Feasibility Study

Large-Scale Food Composting

Project I.D.: U12012

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University of Illinois

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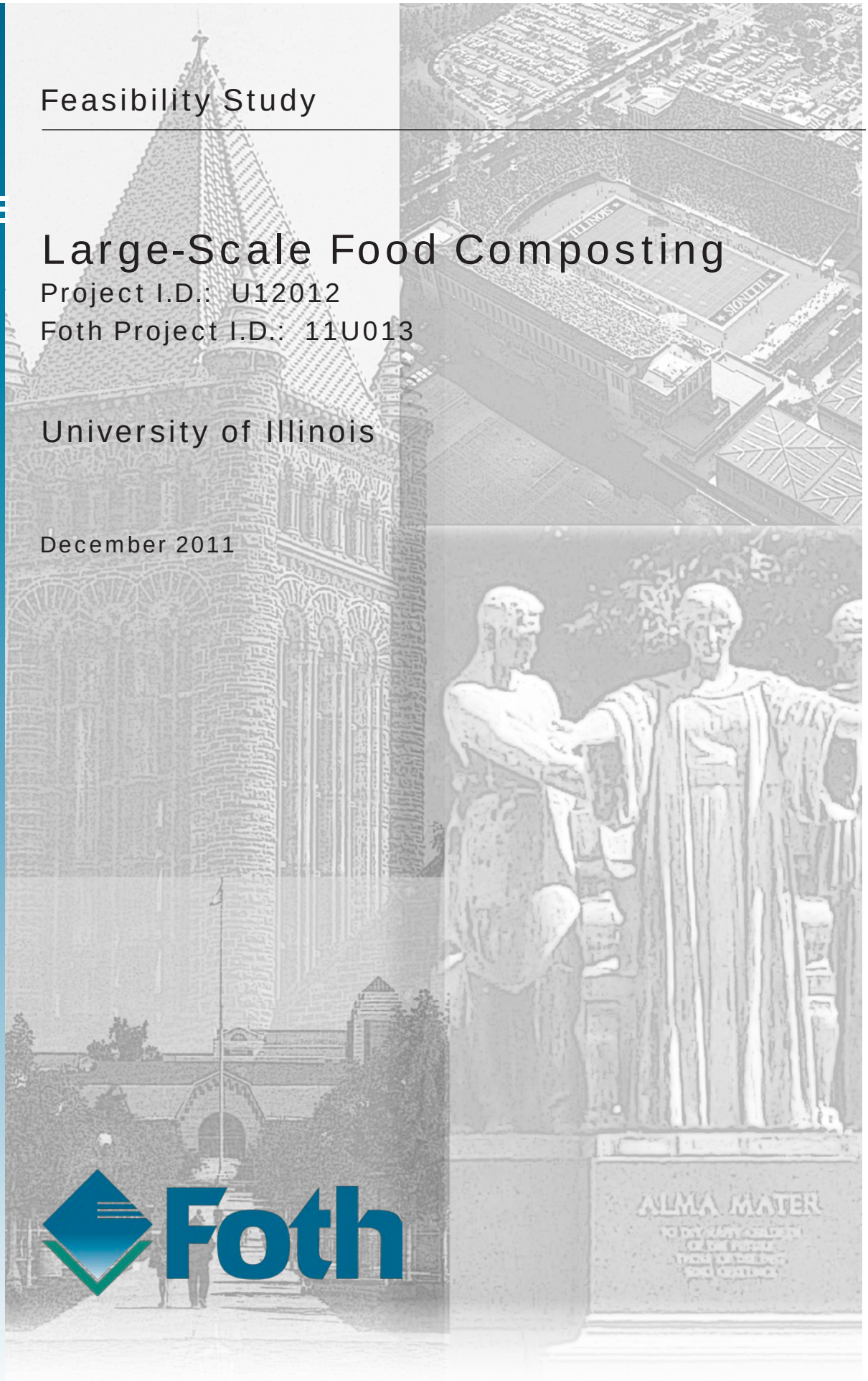

Foth

Large-Scale Food Composting Feasibility Study

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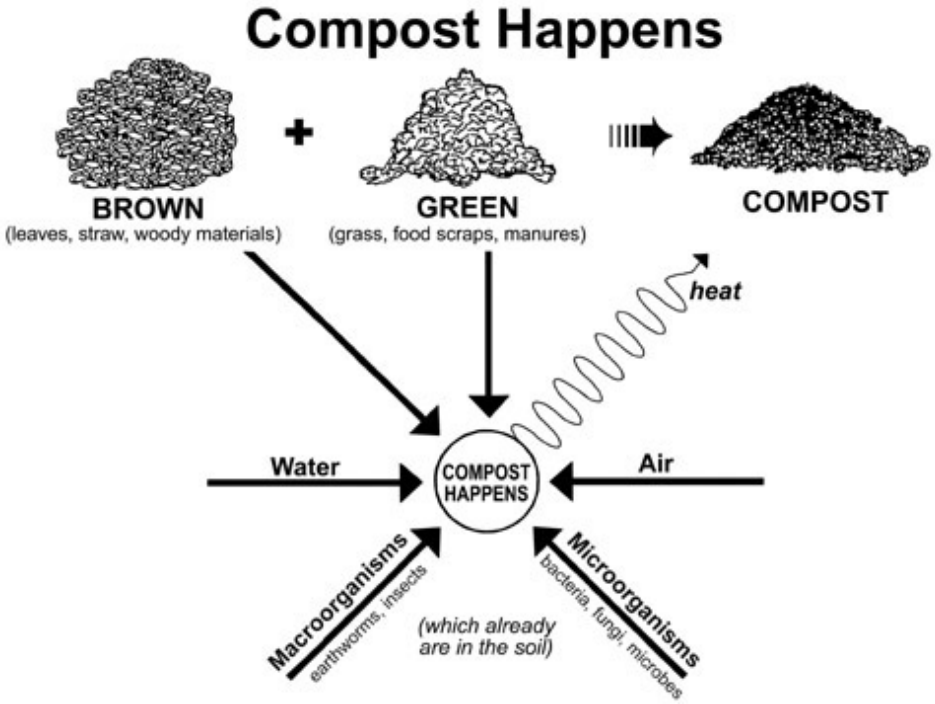
EXECUTIVE SUMMARY

The Student Sustainability Committee (SSC) at the University of Illinois at Urbana-Champaign (University) is pursuing development of a large-scale food waste composting facility on the University's property (see Appendix 1). Their interest is precipitated by the commitment made by the University in the Illinois Climate Action Plan (iCAP): "The University will commit to… a large-scale food composting project by 2012."

With input from the SSC, the University engaged Foth Infrastructure and Environment, LLC. (Foth) to prepare a feasibility study. This study is also to provide a schematic plan for construction of the composting facility and a construction cost estimate.

As this project is commissioned by the SSC and references a commitment to the iCAP, all intents have been to recommend a sustainable design for the site. These efforts include minimizing pavement, "grey infrastructure", grading and earth moving, and materials brought onto the site; and maximizing the use of native materials, vegetation, and utilizing other practices of Low Impact Design (LID).

Using data provided to Foth by the University and the SSC, with the addition of multiple field visits and correspondence, Foth and the University staff determined that the most desirable site for the compost facility is the Race Street site. The design of this site is in accordance with applicable governing agencies and has been completed using LID.



1.0 INTRODUCTION

1.1 SCOPE OF WORK

(The following sections 1.1 and 1.2 contain this outline for Foth's Scope of Services and are included herein in italics for clarity)

Prepare a Program Development, Design Development and Schematic Cost Estimating for a proposed On-Farm Turned Windrow Composting Facility to be located either at:

Site 1 (existing F&S Grounds Nursery, Topsoil Stockpile and Composting Facility) on South Lincoln Avenue, or

Site 2 (Proposed MP Compost Facility on South Race Street).

The anticipated services to facilitate the proposed composting operation study are as follows:

1.2 BASIC SERVICES

Program Development

1. *Owner Consultation, Data Collection and Analysis, Review 4/26/11 Composting Feasibility Report and data by Wolz, et al, Obtain/review input data from other university composting facilities and telephonically interview their operators, Review Regulatory Standards*

2. *Review surface drainage to ascertain runoff from/to/around the proposed composting sites.*

3. *Develop an annual volumetric and material density estimate using waste stream data provided by the University.*

4. *Develop an estimate of windrow and storage operational pad areas with assumed windrow sections and deposition rates within a defined season.*

5. *The open composting pad and storage pad are to be located at either Site #1 or Site #2 with the physical area site of the initial waste stream and expansion limitations to be estimated by this study. A perimeter drainage system to collect runoff from the pad will be investigated to collect the runoff from the pad for isolation and routing to an earthen holding lagoon. Feasibility of pumping to an on-site non-mechanized crop irrigation system will be reviewed. Alternate pad materials to be investigated and preliminarily evaluated during the program development phase, with costs and future use of the pad area to be considered.*

6. *Ingress/egress to facilitate access and circulation around the composting pad to be determined.*

7. *Summarize Program Development results in a brief outline report and present to University Staff (1 meeting).*

Design Development & Schematic Cost Estimating

1. *Data Collection and Analysis*

   H/V Control Coordination and Verification with other H/V Design

   Supplemental Field Topographic Survey/Detailing using Champaign County GIS topographic data (2 sites).

2. *Validate (with input from University Staff):*
   a. *Material flow analysis and prepare a resultant diagram*
   b. *Windrow cross section*
   c. *Aisle width*
   d. *Windrow lengths*
   e. *End aisle widths*
   f. *Center aisle, number and widths*
   g. *Storage area maneuvering circulation requirements and loading areas*

3. *Prepare Schematic Drawing incorporating elements of Project Program*

   Development and University Staff recommendations including:
   a. *Use of IEPA permitting compliance criteria for project siting*
   b. *Offsite delivery ingress and egress*
   c. *Berm geometric specifics on east side of Lincoln (Race) with provisions for an entrance and security vision corridors for police surveillance*
   d. *Approximate 10 years of facility operation*
   e. *Consideration of input from University staff on future use of the project site(s)*
   f. *Allowance for an area on the site for a maintenance/operations shed with building size to be determined by University Staff*

g. Entire site schematic to consider access for firefighting equipment

h. Develop lighting schematic and preliminary fixture layout with lighting type

i. Approximate a grading plan for:

1.) Site(s)

2.) Perimeter open drainage system

3.) Berm (s)

4.) Transitions to holding lagoon

5.) Transitions to/from site for offsite drainage corridors

j. Approximate earthwork schedule based on schematics

k. Prepare preliminary schedules and a summary of quantities to construct the work

l. Consider a possible lagoon pumping system for:

1.) Hydrating the compost windrows

2.) Deposition to an on-site non-mechanized loop irrigation system adjacent to the site(s) (assumed to be a gravity system with shallow swale matrix)

m. Prepare documents ***(in support of Schematic Cost Estimate only)*** *including:*

1.) Technical specifications (outline only)

2.) Plan views

3.) Profiles and sections

4.) Details as necessary

n. Develop a construction cost estimate for construction in CY 2012

o. Coordination meetings and project documentation with University Staff – two (2) meetings anticipated

p. Summarize Design Development and Schematic Cost Estimate in a brief report including documents prepared in support of Project outline as specified herein (referenced in 3.m.)

Construction Documents *(Not included this Proposal)*

Bidding *(Not included this Proposal)*

Construction Services *(Not included this Proposal)*

SUPPLEMENTAL SERVICES

Geotechnical Investigation *(Not included this Proposal)*

Construction On Site Services *(Not included this Proposal)*

Post-Construction Phase *(Not included this Proposal)*

ADDITIONAL SERVICES

1. *Prior to commencement of composting operations, install a groundwater monitoring network to determine groundwater elevations and establish background groundwater quality.*

2. *Extensive Utility Relocation Coordination and/or Design*

3. *Off-site Drainage Analysis and Report*

1.3 STUDY AREA

At the request of the SSC, both the current Grounds facility on Lincoln Avenue and the proposed Race Street site from the University master plan were analyzed. A field visit was held with University staff (see Correspondence 1) and on following analysis of the Grounds facility on Lincoln Avenue, the site was found to be undesirable. Many of the forethought benefits proved false and its limitations proved overly restrictive. Several key points are:

- The Grounds windrow turner is aged and barely operable. UIUC staff on site stated that it is operated no more than six times a year and requires recurrent maintenance. It is judged this equipment is inadequate for a large scale food composting facility.

- The building on site is currently fully utilized and not sufficient to house any additional equipment.

- The site does not have potable water, although water could be extended to the site from the main on Lincoln Avenue.

