacuumed leaves or grass in volume annually, mostly in the fall and spring season. In no more than 90 days, the feedstock will be positioned into windrows on the processing pad. The feedstock will be composted using the static pile method initially with the ability to expand or change to the turned windrow process. The finished compost will then be sold to individual consumers, contractors or farmers in bulk quantities (skid steer bucket loads) and later in smaller bagged portions to individual consumers.

The facility site was chosen secondary to having existing infrastructure, which served a previous industry, and an opportunity to repurpose barren land. Additionally, the location is well away from any restrictions or buffer concerns. The site is in close proximity to Fairfield Glade, a growing retirement community which adheres to environmental standards and desires a location to properly dispose of their Tier 1 level feedstock. The entrance to the property is readily identifiable and easy to access from the primary road. The two lane access road to the site from the entrance is well marked, level and allows for all weather travel.

The facility design allows for a safe and understandable flow for the customers to follow to deposit their Tier 1 feedstock. The site is large and open, providing easy visibility and movement of vehicles and equipment. The composting areas are demarcated and separated from the consumers. The facility design enhances efficiency of the movement of material and the facilities provide protection and support for the staff and equipment.

The mission of our facility is to "Align both the peoples and the planet's activities for the benefit of both."

See Attached CFOP

(vii) Facilities shall be maintained in a clean and sanitary condition, e.g., free of unsecured trash at the end of each operating day.

Staff are required to wash their hands after assisting residents with trash deposits. Floors of the facilities buildings are to be swept and kept free of trip hazards daily. Windows are to be kept clean and clear for visibility. Personal household type trash will be kept in receptacles and removed to an appropriate facility when full. The access road is to be inspected for safety and any debris on the road or on the unloading areas is to be removed. Bathrooms are to be cleaned daily.

(viii) Operators of composting facilities shall comply with all local rules,

regulations, and ordinances pertaining to their facilities.

We will comply with all local rules, regulations, and ordinances pertaining to our facility

- (ix) Contact water generated shall be directed to a containment, recycling, and/or treatment system sized to handle at a minimum a 24-hr 25-yr storm event.

Contact water will be directed by the appropriate barriers, facility pad grade and ditch into an appropriately sized retention pond as described previously.

- (x) Storage of finished compost on site is limited to 12 months of production, unless approved by the Department on a case-specific basis.

Our intention is to sell this product within 6 months of receiving the related feedstock. Finished compost is limited to 12 months of storage after production

- (xi) No material may be stored in excess of the designated capacity.

The current capacities of this facility are significantly above the current and projected needs. No material will be stored in excess of the designated capacity. If that should happen, then we will divert material to a proper disposal facility if projected volumes exceed the permitted storage capacity.

- (xii) Non-compostable waste shall be removed or stored in a waste container and/or containment area, and disposed of or recycled at a permitted solid waste facility in a timeframe approved in the CFOP.

Receiving of feedstock will be monitored. However, in the event something is disposed of at this facility that is not our intended feedstock, we will remove and dispose of this properly and immediately.

- (xiii) The composting area shall be maintained and repaired, as needed.

The composting area shall be maintained or improved in order to provide for a safe and sustainable business. the staff, the materials and the needed equipment are on-site to carry out repairs.

- (xiv) Closure - The facility must meet closure requirements described herein. The facility is finally closed by removal of all solid wastes and solid waste residues for proper disposal. The operator must notify the Commissioner in writing of his completion of closure of the facility. Such notification must include a certification by the operator that the facility has been closed by removal of all the solid waste and residues. Within 21 days of the receipt of such notice the Commissioner shall inspect the facility to verify that closure has been completed. Within 10 days of such verification, the Commissioner shall approve the closure in writing to the operator. Closure shall not be considered final and complete until such approval has been made.

Response: The operator will meet the closure requirements including timely notification of closure if indicated.

- (xv) The facility shall have a sign at the entrance of the facility that lists the following: name of facility; operating permit number; hours of operation; and emergency contact information.

The facility will have proper signage at the road entry and at the compost facility

for contractors and residents to be directed efficiently and safely through the facility, and to include the above requirements as listed.

(xvi) The facility must manage and process feedstocks in a timeframe that minimizes odors, contact water, release of feedstock liquids, fire and scavenging by vectors.

Confirm the proposed facility meets the regulatory design and operating standards for each of the items below to qualify as a Permit-by-Rule Tier I Compost Facility. Add explanation and/or compliance method as needed, or reference supplemental information or operations plan pages.