- Further study concluded grounds staff do not collect enough bulking materials per year to satisfy the requirements of a large scale food waste composting facility; therefore the proximity to their stockpiles proved much less significant.

- This Grounds facility site is in a depressed surface area. Use of this site would require additional drainage solutions and likely has a high water table.

- The size of the Lincoln Avenue site is restricting, access is difficult and there is no room for expansion. Given the Lincoln Avenue site's limitations, with the concurrence of University staff, the Race street site was studied in more detail as the preferred location. The overriding benefit of the Race Street site are its higher elevation and thus has less drainage issues, there is sufficient area for future expansion, and it is the cited location for a compost facility in accordance with the University's master plan.

Figure 1-1

The Race Street site is currently a University agricultural field. The proposed site, as shown in Figure 1-1 is located on the East side of Race Street behind the existing farmhouse that is designated in the Illinois master plan as the Animal Sciences Center Office and north of the Beef/Sheep facility.

1.4 STUDY GOALS

The primary intent of this study is to determine the feasibility of a large scale food waste compost facility (incorporating operations) using the estimated University's current food waste flow and available land. Additionally, this schematic design will initially accommodate current waste stream loads and consider approximations for a 10 year outlook. Finally, throughout this study all directives will be to minimize front end costs with sustainable design elements, including construction of minimal pavement.

2.0 FEASIBILITY ANALYISIS

2.1 REGULATORY REQUIREMENTS

Analysis of the University's Large Scale Food Waste Composting Facility will follow the criteria set forth by governing agencies. It is expected that the University will be responsible for permitting decisions and applications. To this point, Foth will provide the analysis in accordance with the permit criteria, specifically, analysis and design will follow the specifications described in the "Application for a Permit to Develop a Composting Facility LPC-PA6" written and published by the Illinois Environmental Protection Agency (IEPA) (see Attachment 6).

The specifications described in the IEPA's permit application are as follows:

a) *There is a 200 foot setback between the boundaries of the site and any potable water supply well.*
b) *The site is outside the 10 year floodplain or the site shall be flood proofed, in which case the flood proofing plans must be provided.*
c) *The location of the site shall minimize incompatibility with the character of the surrounding area.*
d) *There is a 200 foot setback between the boundaries of the site and any residence.*
e) *The design of the facility is such that:*
    i) *No compost will placed within 5 feet of the water table*
    ii) *Runoff from the permitted facilities shall not cause or contribute to a violation of the water quality standards contained in 35 IAC 302.*
    Sampling for BOD_5, Total Suspended Solids, Ammonia as N, pH or other parameters may be required.
    If any water is to be discharged, contact the Division of Water Pollution Control Section.
    iii) *Any other leachate generated on site in addition to runoff must also be collected and managed.*

2.2 VOLUMETRIC ESTIMATES

The major components of the compost waste stream are the food waste input from the University, adding carbon bulking material and water for input with compost as output. The food waste input was determined by a one week food waste audit performed by the university dining staff from December 5, 2010 to December 11, 2010 (see Appendix 4). These results indicate an average total volume per day of 4.2 cubic yards food waste with a maximum daily volume of 5.9 cubic yards food waste.

Note: Only food wastes from the University will be used at this time. No other waste streams – i.e. food wastes from outside the university or animal wastes from any source are included.

To account for both deviations in volume on a weekly basis (the audit was only performed during one week) and for growth of the university housing services, a factor of safety was used, starting with the maximum daily volume from the audit. The maximum daily volume (5.9) was rounded up to the nearest whole number – six (6), and then multiplied by 1.5, a daily volume of nine (9) cubic yards food waste. Nine cubic yards food waste at seven days a week over the 32 week school year equates to 2,016 cubic yards of food waste per year.

On average, an ideal "recipe" for compost is mixing equal parts food waste to a carbon bulking material; thus requiring 2,016 cubic yards bulking material per year. This bulking material can be most any carbon source (leaves, grass clippings, wood chips, etc…); however, different materials will have different composting durations. Initial discussions and recommendations have occurred regarding a source of bulking material supply; however additional commitments are necessary from University and outside sources (i.e. the City of Champaign as example) are necessary.

Ongoing trial and error experimentation and planning by the University's operator will be necessary to balance the bulking materials required with the predicted food wastes. Ideal bulking materials – grass clippings, leaves, and other plant materials – are collected throughout both the spring and the fall. In the summer months, very little food wastes are produced therefore the required bulking materials will be minimal. The winter season thus poses the most potential problem.

During most of the winter months, the University dining services are producing food waste. The aforementioned carbon sources will require stockpiling; however the stock piles will eventually start decomposing. Potential options for supplement are woodchips, livestock bedding, and other organic materials from the University's various facilities and other sources will have to be pursued and coordinated.

Woodchips are available year round, however there is generally a peak in production in the late fall, early winter, when tree trimming is ideal. Woodchips do take longer to compost; however they can also be stockpiled for a much longer duration. Additionally, large woodchip fragments can be removed during sifting operations and recycled – smaller pieces of woodchips in compost are considered acceptable.

Livestock bedding, if used, has a composting and stockpiling duration similar to the grass clippings, leaves, plants, and other materials. The bedding availability would be expected to remain consistent during the winter months or increase. Issues with

unacceptable percentages of animal waste in the livestock bedding, or certain diseases that the livestock may carry that could be transmitted via fecal matter in the bedding should be explored prior to bedding usage.

University Grounds report between 250 and 300 cubic yards leaves per season (collection efforts between September and May – not continuous). Tom Schuh (City of Champaign) has stated that the City of Champaign currently collects approximately 10,000 cubic yards of leaves, wood chips, etc. per year (see Correspondence 4). Approximately half of this goes to local farmers and the other half is taken to the Urbana Landscape Recycling Center; however Mr. Schuh said that the City of Champaign is willing to route some to the University compost facility. An exact quantity and coordination efforts can be determined by University staff. Usage of bedding materials from University livestock operations has not been quantified and thus use will require coordination by the University if used as a carbon source.

As stated, there is estimated to be roughly up to 4,000 cubic yards compost that can be produced annually. This volume is a conservative assumption, includes future growth, and will therefore initially be less – as low as 1,450 cubic yards annually. The SSC eventually hopes to be able to sell the finished compost product to the community; using the profit to assist in funding the composting operation (see Appendix 3). There has been no market study performed to estimate the demand for this product and therefore the potential annual sales volume is unknown.

The SSC estimated they can use approximately 300 cubic yards compost per year on their sustainable student farm (see Correspondence 6). University Grounds has stated that they can use approximately 150 cubic yards compost (see Correspondence 2). This leaves at least 1,000 and up to 3,500 cubic yards compost remaining annually for additional “destination” study.

As suggested by the SSC, ideally the University could sell the compost. Until the proper permitting and policies are complete to allow sale, or in the case of too much supply for the demand, additional allocations are necessary. The compost site itself is designed to store slightly over one year’s volume of produced compost. As the site is in the center area of an agricultural field, additional space could be allocated for storage as well. Also, the SSC has said that they could also store some additional volume on their student sustainable farm. While this storage may be necessary during development of operations and procedures, ultimate distribution of the compost must be determined by the University.

2.3 COMPOSTING PROCESS

Detailed research and study of the actual physical, chemical, and biological processes of composting are not part of this scope. However, some preliminary research was necessary to ensure the design of the site was adequate. During a site visit to the large scale composting facility at Illinois State University (ISU) the ISU staff explained their process (see Correspondence 3). The ISU facility has similar volume quantities and uses the turned windrow method; the very same method anticipated by SSC. Therefore, the University (UIUC) compost facility is anticipated to be modeled after the ISU facility process as follows:

Food wastes will be delivered to a holding area within the facility; similarly all carbon bulking materials will be delivered to separate holding/storage areas. IEPA requires that food wastes be mixed with carbon bulking materials and windrowed within 24 hours of delivery to the site. Adequate space will be provided in the vicinity of the delivery areas for a grinder mixer to operate and for mobility of a front end loader to maneuver to load the grinder mixer (see Figure 2-1). Once the grinder mixer is loaded, it will be pulled to the next windrow location and the freshly mixed materials will be deposited onto a windrow (see Figure 2-2).

Figure 2-1

Figure 2-2

Windrows must be regularly monitored for temperature, moisture, pH, and other chemical and biological properties. It will be the responsibility of the facility operator to be adequately educated in the process and indicators. The two main maintenance operations necessary during "cooking" are watering and turning. Cooking refers to the period of high temperature in the piles due to the biological and chemical breakdown process; this process also consumes water leaving the windrows dry.

If the windrows get too hot or too dry the microorganisms breaking down the food wastes will die. Watering the windrows will increase the moisture content and turning the windrows will decrease the temperature (see Figure 2-3). These operations do vary on exact makeup of the compost and on the season; however an average of once per week is judged necessary.

According to ISU staff, composting materials will typically need to be in windrows for eight to nine weeks for the cooking process to be complete. Using the 1.5 factor of safety a 90 day composting period is assumed. Once the temperatures subside, the

compost cooking phase is complete. At this point the wastes have broken down and the volume reduced; a 20% reduction is assumed based on input from the ISU staff.

Figure 2-3

As the curing process does not require tuning, the composting materials can be moved out of windrows and into larger piles for curing, but should still be monitored. If the temperature does begin to increase, or to distribute the exterior material into the pile, the pile could be "turned" with a front loader.

After approximately 90 days the compost is done curing. The next step is to screen the compost (see Figure 2-4). This process will sort out any material that is still too large that has not been composted. This traditionally will consist of woody materials, plastic forks, aluminum cans, and other non-organic material within the compost. The screened compost is now ready for use and can be moved to a stockpile.

Figure 2-4

3.0 SITE DESIGN

3.1 FLOW OF OPERATIONS

The flow of operations begins in the University dining facilities where all food wastes, and potentially paper wastes should be separated and collected. Initially this could be done in plastic bins that could be placed throughout the facilities without having to alter or reconstruct the infrastructure of the facilities. These bins would then be gathered outside in a location where they can be picked up by a waste hauling truck specifically designed for collecting waste from bins and hauling food wastes.

An additional option that would reduce volume, aroma, and speed up the composting process would be to install a pulper in each dining hall. The pulper collects food wastes dumped into a trough via a stream of flowing recycled water. The food wastes and water are pumped to a centralized pulper. The pulper is essentially an industrial sized garbage disposal. All food wastes are ground into smaller particles. The food waste and water slurry then goes through a process that allows the majority of the water to drain out and be recycled. The remaining "pulp" of the food wastes is deposited into the collection bins.

Whether pulped or not, the food waste bins are then collected by the specially designed truck. This truck will haul the food wastes to the compost site and dump the food wastes onto a concrete food waste storage pad. Meanwhile, carbon bulking materials collected throughout the University and city will be delivered to the facility and deposited in bulking storage areas.

Within 24 hours, per IEPA standard, the facility operator will load equal parts food waste and bulking materials into the mixer grinder. It is anticipated that the mixer grinder operation will take place either on the food waste or bulking materials storage pad or in between the two, reducing the distance of lesser travel with the materials. The mixer grinder works as a large scale blender, with spiraling blades in the bottom chopping and mixing up input materials. This provides an even mix of food waste and bulking; additionally it helps to further breakdown and cover the food wastes rendering them less odorous and less desirable to birds and rodents.

The grinder mixer is then pulled over to the current windrow. The mixture of materials exits the grinder mixer via a conveyer belt out the side of the machine. As the mixture exits the machine, the operator slowly moves the machine forward laying an even distribution of mixture along the windrow. The windrows are created with multiple linear paths of a set length, growing in height and width over time.

Once the windrows reach a desired cross-section, approximately eight feet wide by four feet high, the windrow is complete. At this time the "cooking period" begins for that windrow and a new windrow is started. As mentioned in section 2.3, the windrows will have to be monitored regularly and watered and/or turned as necessary.

As the "cooking period" ends and the temperatures cool, the composting material can then be moved to curing piles; this will generally occur within 90 days but may vary. While this process is not necessary, moving the compost to curing piles requires less overall area as the curing piles are built up wider and higher. If it is deemed preferable, the curing can occur in the existing windrow, foregoing the curing pile. Either way, the curing process is estimated to take an additional 90 days. The cooking time plus the curing time total the overall composting process of approximately six months.

When the material is cured, a front loader will load the material into a screener with the screened compost as the final product. At this point, either a loader can make numerous trips between the cured pile and the compost stock pile, or a truck can be used for the compost transfer.

3.2 SITE SIZING

The size of the overall site was estimated based on several factors:

- Compost facility size and location determined by the University's master plan
- Allowing adequate area to facilitate storage and holding of all compost materials throughout the various composting processes
- Providing room for all vehicles and equipment involved in the compost operation
- Providing filter strips throughout and around the site

Further specifications and details are included in section 3.5.

3.3 SITE DRAINAGE AND GRADING

The chosen location of the proposed compost site lies on a subtle ridge in the middle of an agricultural field. Additionally, an abandoned fence row (east and uphill of the proposed compost site) created a north-south ridge perpendicular to the natural slope of the field. This fence row ridge currently causes surface drainage to pond uphill (to the east of the proposed compost site).

The recommended compost site intends to both allow the compost facility to operate with minimum impact and provide positive drainage at both the compost site and the surrounding field. The fence row ridge will be leveled and regraded to create an east-west ridge that will establish a high point at the center of the compost facility. Removal of the fence row ridge can provide necessary material to grade and surface drain the compost facility; also allowing the field to the east (uphill) to drain around the compost facility. This earthwork balance is assuming the groundwater table does not necessitate raising the site from the calculated base elevations outlined herein.

Grading operations for the base design elevation (see section 4.1) include moving on-site material. This material balance considers that all fill areas will be compacted and uses a 15% shrinkage factor. Topsoil may be used as fill in all areas except under the aggregate lane, under the equipment storage area, or under the concrete food waste storage pad. Upon completion of the grading operations, construction plans should require the entire site to be covered with topsoil. A minimum of 8" of topsoil is required within the limits and including the perimeter filter strip. The area outside of the filterstrip will be returned to agricultural use and will require a minimum a 10" of topsoil. It may be necessary to stockpile some topsoil for this end result.

According to USDA soil data, the site is drummer silty clay loam – the predominant soil in Illinois. Drummer silty clay loam typically has a topsoil depth of 10-14 inches. The soil below is typically more clay-like with a low permeability. This low permeability creates a barrier between the composting operation and the ground water table.

The compost facility surface will have a 2% cross slope running parallel to the windrows. There will be an east – west ridge along the north edge of the windrows. This will allow all precipitation that falls directly onto the compost facility in the windrow and curing pile area to sheet flow to the south, and all precipitation falling north of the windrows to sheet flow to the north. All onsite sheet flow will run through the vegetative filterstrip paths between the windrows and storage areas while not allowing any ponding on the site. Encircling the entire compost facility will be an additional filterstrip with a 0% grade that will temporarily retain any flow that may reach it to allow any sediment or nutrients to be filtered out. Beyond this, any additional flow will follow its existing path and sheet flow across the agricultural field.

Along the east side of Race Street there is a shallow ditch. A 12" corrugated steel culvert is recommended under the concrete entrance to allow this flow to continue.

Additionally, a 12" corrugated steel culvert is recommended under the north end of the north-south section of the lane to convey surface drainage under the lane from west to east.

3.4 ENTRANCE

The entrance is an at -grade single aggregate lane. Using a single lane furthers the sustainability commitments and keeps construction costs down. It is assumed that vehicular traffic on this road will be minimal. On the rare occasion that two vehicles will use the lane, one will be momentarily delayed with a single lane construction. There is minimal concern over accidents of conflicts due to this as there is a clear line of sight over the entire lane length.

Alternates included later in this report address site specific variables in soils conditions, topsoil depth and entrance lane width which are determinants to be addressed in final design of the facility.

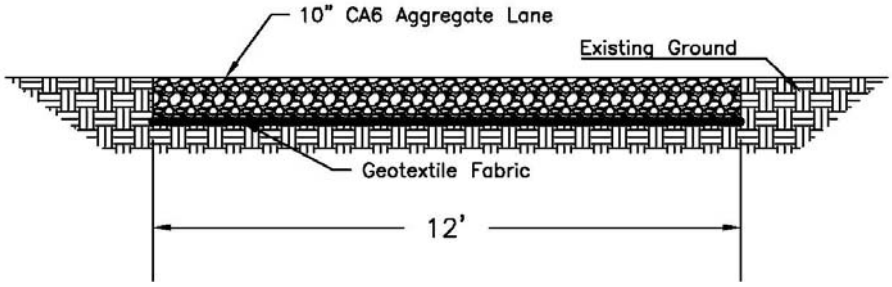


Figure 3-1

At-grade means that it will not raise above the adjacent ground and there will be no ditches or gutters (see Figure 3-1). The at-grade design is also an effort to be sustainable and keep initial costs down. By constructing the road at-grade, earthwork is minimal and does not disrupt existing drainage patterns. While the suggested 10" CA6 over a either a geotextile fabric or lime stabilized subgrade (LMS) provides sufficient support for truck traffic, the subgrade will require compaction. The filter fabric or LMF will assist in alleviating any subgrade issues, but potholes or soft spots will likely develop. The expectation is that they will be treated as many other aggregate lanes are; occasionally additional aggregate will have to be added.

While the lane will be +/- at grade, the elevation for the east end of the east-west lane will be raised (see Figure 3-2 – highlighted in blue). As the topography contours show, the highlighted section lies in a shallow low area. Raising this section of the lane, it will help ensure that the lane is not in a low spot and help drainage of this area of the field. The existing drainage pattern is parallel to the lane and to the east; therefore it is

expected that the drainage patterns around and on the lane will not change from existing.

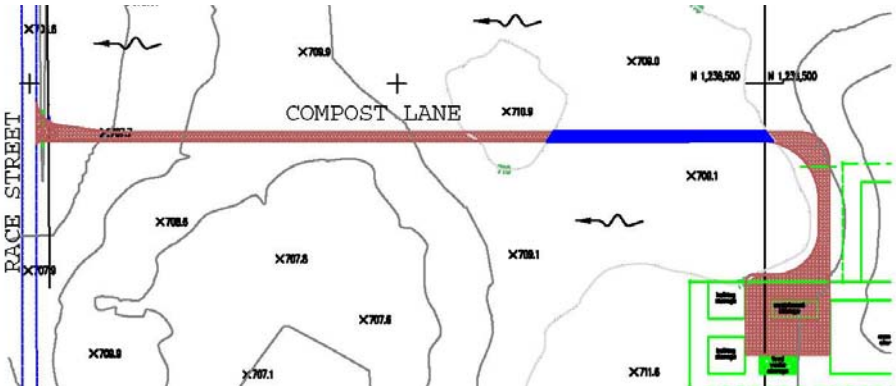


Figure 3-2

The entrance lane will provide access for personal vehicles, farm equipment, garbage trucks, fire equipment, and largest vehicle being a semitrailer. With the volume of compost that will be leaving the site it is assumed that semitrailers will occasionally be used. The largest semitrailer is assumed to be a WB-50 (55' in length for the tractor and trailer together).

The entrance at Race Street has both a taper and a large radius to the north, allowing truck traffic from the north – it is assumed that no truck traffic will enter or exit south. The entrance will be constructed of 8" concrete with a 4" aggregate base and will extend 30' from the east edge of pavement. The concrete will protect the edge of Race Street, reduce rutting where trucks will be accelerating and decelerating, and help prevent tracking of aggregate onto Race Street.

As in the entrance, the rest of the roadway is designed to handle truck traffic. The traffic flow within the facility is also designed to handle the aforementioned truck traffic. The designed traffic pattern for truck traffic will be for the vehicle to enter the site and continue straight along the east side of the equipment storage area/shed. Once past the equipment storage area/shed there is adequate space for truck traffic to turn right and continue around the equipment storage area/shed and back to the lane. Additionally, at any time while the vehicle is on the site, it can back onto any of the storage pads to either load or unload.

3.5 SITE DESIGN

The clockwise traffic flow around the equipment storage area was defined in section 3.4. This centralized cul-de-sac like area is the primary area for material delivery, material pickup and operations. By centralizing these operations the traffic area is

minimized. The extra aggregate base area south and west of the equipment storage area allows for both the designed truck traffic patterns and for operation activities discussed in section 3.1.

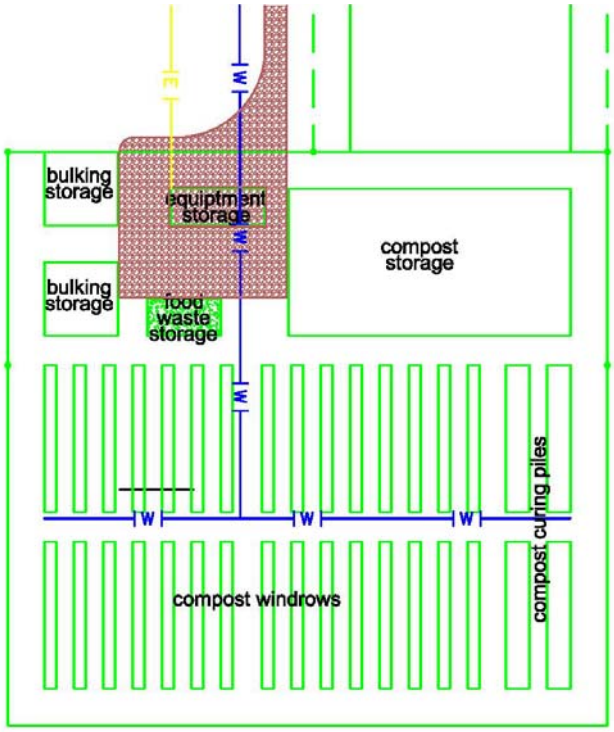


Figure 3-3

All aspects of the site design have incorporated sustainable LID methods. Traffic flow has been analyzed and planned accordingly. Grading and drainage design maximize the available materials on site and minimize the effects of the site on adjacent property. Finally, all sizing of the different areas of the facility have been determined using conservative estimations with an additional 1.5 factor of safety. This should allow the site to easily handle current volumes and have room for growth over the next 10 years.

All "earthen base" areas are basically designated areas on the graded pad. No additional preparation or maintenance is required. Upon construction of the facility, to satisfy erosion control issues, the entire site, excluding concrete and aggregate areas, will be seeded. The earthen bases will remain vegetated. As materials are stored on the vegetated earthen bases, the vegetation will die. If the pile is completely removed and the base is back at grade, the area should be reseeded to protect the area from erosion.

Specific pad sizes and expected accommodations are as follows:

PAD TYPE	NUMBER	SIZE	BASE	ACCOMMODATION
Equipment Storage	1	64'x25'	Aggregate	6 equipment pieces
Food Waste Storage	1	50'x25'	Concrete	Up to 8 days with room for operations maneuverability
Bulking Storage	2	50'x50'	Earthen	90 days
Compost Windrows	30	8'x100'	Earthen	90 days
Curing Piles	4	16'x100'	Earthen	90 days
Compost Storage	1	100'x190'	Earthen	90 days

For this study, the equipment storage area is only an aggregate area designated for parking the facility equipment. The storage area is sized to accommodate 6 pieces of equipment that would fit in an averaged 20 feet by 12 feet space. The site allows a structure with the same size dimensions to be constructed at this location in the future. If a larger building is desired most of the storage area or the lane to the north could be shifted to accommodate that; yet another benefit of earthen pads, gravel lanes and limited structures.

The dimensions of the food waste storage concrete pad are larger than the minimal are necessary to store a one day volume of food waste. This was considered necessary for two reasons. First, there is a chance that food wastes may not be picked up from dining facilities and delivered to the composting facility each day. The sizing allows for up to a weekly delivery. Second, the additional concrete area provides maneuverability for the equipment to operate when handling the food waste. Finally, several pieces of jersey wall (or similar non-permanent concrete blocks) should be placed in on corner provide a back stop for the front end load scooping up food wastes off the concrete pad. It may be possible to acquire several aged jersey wall pieces from the parking department.

The bulking storage site consists of two divided areas at 50 feet by 50 feet with an earthen base. These areas could be combined into one larger area. Two areas are recommended to give the operator options on how to store the materials as it is assumed that bulking materials will not be a steady inflow rather, there will be large deliveries during certain times of the year. Separate storage piles will allow the operator to store faster degrading materials (i.e. leaves, grass clippings)in one pile and slower degrading materials (i.e. wood chips) in another pile. The 90 day

accommodation refers to matching the predicted food waste volume over 90 days (~810 cubic yards). This is accounted for by two separate piles at six feet high with a 1:1 side slope.

The compost windrows, again, are on earthen bases. The recommended design provides 30 windrows 100 feet long, 8 feet wide, and 4 feet high (totaling ~1620 cubic yards). The piles are assumed to be triangular with a zero width at the top and the volumes are calculated accordingly. Similarly, the same assumption is made with the curing piles, however they are 100 feet long, 16 feet wide, and 6 feet high (totaling ~1422 cubic yards – accounting for the 20% volume reduction) . Each of these piles accounts for the approximate 3 month process duration for both "cooking" and curing; totaling approximately 6 months to completion.