(b) Tier One Facility Design and Operating Standards

1. Tier One composting facilities may process Type 1 feedstocks only.
2. Tier One facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:
 - (i) The composting area should have run on and run off control and slope of 1 to 6 percent as determined by site conditions to direct contact water to the appropriate collection, storage and treatment system.
 - (ii) All composting at Tier One composting facilities shall be conducted on an all-weather composting pad, except for those facilities operating on a seasonal basis only (e.g., fall leaves and spring yard cleanouts). The all-weather pad must meet the following criteria:
 - (I) Except as provided in item (III) of this subpart, the pad surface shall be 5 feet or more from the top of the seasonal high water table of the uppermost aquifer or the top of the formation of a confined aquifer;
 - (II) Soils within the first 5 feet of the surface shall exhibit hydraulic conductivity of 1.0×10^{-6} cm/s. If soil depth to seasonal high water table is 10 feet or greater, a geologic buffer consisting of 10 feet of clay with a maximum hydraulic permeability of 1.0×10^{-5} may be used;
 - (III) If less than 5 feet from the top of the seasonal high water table an improved low permeability surface is required for tipping, mixing and active composting areas. The improved low permeability surface shall consist of concrete, asphalt or other approved material capable of withstanding heavy equipment and preventing contamination of the uppermost aquifer; and
 - (IV) All-weather pad shall be of sufficient slope to direct contact water to the appropriate collection, storage and treatment system. The pad shall also be constructed in such a manner as to prevent run-on of storm water to the extent practicable.
3. Tier One facilities shall meet the following operational standards:
 - (i) Compost processing time and temperatures shall be sufficient to kill weed seeds, reduce pathogens and vector attraction, and produce compost that meets the stability necessary for the intended use. Pathogen and vector attraction reduction compliance achieved as follows:
 - (I) Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) or higher, there shall be a minimum of five turnings of the windrow with a minimum of 3 days between turnings. The 15 or more days at or above 55°C (131°F) do not have to be continuous;

- (II) Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C (131°F) or higher for three continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

Other requirements:

Confirm each will be addressed by the proposed facility.

- (4) Records - Facility owner or operators shall record and maintain at the facility for three years the following information regarding their activities for each month of operation of the facility. Records shall be available for inspection by Department personnel during normal business hours and shall be sent to the Department upon request to include:
- (a) ~~Analytical results on composting testing;~~ (Note: not required for Tier I Facilities)
 - (b) The type and quantity of feedstock and the source of feedstock received;
 - (c) The quantity of compost produced;
 - (d) The quantity of compost removed for use or for disposal, and the market or permitted disposal facility. The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal; and
 - (e) Temperature measurements throughout the composting process demonstrating that PFRP has been met is applicable.
- (5) Design and Construction Plans
- (a) **Master Plan - A master plan shall be provided that is drawn at a scale of not less than 1" = 400' with not more than 20 foot contour interval and which clearly depicts:**
 - 1. The boundary of the proposed facility;
 - 2. The existing drainage pattern of all site runoff;
 - 3. Runoff monitoring stations;
 - 4. Primary access roads;
 - 5. Wells within one quarter mile of the site boundary;
 - 6. The location of all 100-year floodplain boundaries; and
 - 7. All residences within one quarter mile of the site boundary (If in an urban area residential properties may be delineated).
 - (b) **Design Plans - Design plans shall be provided that are drawn at a suitable scale of not less than 1" = 50 feet and with contour intervals of not greater than five feet, which clearly depicts:**
 - 1. All structures;
 - 2. Proposed waste processing areas;
 - 3. Proposed waste storage areas;
 - 4. All drainage appurtenances that control run-on/run-off and the direction of flow;

5. The location of all existing and proposed utilities and roads (defining surface material); and
 6. The location of all contact water collection/treatment structures, piping, storage appurtenances, and any other associated unit.
- (c) Narrative Description of the Facility and Operation - A narrative description of the facility and operation shall be provided that defines all procedures and activities pertinent to the design and operation of the facility. This narrative shall include, but not necessarily be limited to:
1. A description of how the facility will achieve the compliance of all standards defined in paragraphs (2) (4), and (5) of this rule;
 2. A description of the waste handling and processing equipment to be used;
 3. A description of the management of run-on/runoff with design calculations of all structures designed to meet the 24hr – 25 yr storm event;
 4. A description of the management of the contact water system and the disposition of the contact water;
 5. A description of the odor control measures; and
 6. A description of the procedures for the final closure of the facility.
- (6) Annual Report

Owners and operators of facilities producing compost shall submit to the Department an annual report by March 1 of each year. The report and shall include at a minimum:

- (a) The facility name, address and permit number;
- (b) The reporting year with all quantities expressed in tons (sludge expressed in dry weight);
- (c) The total quantity and type of feedstock received at the facility during the year covered by the report;
- (d) The total quantity of compost produced during the year covered by the report; and
- (e) The total quantity of compost removed for use or for disposal, and the market(s) or permitted disposal facility(s). The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal.

See Attached CFOP and above

John Sherrill

Date: 4-8-23