The compost storage pile area also is designed with an earthen base. At 100 feet wide, 190 feet long, and 12.5 feet high (totaling ~7190 cubic yards) the storage pile will hold 15 months' compost volume. Including the nine months from the day food waste is dropped off, is put into windrows and cooked, cures, it could potentially be on site for 21 months before the site reaches capacity. It is anticipated that the majority of compost will be able to be removed from the site annually. Should this be the case, this pile should be able to be much smaller; if the same foot print is kept it would only reach a height of four feet.

Compliance with IEPA discharge laws require a barrier between the compost operation and both groundwater and Waters of the United States (WOTUS). Separation between the compost materials and groundwater is provided naturally by the existing soil properties as mentioned in sections 3.3. Separation from WOTUS will also be able to be obtained using LID in the form of filter strips.

A variety of types of filter strips will be used on the compost facility. The primary filterstrip will be a level 25' wide band of native summer grasses around the perimeter of the entire site. Throughout the site, all pathways, areas between storage areas, and vacant storage areas will be seeded with early spring native grasses. These areas will also act as filter strips. Finally, surface flow leaving the site in sheet flow will sheet flow over an agricultural field, however it is believed by this point the vast majority of nutrients and particulates from the compost facility will be filtered out.

The aforementioned native grasses were chosen for very specific reasons, partly influence by a discussion with the IEPA (see Correspondence 7). These native grasses are very hearty and adapted to the Illinois climate. They are dense vegetation, slowing surface flow and allowing particulates to settle. These grasses also have a high nutrient uptake which will greatly assist the filtration of the sheet flow throughout and off the compost facility.

The early spring grasses and summer grasses were chosen to offset each other. As the names suggest, the early spring grasses primary growing season is early spring, similarly with the summer grasses. Furthermore, if these grasses are mowed often enough that they are not allowed to seed, their growth and nutrient uptake will continue and last longer. Once the grasses go to seed, their nutrient uptake slows greatly and they can enter a dormant state.

3.6 COSTS

CONSTRUCTION STAKING	LS	$10,000.00	1	$10,000.00
EROSION CONTROL SILT FENCE	FOOT	$1.70	5,300	$9,010.00
EARTHWORK	CY	$10.00	16,500	$165,000.00
FILTER FABRIC OR LMS	SY	$6.00	3,560	$21,360.00
AGGREGATE SURFACE COURSE	TON	$30.00	1,950	$58,500.00
8" PCC	SY	$65.00	239	$15,570.00
12" CULVERT	FOOT	$30.00	80	$2,400.00
LANDSCAPING	ACRE	$3,000.00	5.6	$16,800.00
ESTIMATE CONTINGENCY - 20%	LS	$59,730.00	1	$59,730.00
TOTAL				**$358,370.00**

3.7 ALTERNATES

1. **Alternate One** is providing electricity to the site. Pursuant to the initial scoping of the project, there was input from both the SSC and the University questioning the need for electricity and lighting. Due to the ease to add at a later date, electrical connection is being provided as an alternate.

   If electricity and security lighting are added, two options are outlined. The first option is to install a used parking lot (direct bury) pole and lamp from the University's storage yard. This option keeps costs down and is sustainable as it is re-using construction materials. The second option is to install a new security light with a 100 WATT high pressure sodium lamp. These security lamps have arms that can either attach to a wooden pole or to the side of a building.

   ADDITIONAL COSTS:

ELECTRIC CONNECTION	LS	$10,000.00	1	$10,000.00
SECURITY LIGHT	EA	$500.00	1	$500.00
TOTAL				**$10,500.00**

2. **Alternate Two** provide non-potable water to the site for maintaining the windrow moisture levels. There are both recycled water and pressurized liquid

manure lines running east – west along the north side of the beef/sheep facility roughly 800 feet south of the compost facility. If this alternate were chosen, coordination would be required with the owner/operator of the beef sheep facility to determine which of the two supplies can be connected and what size pipe the supply lines could accommodate.

ADDITIONAL COSTS:

TAPPING SLEEVE AND VALVE	EA	$1,800.00	1	$1,800.00
4" WATER MAIN	FOOT	$30.00	1,200	$36,000.00
DISTRIBUTION CONNECTIONS	EA	$450.00	6	$2,700.00
TOTAL				**$40,500.00**

3. **Alternate Three** provides potable water to the compost facility. There is a 10" potable water main running east – west approximately 300' north of the compost facility. This connection could be used to provide potable water to a future equipment storage building. Additionally, if Alternate Two is not selected, the potable water could be used to hydrate the compost windrows.

ADDITIONAL COSTS:

TAPPING SLEEVE AND VALVE	EA	$1,800.00	1	$1,800.00
4" WATER MAIN	FT	$30.00	850	$25,500.00
DISTRIBUTION CONNECTIONS	EA	$450.00	6	$2,700.00
METER	EA	$1,500.00	1	$1,500.00
TOTAL				**$31,500.00**

4. **Alternate Four** provides a wider access lane increasing from the design width of 12' to a width of 18'. This additional width would allow two vehicles to pass on the lane in opposing directions.

ADDITIONAL COSTS:

FILTER FABRIC OR LMS	SY	$6.00	825	$4,950.00
AGGREGATE SURFACE COURSE	TON	$30.00	470	$14,100.00
8" PCC	SY	$65.00	20	$1,300.00
TOTAL				**$20,350.00**

4.0 RECOMMENDATIONS

4.1 GROUNDWATER TESTING

Per the IEPA requirements to develop a site listed in Section 2.1, all composting operations must take place at least five feet above ground water. The groundwater levels declared in the USDA soil survey (see Appendix 7) suggest ranges from 6" to 33" below grade; not meeting the five foot minimum. These conditions are common for Illinois, both the Lincoln Avenue site and the adjacent fields to the proposed Race Street site have were explored and found to have similar conditions.

As previously discussed, the Race Street site is on a slight ridge with modest grading to allow for drainage, therefore groundwater conditions might be slightly more favorable. However the groundwater table cannot be assumed and must be explored. It is recommended that a survey of the groundwater be complete per the IEPA standards; and per the IEPA standards for compost facilities Section 830.203.a.5.B, *actual measuring of the water table at least once per month for three consecutive months.*

Should the water table prove to be less than five feet below proposed grade, **additional embankment and costs will be required**. The site was designed with this specifically in mind and can be raised incrementally. Along with raising the site, the slope of the lane from the site to the curve in the lane would adjust accordingly – this would not affect the east –west portion of the lane.

For each one foot increment necessary to raise the site, approximately 10,000 CY of clay will be necessary. No on-site options appear available for this additional material; for cost estimating, it is assumed the material will have to be purchased. At ten dollars per cubic yard for clay, it will cost approximately **$100,000 per vertical foot** incremental rise in elevation.

4.2 IEPA PERMITING

In accordance with the scope, the large-scale compost facility has been designed to meet the criteria of the IEPA Application for a Permit to Develop a Composting Facility LPC-PA6 (see Attachment 6). The University will be responsible for applying for this permit and for any other permit necessary.

4.3 INFLOW/OUTFLOW ANALYSIS

It is recommended the University further analyze the inflow and outflow of materials. Through the duration of this study there have been many conversations regarding potential carbon bulking materials sources. Further discussion and investigation is

recommended to ensure that enough bulking materials will be available to match incoming volume of food wastes.

Additionally, it is recommended that further discussion and investigation of outflow take place. It is understood that both Grounds and the SSC farm is interested in an annual volume of compost for use. However, this is only a fraction of the annual production.

4.4 EQUIPMENT

Processing food wastes into compost on a large scale requires proper equipment. In the course of this study, there were discussions of equipment between Foth, the University staff, SSC, and ISU staff, with the conclusion that some new equipment will be required. Most importantly, a windrow turner is required. Grounds currently owns a turner, however, it is very old, barely operational and would not be able to handle a large scale operation. Next would be the grinder mixer and the screener. These three pieces of equipment together are imperative for a smooth running large-scale compost operation to be able to produce a good quality product.

Each of the aforementioned three pieces of equipment requires a tractor to operate, and they each require specific tractor features. It is possible that one tractor may have all required features. Suppliers/models for the windrow turner, the grinder mixer, and the screener prior to purchasing the tractor are recommended to ensure that all required features are met. It is also possible that the University already owns the tractor(s) necessary for this operation and it can either be moved to the compost facility or shared with the compost facility.

Finally, a front end loader is necessary. Again, the grinder mixer and screener should be analyzed prior to the decision on what type of front end loader is too be used. It is possible that a front end loader on a tractor could be used, provided it will be able to reach high enough to dump into the grinder mixer. It should also be noted that during the grinder mixer operation, both a tractor running the grinder mixer PTO and a front end loader to load the grinder mixer bin will be required.

Finally, thought should be given to moving windrows to the curing pile, and the curing pile to the compost storage pile. This would probably most efficiently be done with a dump truck and a front end loader. If the compost storage pile starts to get very large, or to occasionally level the site after several rotations of material a bull dozer may be suitable. However, most of this could be done with a proper front end loader as well.

In discussion with the ISU staff, they mentioned approximately what they paid for some of their equipment. It should be understood that these are approximate numbers from several years ago. Their grinder mixer was purchased for approximately $47,000. Both the windrow turner and the screener were purchased for approximately $25,000 each. Accounting for inflation, these prices should be investigated further by the university.

5.0 CONCLUSION

The Large-Scale Food Composting Facility is feasible and the initial work done by the SSC, proved reliable. This report includes changes to the volume estimates provided by the SSC. First, it was necessary to double the volume going into the windrows to account for the added carbon bulking materials. Second, considerations and minor adjustments were made to provide a very conservative design that would allow for any error in the food waste audit and allow for growth over the next 10 years.

The Lincoln Avenue site was studied and determined undesirable due to its many limitations. Given this, the Race Street site (the site for a large-scale compost facility on the University's master plan) was chosen for the facility. Sustainable Low Impact Design methods were used for all applicable aspects of the design in effort to both reduce costs and minimize effects on the environment. It should be understood that due to the LID design, several design features allowing low upfront costs will require some additional maintenance. This has all been previously discussed in this report and will cost a fraction of building any design that would require less maintenance.

Several alternates have been provided and shall be included dependent of decisions by the University and SSC. The cost of construction, not including the alternates will be approximately $465,000. Additionally, groundwater survey is necessary, and the results could require additional earthwork and costs.

6.0 CORRESPONDENCE

1. Notes from field visit to Lincoln Ave site – 9/21/2011
2. Email from University Grounds – 9/27/2011
3. Notes from ISU visit – 10/10/2011
4. Phone conversation with Mr. Tom Schuh of the City of Champaign – 9/27/2011
5. Phone conversation with Ms. Mary Regal of the IEPA – 11/8/2011
6. Email from SSC farm – 12/17/2011.

8.0 APPENDIX

1. CAPITAL PROJECT REQUEST FOR FEASIBILITY STUDY: Large-Scale Food Composting – 4/26/2011
2. Foth Proposal for Professional Services
3. SSC Large-Scale Food Composting Project – DRAFT REPORT
4. Food Waste Audit Results
5. Compost Area Calculations
6. Application for a Permit to Develop a Composting Facility, IEPA
7. Depth to Water Table Chart, Web Soil Survey, USDA
8. Flooding Frequency Class, Web Soil Survey, USDA
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Client: University of Illinois | Project #: 11U013
Project: Large-Scale Food Composting Study | Page: 1 of 1
Prepared by: MJM | Date: 9/21/11

Foth Infrastructure & Environment, LLC

Project Meeting Summary

Meeting Site:	Grounds Facility	Time:	2:00 pm
Participants:	Matt Moffitt	Representing:	Foth
	Matt Edmonson, Ryan Welch		University of Illinois F&S
Summary By:	MJM	Distribution:	

Reason for Meeting: Investigate Licoln Ave Site

Summary of Discussion:

Grounds has approximately 1,000 cubic yard per year of carbon material (grass/leaves)

Grounds creates own wood chips and allows private companies to dispose of woodchips at grounds facility.

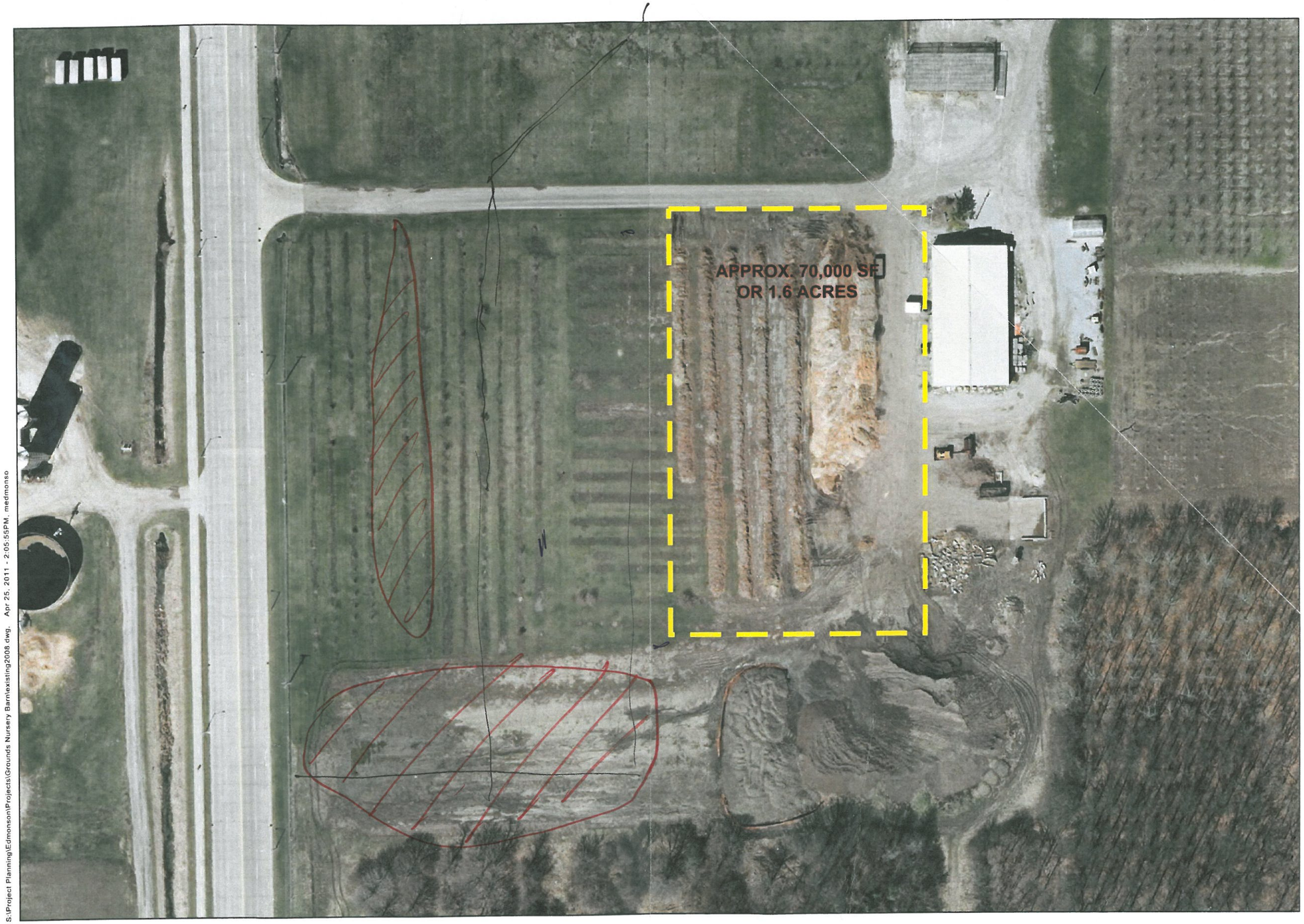
Grounds currently uses all compost created and woodchips on University property.

Grounds currently fully utilizes the building on site, there is no additional room.

The windrow turner on site is very old and requires maintenance every time it is used – approximately 6 times a year.

According to the University's masterplan, the current site of the grounds facility is to be part of the Arboretum.

There is a large, low area that experiences frequent flooding. This is the primary area where windrows would be located. Area hatched in red on figure – next page.



S:\Project Planning\Edmonson\Projects\Grounds Nursery Barn\existing2008.dwg, Apr 25, 2011 - 2:05:55PM, medmonso

Existing Conditions (2008 photo)

F&S Grounds Nursery, Topsoil Stockpile and Compost

F&S, 03/14/11

0' 50' 100' 200'

N

Moffitt, Matt

From: Edmonson, Matthew A (Facilities & Services) <medmonso@oandm.uiuc.edu>
Sent: Tuesday, September 27, 2011 12:42 PM
To: Moffitt, Matt; Jordan, Tom
Cc: Welch, Ryan B (Facilities & Services)
Subject: FW: Info about Grounds Leaves and Wood Chips

Thanks Ryan. FYI Tom and Matt.

From: Welch, Ryan B (Facilities & Services)
Sent: Tuesday, September 27, 2011 12:11 PM
To: Edmonson, Matthew A (Facilities & Services)
Cc: Wegel, Carl V (Facilities & Services)
Subject: Info about Grounds Leaves and Wood Chips

Hi Matt,

These are the numbers I came up with for the amount of leaves/wood chips collected and used on campus by Grounds.

Leaves collected per season (September-May) - 250-300 cubic yards
Leaf compost used per year by Grounds - 100-150 cubic yards

Wood chips collected per year by Grounds - 1000-1500 cubic yards
Wood chips put back on campus by Grounds per year - 1500-2000 cubic yards

Leaf Turner info:

-30+ years old
-must be pulled by a bull dozer
-8-10' wide
-can only handle 3' tall windrows
-used once a month for our compost operation
-high repair cost even when used once a month

Thanks,
Ryan

Foth Infrastructure & Environment, LLC

Project Meeting Summary

Meeting Site:	ISU	Time:	2:00 pm
Participants:	Matt Moffitt	Representing:	Foth
	Matt Edmonson, Ryan Welch, Tracy Osby		University of Illinois F&S
Summary By:	MJM	Distribution:	

Reason for Meeting: ISU visit to gather operational data

Summary of Discussion:

The ISU facility tour began in the dining halls. ISU has designated areas where they store their food waste bins. These bins are located in the kitchen and in the dish washing room, and then collected in a location where the dump truck can pick them up. They have a covered and enclosed location at each building so that animals can't get into the bins at night. Also, "bio-bags" are used in every can to help keep them clean.

In several of the dining facilities ISU has installed a Pulper. It is similar to an industrial sized garbage disposal. Using recycled water to wash food wastes down a trough to a grinder. The water and food waste slurry is pumped to another room where the water is separated from the food was. This creates a smaller void space in the bins and allows more wastes to fit in a bin. The smaller pieces of food waste will also decompose and turn into compost quicker.

Generally garbage trucks consist of two separate, detachable pieces; the truck and the box on top that collects, compacts, and contains the wastes. A specially made box is necessary to haul food wastes. The box must be designed to collect the food waste bins, be water proof, and be able to dump.

Next we went out to the actual compost site.

ISU had multiple pieces of equipment – most of which UIUC would need to acquire. A grinder/mixer (ISU purchased for ~$47k. A windrow turner (ISU purchased for ~$25k), a screener (ISU purchased for ~$25k), a front end loader, a skidster, and three different tractors. The grinder mixer requires a tractor with a very strong PTO; additionally a front end loader is required to reach over the tub to add materials. The turner requires a tractor with a very low gear that allows for very slow operations. The screener requires a PTO. It is quite possible that the operation could work with one tractor and a front end loader.

There is a 150' x 300' concrete pad for depositing food waste materials. There was sufficient room for the food wastes, some landscape wastes, the grinder/mixer and tractor, the front end loader to move, and several wind rows on this pad.

Windrows are turned ~1 time per week. Sometimes it is necessary to add water when piles get too dry.

Compost "cooking" (when the temperatures are high) takes ~ 8-9 weeks

Compost “curing” takes an additional 3 months.

These times can vary greatly depending on the composition of the wastes being composted, how well they are monitored and maintained, and the time of the year.

ISU composts ~100k lbs/month food wastes – 45k lbs is from ISU, the rest is from the community.

Contacts at the site:

Tony Wingert – worked there for 4 years, in charge of compost operations, very willing to share experience.
815-299-7960

Dr. Walker – Professor at ISU in charge of legal, permitting, and logistics of compost operation

Client: University of Illinois Date 9/21/11
Project: Large-Scale Food Composting Feasibility Study
Prepared by MJM Page 1 of 1
File Classification Project # 11U013

Foth Infrastructure & Environment, LLC

Project Phone Call Confirmation

Time: 10:20 am

Call from: Matt Moffitt
Representing: Foth Infrastructure and Environment
Phone No.: 217-403-4770
Call to: Tom Schuh
Representing: City of Champaign - Operations Manager

Reason for call was to discuss the city's landscape waste.

The City of Champaign collects/produced approximately 10,000 to 11,000 cubic yards of landscape wastes per year.

Additionally there are approximately 200 tree trunks per year – averaging 20" in diameter

These quantities may fluctuate up to 50% depending on the year.

Generally ½ of the collected materials are used on city properties or go to local farmers (generally sustainable)

The other half is taken to the Urbana Landscape Recycle Center

The city would be happy to give some of these materials to the University of Illinois if they needed – the quantity of this is TBD

Further action required? ☐ Yes ☒ No
If yes, action required:
Action Taken:
Distribution:

Client: University of Illinois Date 11/8/11
Project: Large-Scale Food Composting Feasibility Study
Prepared by MJM Page 1 of 1
File Classification Project # 11U013

Foth Infrastructure & Environment, LLC

Project Phone Call Confirmation

Time: 10:30 am

Call from: Matt Moffitt Representing: Foth Infrastructure and Environment
Phone No.: 217-403-4770
Call to: Mary Regal Representing: IEPA

Reason for call was to discuss water table issues.

Water table must be 5' below compost per IEPA specs – water table determined by either installing a well and measuring once per month for 3 months or by published water table data.

Can we have a soil scientist determine the normal water table with a 1 time exploratory site visit?
No

If table is less than 5' below surface, do we have to raise surface or can we tile and draw down the water table?
The site must be constructed 5' above the normal water table – draw down is not an option.

Composting surface must be relatively impermeable – clay or well compacted soils are suitable

Further action required? ☐ Yes ☒ No
If yes, action required:
Action Taken:
Distribution:

Moffitt, Matt

From: Edmonson, Matthew A <medmonso@illinois.edu>
Sent: Saturday, December 17, 2011 11:01 AM
To: Grant, Zachary Bell
Cc: Johnston, Morgan (Facilities & Services); Moffitt, Matt
Subject: RE: Compost

Thanks for this information Zack. I will share with the feasibility study team. Matt.

From: Grant, Zachary Bell
Sent: Monday, December 12, 2011 12:38 PM
To: Edmonson, Matthew A
Subject: Compost

Matthew,
I got your e-mail from Jeremy Shafer. I would be able to use a lot of compost, or we could store decent amounts of finished, screened, or partially finished compost at our site. My project is the Sustainable Student Farm (thefarm.illinois.edu). We are located within the Crop Science Fruit Research Farm. In addition, starting in 2013 we may be renting incubator plots to farm entrepreneurs. Total acres could be up to 30 and having around 300 yards of compost a year for all of this would be ideal.
Zack

7.0 APPENDIX

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9. Cost Estimate
10. Schematic Plan Set

Form FS-1

UNIVERSITY OF ILLINOIS – URBANA-CHAMPAIGN CAMPUS

CAPITAL PROJECT REQUEST FOR FEASIBILITY STUDY

Proposed Project Title: Large-Scale Food Composting

Date Submitted: 4/26/2011

The purpose of the Capital Project Feasibility Study is to appropriately inform, request administrative authorization, and assess the feasibility of a proposed project prior to committing funds or seeking external support. The Chancellor's Capital Review Committee (CCRC) will review the feasibility study and determine whether or not modifications to the proposed project are necessary.

Brief Project Description:

The Student Sustainability Committee requests permission to employ an Architectural and Engineering Firm to perfom a Feasibility Study of potential Large-Scale Composting sites and the associated logistics of such an operation. The motivation for this proposed study is driven by the University commitment made in the Illinois Climate Action Plan (iCAP): "The University will commit to...a large-scale food composting project by 2012...".

While campus has many organic waste streams (including VetMed, Animal Sciences, and Plant Sciences), many of these entities are not yet prepared to participate in such a project. This Feasibility Study will focus on the waste streams from Dining Services and F&S Grounds, two stakeholders that are already engaged. University Housing is currently the only major organic waste producer on campus that pays to have its organic waste land-filled, totaling appoximately 650 tons of food waste each academic year. With landfill costs at $20/ton, composting this food waste would reroute over $13,000 per academic year back into the University towards producing a valuble resource that can be used on campus or sold to the community.

This study will examine the current Grounds Compost/Stockpile Site and, if the Grounds site proves unacceptable,the compost facility area indicated on the Campus Master Plan. Aeriel views of both sites are attached.

The Grounds Compost/Stockpile Site is the priority site because half of the waste stream is currently stockpiled there, much of the needed equipment is already located there, and mulching operations have been in place.

The objectives of the study are to provide, 1) verification of an assesement of organic waste collection and trasnportation scenarios, 2) an assesement of optimal compost recipes and processes, 3) an assesement of the two potential sites for logistical optimization and environmental compliance, 4) a financial analysis of the composting operation, and 5) an estimate of capital needs at each site. While this proposed study will focus only on a composting facilty and process that encompasses Dining Services and F&S Grounds, the studied sites will also be analyzed for potential to expand and accommodate other campus waste streams in the future.

The Student Sustainability Committee has performed preliminary logistical analysis and will share compiled data to assist in completion of the Feasibility Study. Should the study produce favorable results, seed funding from the Student Sustainability Committee will be used to prepare the composting site, train staff, and purchase necessary capital equipment. Soon thereafter, the program should achieve financial sustainability with disposal payments from Dining Services and finished-compost sales.

Project Information:

Requesting Individual: Kevin Wolz Dept.: Student Sustainability Committee

Department Head (signature required): Suhail Barot, Chair Date: 04/25/2011

Dean (signature required): N/A Date:

Feasibility Cost Estimate (See Feasibility Rate Scale per GSF): $15,000

Project Cost Estimate (See Total Project Budget/GSF Rate Scale): $100,000

Operations/Maintenance Annual Estimate (See New Area Funds-O&M/GSF Rate Scale): $14,400 ($50/hr * 9 hrs/wk *32 wks/academic yr)

Utilities Annual Estimate (See Utility/GSF Rate Scale): N/A

Project Type:
☐ New Building ☐ Remodeling ☒ Site Work
☐ Utilities Improvement ☐ Building Addition ☐ Other Construction

Minimum LEED Level Certification: N/A

Proposed Schedule (month, year):	Start	Finish
Project Initiation	05/12/2011	05/12/2011
Project Approval	05/13/2011	05/31/2011
PSC Approval	06/01/2011	07/13/2011
Design	07/14/2011	10/21/2011
Construction	N/A	N/A

Proposed Source of Funds (select all that apply):

☐ Dept. Funds _____
☐ R & R _____
☐ Federal _____
☐ State Capital Request _____
☐ Gift/Grant Funds _____
☒ Other (please specify) Student Sustainability Com.

Required Attachments:

a. ☐ Academic Program Statement
b. ☒ Relationship to Mission and Long Range Planning (relevance to Campus Strategic Plan)
c. ☐ Need and Expected Contribution to Educational Services
d. ☐ Alternatives Considered
e. ☐ Existing and projected: (1) Personnel; (2) Student Enrollment; (3) Student Contact Hours; (4) Research Funding
f. ☒ Summary of Existing Space Inventory
g. ☐ Donor Feasibility (Assoc Chancellor for Development)

One copy of this completed form and required attachments must be submitted to the Director of Planning, Facilities & Services at least four weeks prior to the CCRC meeting at which approval will be requested to conduct a Feasibility Study.

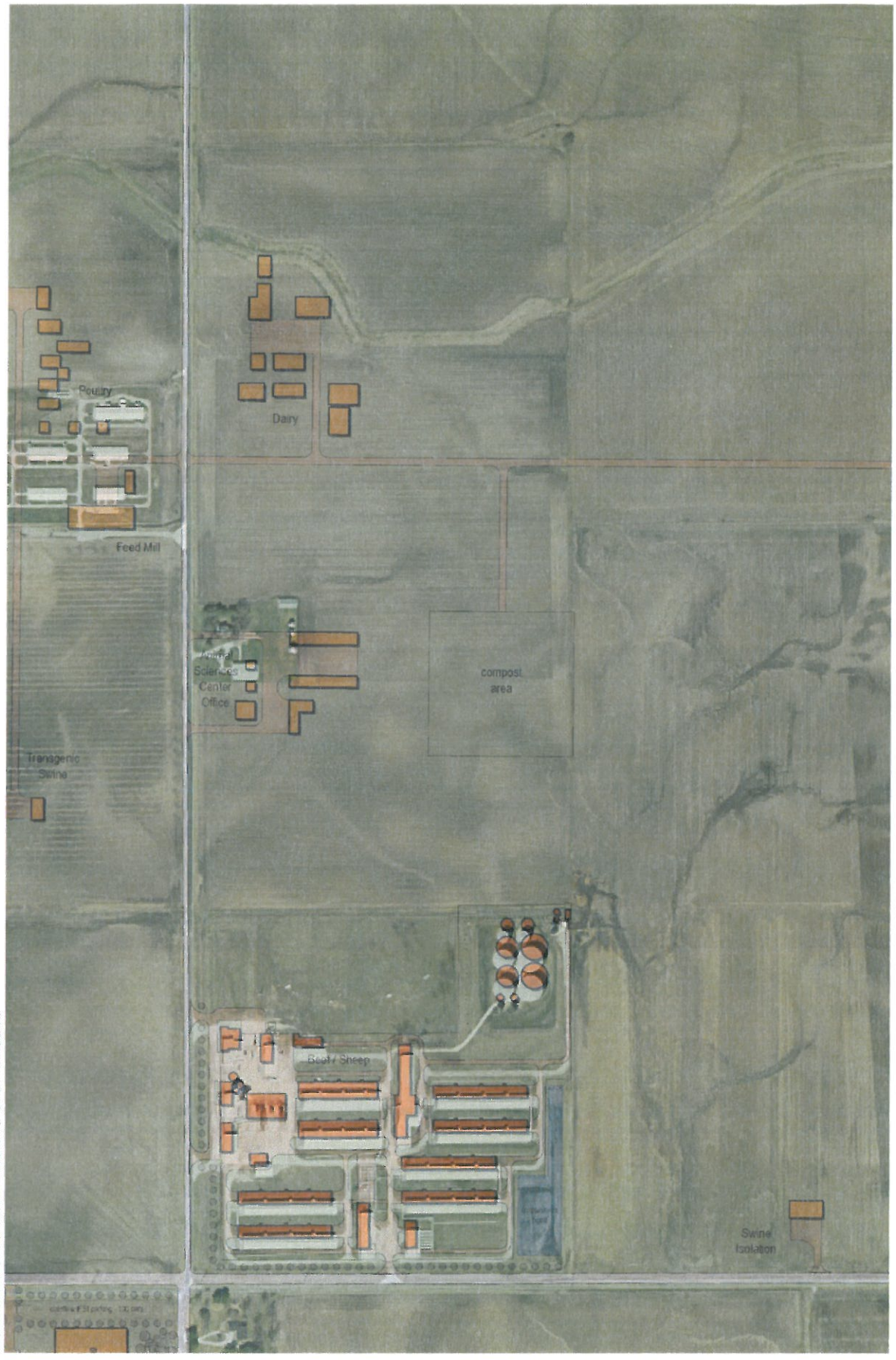
Form Approved by the Office of the Provost 13 March 2009

Feasibility Rate Scale (FY11)	**Low**	**High**	**Average**
[These rates will be used for budgeting purposes only.]			
Feasibility Studies/GSF	$1.50	$3.00	$2.25

Utility/GSF Rate Scale (FY11)	**Low**	**High**	**Average**	**Escalation Rate per year**
[These rates will be used for budgeting purposes only.]				
Offices/Classrooms	$1.65	$8.12	$3.58	2.50%
Research Labs	$4.04	$11.31	$6.72	2.50%
Libraries/Museums	$1.66	$9.20	$3.47	2.50%

New Area Funds - O&M/GSF Rate Scale (FY11)	**Average**	**Escalation Rate per year**
[These rates will be used for budgeting purposes only.]		
Offices/Classrooms	$5.75	2.50%
Research Labs	$12.06	2.50%
Libraries/Museums	$8.17	2.50%

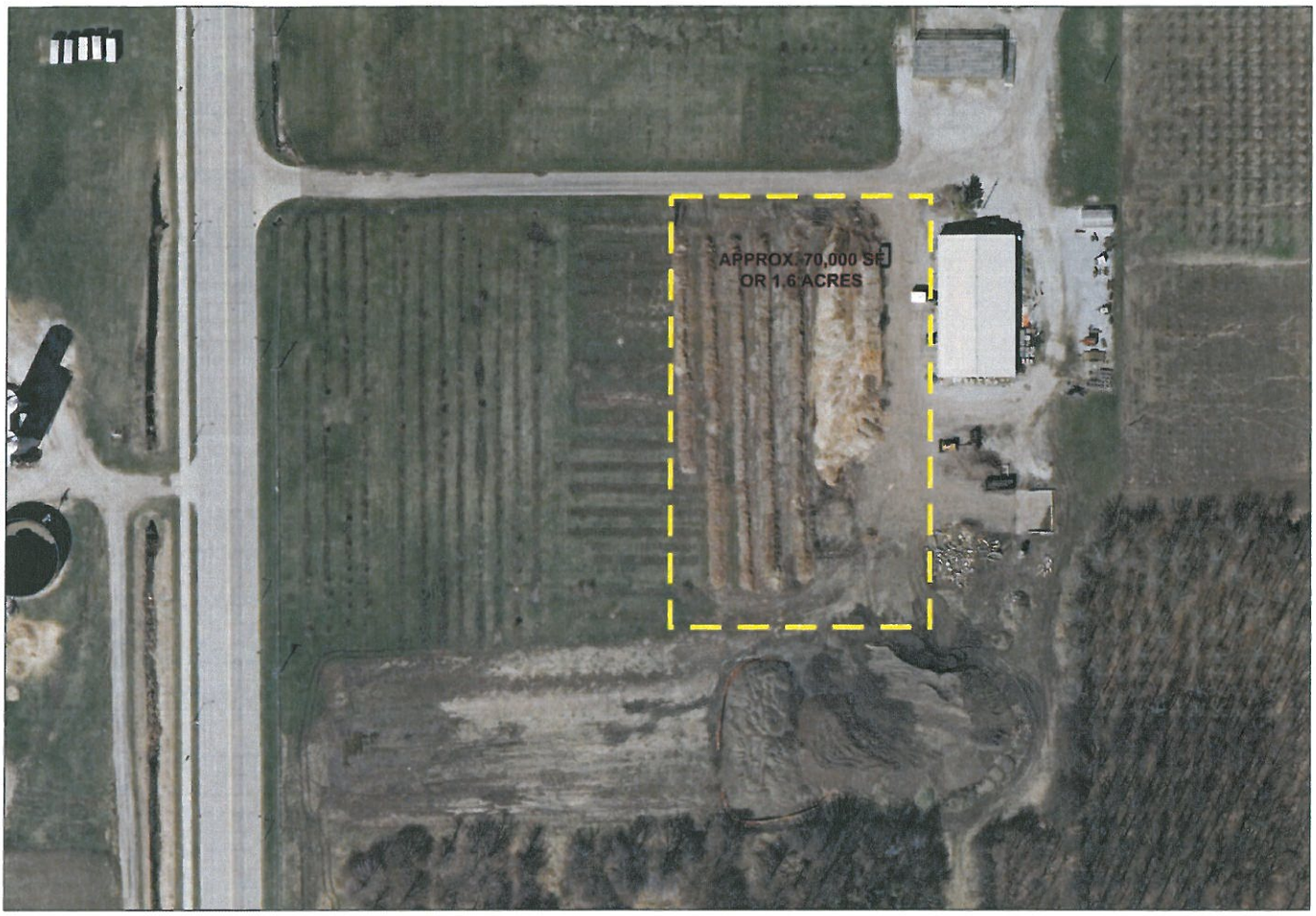
Total Project Budget/GSF Rate Scale (FY11)	Low	High	Average	Escalation Rate per year
[These rates will be used for budgeting purposes only.]				
Offices/Classrooms				
new space	$300	$440	$390	5.25%
remodeled space	Varies	$400	$250	5.25%
Research Labs				
new space	$500	$850	$700	5.25%
remodeled space	$350	$700	$500	5.25%
Libraries/Museums				
new space	$300	$600	$450	5.25%
remodeled space	$200	$500	$350	5.25%



2007 Master Plan and 2008 photo

MP COMPOST FACILITY

F&S, 04/07/11



Existing Conditions (2008 photo)
F&S Grounds Nursery, Topsoil Stockpile and Compost
F&S, 03/14/11

0' 50' 100' 200'

June 1, 2011

Matt Edmonson
University of Illinois, Urbana-Champaign Campus
Facilities & Services, Planning Division
1501 South Oak Street
Champaign, IL 61820

RE: Large-Scale Composting Facility Study
South Lincoln Ave (existing) Site 1
South Race Street (potential) Site 2
Urbana, IL

Dear Matt:

The following constitutes our proposal for Professional Services on the above referenced project.

Project:

1. **Overview**:

   This proposed composting facility will be an On-Farm facility anticipated to use the Turned Windrow composting method. It is expected that the chosen site for the project will utilize and process ingredients which will come exclusively from the UIUC campus, initially from Dining Services and F&S Grounds, as summarized in the 4/26/11 Feasibility Report by Kevin Wolz. It is expected that the finished composite compost material will be fully utilized on the UI campus or agricultural lands owned or managed by UI.

   It is recognized that the existing composting site (Site 1) on south Lincoln Avenue is the preferred site due to this site being the location of current (smaller volume) composting operations and the existing equipment utilized by the university.

   Noted expectations are that, under current environmental regulations and given that all raw and finished materials will come from and be utilized on the UIUC site, it appears the proposed facility may qualify as an On-Farm Landscape Waste Compost Facility under 35 Illinois Admin. Code 830.106 and will therefore be exempt from IEPA permitting and siting requirements. Permit and facility-siting applications are therefore not included in the proposed scope of work herein, except as specified.

Further, this Scope of Services is predicated on the University of Illinois developing an operational plan and providing input to confirm the general sizing of the ultimate recommended composting pad, with full specifications on the equipment to be used in the proposed composting operation.

2. **Project Design Team**:

   Thomas B. Jordan, Project Coordinator
   Dennis Cummins, Project Engineer and Field Surveys
   Kenneth A. Jensen, Technical Review
   John A. Dabrowski, Peer Review
   Gary A. Bohn, Autographics

3. **Budget**: The construction budget is unknown at this time, but the stated objective is to construct the facility in 2012. There are several remaining unknown design and functional parameters to be developed and further advanced by this study.

4. **Schedule:**

Notice to Proceed	June 27, 2011
Program Development	July 25, 2011*
Design Development	August 22, 2011
Schematic Cost Estimating	September 12, 2011
Design Development & Cost Estimating Finalization	October 3, 2011

   * Two (2) meetings with UIUC Staff anticipated during this period for consensus direction

5. **Documentation Reviewed:**

   UIUC standard “Owner/Professional Services Consultant Agreement” and attachments,
   Minimum List of Deliverables, UIUC Building Standards,
   Project Information (schedule, project information compiled by Kevin Wolz, et. al as forwarded to Foth in 5/11/11 scoping meeting with Matt Edmonson,

Professional Services:

Scope:

Prepare a Program Development, Design Development and Schematic Cost Estimating for a proposed On-Farm Turned Windrow Composting Facility to be located either at:

Site 1 (existing F&S Grounds Nursery, Topsoil Stockpile and Composting Facility) on South Lincoln Avenue, or

Site 2 (Proposed MP Compost Facility on South Race Street).

The anticipated services to facilitate the proposed composting operation study are as follows:

BASIC SERVICES

Program Development

1. Owner Consultation, Data Collection and Analysis,
   Review 4/26/11 Composting Feasibility Report and data by Wolz, et al,
   Obtain/review input data from other university composting facilities and telephonically interview their operators, Review Regulatory Standards

2. Review surface drainage to ascertain runoff from/to/around the proposed composting sites.

3. Develop an annual volumetric and material density estimate using waste stream data provided by UIUC.

4. Develop an estimate of windrow and storage operational pad areas with assumed windrow sections and deposition rates within a defined season.

5. The open composting pad and storage pad are to be located at either Site #1 or Site #2 with the physical area site of the initial waste stream and expansion limitations to be estimated by this study. A perimeter drainage system to collect runoff from the pad will be investigated to collect the runoff from the pad for isolation and routing to an earthen holding lagoon. Feasibility of pumping to an

on-site non-mechanized crop irrigation system will be reviewed. Alternate pad materials to be investigated and preliminarily evaluated during the program development phase, with costs and future use of the pad area to be considered.

6. Ingress/egress to facilitate access and circulation around the composting pad to be determined.

7. Summarize Program Development results in a brief outline report and present to UIUC Staff (1 meeting).

Design Development & Schematic Cost Estimating

1. Data Collection and Analysis
   H/V Control Coordination and Verification with other H/V Design
   Supplemental Field Topographic Survey/Detailing and using Champaign County GIS topographic data (2 sites).

2. Validate (with input from UIUC Staff):

   a. Material flow analysis and prepare a resultant diagram
   b. Windrow cross section
   c. Aisle width
   d. Windrow lengths
   e. End aisle widths
   f. Center aisle, number and widths
   g. Storage area maneuvering circulation requirements and loading areas

3. Prepare Schematic Drawing incorporating elements of Project Program Development and UIUC Staff recommendations including:

   a. Use of IEPA permitting compliance criteria for project siting
   b. Offsite delivery ingress and egress
   c. Berm geometric specifics on east side of Lincoln (Race) with provisions for an entrance and security vision corridors for police surveillance
   d. Approximate 10 years of facility operation
   e. Consideration of input from UIUC staff on future use of the project site(s)
   f. Allowance for an area on the site for a maintenance/operations shed with building size to be determined by UIUC Staff

g. Entire site schematic to consider access for fire fighting equipment
h. Develop lighting schematic and preliminary fixture layout with lighting type
i. Approximate a grading plan for:
   1.) Site(s)
   2.) Perimeter open drainage system
   3.) Berm (s)
   4.) Transitions to holding lagoon
   5.) Transitions to/from site for offsite drainage corridors
j. Approximate earthwork schedule based on schematics
k. Prepare preliminary schedules and a summary of quantities to construct the work
l. Consider a possible lagoon pumping system for:
   1.) Hydrating the compost windrows
   2.) Deposition to an on-site non-mechanized loop irrigation system adjacent to the site(s) (assumed to be a gravity system with shallow swale matrix)
m. Prepare documents **(in support of Schematic Cost Estimate only)** including:
   1.) Technical specifications (outline only)
   2.) Plan views
   3.) Profiles and sections
   4.) Details as necessary
n. Develop a construction cost estimate for construction in CY 2012
o. Coordination meetings and project documentation with UIUC Staff – two (2) meetings anticipated
p. Summarize Design Development and Schematic Cost Estimate in a brief report including documents prepared in support of Project outline as specified herein (referenced in 3.m.)

Construction Documents (Not included this Proposal)

Bidding (Not included this Proposal)

Construction Services (Not included this Proposal)

SUPPLEMENTAL SERVICES

Geotechnical Investigation (Not included this Proposal)

Construction On Site Services (Not included this Proposal)

Post-Construction Phase (Not included this Proposal)

ADDITIONAL SERVICES

1. Prior to commencement of composting operations, install a groundwater monitoring network to determine groundwater elevations and establish background groundwater quality.

2. Extensive Utility Relocation Coordination and/or Design

3. Off-site Drainage Analysis and Report

Compensation:

Based upon the Project Understanding and Professional Services above and upon the Qualifications section that follows, we propose professional service fees as follows:

BASIC SERVICES FEES

For the Basic Services defined in the Professional Services section above, we propose a **fixed fee** of $22,400.00.

SUPPLEMENTAL SERVICES

Construction On-Site Services (Not included this Proposal)

Specialty Consultants

REIMBURSABLE EXPENSES

The cost for allowable reimbursable expenses and specialty consultants for this project is included in the totals for Basic Services.

Qualifications:

A separate Proposal will be submitted for the stated Additional Services, if requested.

Respectfully submitted,

Foth Infrastructure & Environment, LLC

Thomas B. Jordan
Project Coordinator

TBJ:cdo

DRAFT IN -PROGRESS

Last Updated on 5/1/2011 by Kevin Wolz

Large-Scale Food Composting Project

Initiated & Funded by the Student Sustainability Committee, in collaboration with Dining Services & Facilities and Services

Overview

At the University Dining Halls, students generate approximately 0.6 pounds of food waste per week per student. This translates to over 1.3 million pounds of food waste that is put in the dumpster each academic year. University Housing is currently the only major organic waste producer on campus that pays to have its organic waste land-filled.

Not only is this waste a cost to Dining Services, but it also has the potential to be a valuable campus resource. Currently, a pilot program collects and composts approximately 400 pounds per week at a facility on the south farms. While this pilot has proven the feasibility of composting food scraps, the current facility cannot handle more than a 2-fold increase in material -- not enough for the over 40,000 pounds per week that the dining halls produce.

Programs at other universities have proven that all food waste can be collected and composted at no larger cost than what the dining halls pay to have the waste land-filled. Furthermore, sale of finished compost to other University units or the public has the potential to offset many other costs.

Seed funding of $___,000 from the Student Sustainability Committee (SSC) will be used to train staff, prepare the composting site, and launch the campus-wide program. Soon thereafter, the program should achieve financial sustainability with disposal payments from Dining Services and compost sales.

Waste Separation & Collection

Dining Services (DS) already has some experience with food waste diversion and collection via the current composting pilot project as well as several food waste audits. These experiences have given DS a good idea of what is necessary to separate and collect both pre- and post-consumer food waste in the dining halls. DS has agreed to train all necessary staff on compost separation and complete in-house preparations for food waste diversion. All diverted food waste will be dumped into designated containers at the loading docks of each dining hall.

Waste Pickup & Transport

Six new (volume) waste collection containers will be purchased and placed at each of the six

University dining halls. Campus Waste Management (CWM) has chosen these containers based on the volume and nature of the food waste. CWM will use the appropriate, currently-owned truck to pick up the food waste from each dining hall on a daily basis (weekends?). CWM will transport the collected waste to the composting facility and drop it off there.

Waste Quantities

Based on a post-consumer food waste audit conducted at each of the dining halls in December 2010, as well as figures from the current composting pilot project, approximate waste volume totals and schedules have been calculated. During the academic school year, it is estimated that an average of 5 cubic yards of food waste will be collected each day from the dining halls. This scales to approximately 30 cu. yds. per week and 1,000 cu. yds. per year.

Since food waste contains excess moisture and nitrogen, bulking materials will have to be added in order to produce acceptable, finished compost. The Grounds Department (GD) of Facilities & Services collects and stockpiles many tons of wood chips and leaves each year, a campus resource and excellent bulking material that currently is not fully utilized. This supply will be adequate for the needs of this project. Based on a 1:1 recipe ratio, This bulking material will approximately double the initial volume of incoming organic waste, bringing waste stream volumes up to approximately 10 cu. yds. per day, 60 cu. yds. per week, and 2,000 cu. yds. per year. In order to handle this volume of waste, the composting facility would need to be approximately 1.5 acres in size.

All variables and calculations have been verified by _____ Engineering Firm through formal University processes in the summer of 2011.

Facility Location & Operation

Rather than initiating an entirely new composting operation at a new location, DS and GD will cooperate on a new plan for GD's current mulch operation adjacent to the Grounds Storage Barn just east of Lincoln Avenue and north of Windsor Road. GD currently stockpiles wood chips on this site and has several windrows of composting in progress. However, this current process is slow and produces a relatively inferior product due to inadequate nitrogen content in the composting mixture. Combination of this current process with the organic waste from DS will provide substantial benefits to both parties as well as overall campus sustainability.

The Planning Division of F&S has verified this site as acceptable, based on an environmental impact analysis performed by ____ Egineering Firm in the summer of 2011.

GD's current composting area is approximately 2 acres. This area will be sufficient for the proposed composting plan. Should extra space be needed, expansion will be possible towards Lincoln Avenue into the F&S nursery, which is being phased out.

SITE IMPROVEMENTS/PREPARATION AS NECESSARY (pad?, drain tile?, swale?)

As the site, equipment, and bulking material are already under GD's control, GD has agreed to manage and operate the composting operation. They will provide an employee to manage the facility part-time, and they will take advantage of their already-owned windrow turner. A large tub grinder and compost screen will also be purchased with the grant in order to mix the waste streams and then screen the final compost product.

Illinois EPA permits will be required for the sale of finish compost to the public sector. This application will be submitted early on the project timeline so the permit is secured in time for the first off-campus sales (probably in the spring of 2012). The Environmental Compliance Department of F&S has experience with this process and has agreed to help. The proposed site satisfies all stipulations of this permit.

Finances

DS currently pays $101,532 to OVM for waste transportation and land filling. OVM will continue to receive ($ /) from DS for transportation (difference reflects decrease in mileage/labor and the fact that no third party is being used for transportation) of the organic waste to the compost facility. DS will instead pay GD the landfill portion of the fee ($ /) and difference in transportation fee ($ /) for compost facility operations.

GD will then own the organic waste and will manage its conversion to compost. GD will operate the facility for the first two years using the DS fees, its own resources, and seed funding of $____ per year from the SSC grant. The seed funding will provide a buffer period for compost recipes and operations to be perfected. After two years, GD will operate the facility using the DS fees, its own resources, and revenue from compost sales to the public and other campus units. All revenue from compost sales will go to GD.

Budget & Funding

The SSC grant will cover all costs listed below. The respective entities are required to cover any other resulting costs.

Signatures

DS rep - Dawn
F&S CWM & Grounds rep - Carl
F&S - Jack
SSC reps - Suhail & Kevin

POST CONSUMERS WASTE TOTALS (Source: Dining Services December Waste Audit)

	FAR		ISR		LAR		PAR		IKE	
	LBS	Patrons	LBS	Patrons	LBS	Patrons	LBS	Patrons	LBS	Patrons
5-Dec										
B			0	0	24	38	6	47		58
L			203	691	171	667	190	919	386	1553
D	110	408	208	737	141	679	273	800	633	2023
6-Dec										
B			67	237	66	261	79	417	183	547
L	80	376	211	1100	151	681	207	728	384	2067
D	176	477	221	994	218	709	313	1097	638	2457
7-Dec										
B			36	234	67	252	56	376	120	516
L	81	398	315	1009	170	631	251	726	436	1921
D	333	688	240	1031	307	697	521	966	1202	2402
8-Dec										
B			58	263	60	224	69	405	156	587
L	86	353	180	1087	156	666	238	646	528	1967
D	83	464	287	795	165	423	277	1069	572	2169
9-Dec										
B			50	158	41	139	49	244	103	312
L	135	412	202	686	179	619	247	744	470	2014
D	163	522	173	850	169	627	280	1021	615	2140
10-Dec										
B			61	296	61	210	75	406	176	526
L	125	474	280	763	173	661	278	720	535	1970
D			118	750	118	497	221	1307	646	1954
11-Dec										
B				20	25	82	16	111	40	125
L			258	703	161	516	237	933	529	1685
D			126	643	169	613	203	1084	518	1791

Notes:
Does not include beverage waste
Does include disposable napkins

Meal not served

Post consumer trash weighed at next meal period

DINING SERVICES COMPOSTING VOLUMES

POST CONSUMER WASTE WEIGHTS (LBS)

Hall	FAR	ISR	LAR	PAR	IKE
Sun	110	411	336	469	1019
Mon	256	499	435	599	1205
Tue	414	591	544	828	1758
Wed	169	525	381	584	1256
Thur	298	425	389	576	1188
Fri	125	459	352	574	1357
Sat	0	384	355	456	1087

*from December audit data

x 2

Assumption: Post-Consumer = Pre-Consumer (f/Dining Services Observations)

PRE & POST WASTE WEIGHTS (LBS)

Hall	FAR	ISR	LAR	PAR	IKE
Sun	220	822	672	938	2038
Mon	512	998	870	1198	2410
Tue	828	1182	1088	1656	3516
Wed	338	1050	762	1168	2512
Thur	596	850	778	1152	2376
Fri	250	918	704	1148	2714
Sat	0	768	710	912	2174

÷1400 lbs/cu. yd.

Density Estimation f/ 2007 Study

PRE & POST WASTE VOLUMES (CU YDS)

Hall	FAR	ISR	LAR	PAR	IKE
Sun	0.16	0.59	0.48	0.67	1.46
Mon	0.37	0.71	0.62	0.86	1.72
Tue	0.59	0.84	0.78	1.18	2.51
Wed	0.24	0.75	0.54	0.83	1.79
Thur	0.43	0.61	0.56	0.82	1.70
Fri	0.18	0.66	0.50	0.82	1.94
Sat	0.00	0.55	0.51	0.65	1.55

1400 lbs/cu yd

DAILY VOL TOTALS

Day	Cu Yds
Sun	3.35
Mon	4.28
Tue	5.91
Wed	4.16
Thur	4.11
Fri	4.10
Sat	3.26

WEEKEND WASTE TOTALS

(Fri Dinner, Sat All, Sun All, Mon Breakfast)

Hall	FAR	ISR	LAR	PAR	IKE	All Halls
Post-C Weight (lbs)	110	980	875	1225	2935	6125
Total Weight (lbs)	220	1960	1750	2450	5870	12250
Volume (cu yds)	0.16	1.40	1.25	1.75	4.19	8.75

	Hall	FAR	ISR	LAR	PAR	IKE	All Halls
Max Vol at Hall		0.59	0.84	0.78	1.18	2.51	2.51
Average Vol at Hall		0.28	0.67	0.57	0.83	1.81	0.83
Weekly Vol/Hall		1.96	4.71	3.99	5.84	12.67	29
Weekly Weight/Hall		2744	6588	5584	8172	17740	40828

Max Vol/Day: 5.91

Average Vol/Day: 4.17

Weekly Total: 29

Weeks: 32

ANNUAL TOTALS

933 cu yrds organic waste/academic year

1306496 lbs organic waste/academic year

653 tons organic waste/academic year

Compost pad area calculations

Total daily volume	**18.0**	**cu yds/day**		
Composting period	90	days		
			*assumed no reduction upon mixing for conservative estimation	
Beginning Volume (composting period*daily volume)	1620	CY		
Turned Windrow X-sectional area	16.0	square ft		TOTAL COMPOST VOLUME FOR 9 MONTHS
				3888 CY
Assume pile length	200	ft		**104976 CF**
Windrow volume (turned)	3200	cu ft	118.52	cu yds
No. windrows/90 days	13.67	turned	15	piles *one pile added to allow for operations

ACTIVE COMPOSTING PAD - AREA REQUIREMENTS

Turned Windrows	4	ft high	8	ft wide	200	ft long
Space between windrows	12	ft				
Buffer around perimeter	25	ft				

COMPOST CURING & STORAGE- AREA REQUIREMENTS

Curing Piles	6	ft high	16	ft wide	200	ft long
Percent volume remaining after active composting	0.8					
Compost remaining: windrow vol*windrows*reduction	38400	cu ft	1422	cu yds		
Curing pile volume	19200	cu ft	711.1	cu yds		
No. curing piles:remaining compost/pile volume	2	piles				
Buffer around perimeter	25	ft				

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

Application for a Permit to Develop a Composting Facility
LPC-PA6
Instructions

General Information

This form is for composting waste other than landscape waste. If you plan to only compost landscape waste, use form LPC-PA12.

In accordance with the Environmental Protection Act all information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as regarding a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act.

Read the enclosed instructions carefully to acquire an understanding of permit application requirements. The Application form is to be supplemented by plans and reports which are required to describe the development and/or operation of the site. The information submitted by the Applicant must provide the Illinois Environmental Protection Agency with assurance that no violation of the Environmental Protection Act or Regulations adopted thereunder will result as a consequence of the development or operation of the site.

All data and information should be typed or legibly printed in ink.

THIS FORM MUST BE ACCOMPANIED BY THE "GENERAL APPLICATION FOR PERMIT" (LPC-PA1).

For any information requested but not provided, justification demonstrating the reasons for not doing so must be stated. The letters "NA" may be used if requested information is not applicable.

Submit the original and two copies of all information requested in the application to:

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

It is recommended that the applicant retain a record copy of all application and correspondence sent to the Agency. Plans and reports must be certified by a professional engineer registered to practice in Illinois and must bear his seal and signature along with the signature and/or seal of any Registered Land Surveyor who has supplied data contained in the submittal. When such data is obtained from published sources, references are to be included.

Siting

The applicant must determine if the facility is a new regional pollution control facility and subject to site location approval as specified in Section 39.2 of the Environmental Protection Act.

Refer to the item 2a of the "General Application For Permit" (LPC-PA1).

Operation

The Applicant must notify the Illinois Environmental Protection Agency in writing that the development of the site has been completed in accordance with the Development Permit before a pre-operation site inspection can be conducted or an Operating Permit issued.

Instructions

I. Site Identification

For new operations located within the boundaries of existing facilities or for expansions of existing operations, fill in both the site name and the IEPA Site Number. For new, independent operations, simply give the name of the site; the Agency will assign a site number.

II. Applicant Identification and Site Ownership

Fill in:

A. Applicant (owner/operator) name, title, street address (post office box if applicable) city, state and telephone number.

B. Check one or more boxes to indicate by whom the site is owned or operated. If other, explain.

III. Location Information

Provide a topographic map or maps of the site drawn to the scale of 200 feet to the inch or larger, containing 5-foot contour intervals where the relief exceeds 20 feet, and 2-foot contour intervals where the relief is 20 feet or less, and referenced to a United States Geological Survey datum; include the boundaries and a legal description of the proposed or developed waste management area. (The area may be all or a portion within the legal boundaries.)

Owners and operators of all facilities must provide an identification of whether the facility is located within a 100-year floodplain. This identification must indicate the source of data for such determination and must include a copy of a relevant Federal Insurance Administration (FIA) flood map, if used, or the calculations and maps used where a FIA map is not available.

Item 1. A U.S. Geologic Survey Quadrangle map with the boundaries of the composting facility operation drafted on it must be provided. These maps may be obtained by contacting:

Illinois State Geological Survey
Natural Resources Building
615 East Peabody Drive
Champaign, Illinois 61820
Phone #217/333-4747

Please be aware that there is a cost for these maps and handling and that you will need to be able to identify the location of the site by Township, Range and Section Number in order for the Survey to determine which map shows your site.

Item 2. The applicant will need to have a larger scale map or maps (1" = 200' or greater) prepared. The scope of the map(s) must include the site and the surrounding area within 500' of site boundaries. Include all buildings and current uses.

The map(s) should show the site boundaries, the location of on-site buildings, the composting operation boundaries, the location of potable water wells, the types of land use, the topographic contours and drainage patterns. These are subparts 1 8 of Item III in the application.

On the map(s) you should also indicate the elevation of the water table and the location of the 10 year flood plain. As indicated on the form, if the 10 year flood plain is not present within the scope of the large scale map(s) (or is not well represented), the flood plain should be drafted on the Quadrangle Map.

IV. Facility Background

Check the box(es) that most accurately describe the facility. Provide all existing permit numbers for the facility.

V. Facility Information

A. A narrative must be provided describing how the facility will operate. Each of the elements listed under this item must be included.

In describing the recordkeeping procedures (for Item V.A.11) that will be used at the facility. The operator must submit an annual report to the Agency including:

a. Estimates of weights (tons) and volume (cubic yards) of materials accepted at the site

b. End uses of compost (e.g. nurseries, landscapers, general public, as cover on landfill, farmers, forest preserve, etc.)

B. In order to operate a composting facility, two permits are necessary. First, the operator needs to obtain a development permit, using this application form. Then after the facility has been developed, the operator must apply for an operating permit. The application for an operating permit consists of a General Application for Permit and an Application for Operating Permit to certify that the facility has been developed in accordance with the development permit.

The Agency is allowed up to 90 days to review an application for a development permit and 45 days for an operating permit application. A facility cannot be operated until an operating permit has been issued.

In Item V.B. the applicant needs to list all the development activities that will be completed before an application for an operating permit is submitted. This should include everything that needs to be done before the facility can operate.

C. The documentation needed for this item should be in the form of a narrative supplementing the maps of Item 3. As indicated in the form, the applicant must document that:

a. There is a 200 foot setback between the boundaries of the site and any potable water supply well.

b. The site is outside the 10 year floodplain or the site shall be flood proofed, in which case the flood proofing plans must be provided.

c. The location of the site shall minimize incompatibility with the character of the surrounding area.

d. There is a 200 foot setback between the boundaries of the site and any residence.

e. The design of the facility is such that:

i. No compost will be placed within 5 feet of the water table.

ii. The permittee shall implement best management practices to control runoff from areas where materials are loaded, unloaded, stored, or composted.

Runoff from the permitted facilities shall not cause or contribute to a violation of the water quality standards contained in 35 IAC 302.

Sampling for BOD_5, Total Suspended Solids, Ammonia as N, pH or other parameters may be required.

If any water is to be discharged, contact the Division of Water Pollution Control Section.

iii. Any other leachate generated on site in addition to runoff must also be collected and managed.

The sources of information used in the documentation process must be referenced.

VI. Closure/Post-Closure Care

A. A completed Closure Plans and Post-Closure Plans form (LPC-PA11) must be provided. All composting facilities must provide the site identification and closure information (including cost estimates) for non-disposal facilities as required by the form.

B. Indefinite storage is defined as "treatment" or "storage" in such a manner that a person would face technical difficulties or high costs in removing the wastes or waste residues from the treatment or storage unit to a disposal unit, such that it may become necessary to close the treatment or storage unit as a disposal unit. A treatment or storage unit in which wastes or waste residues remain for more than one year is assumed to be "indefinite storage" unless the operator demonstrates that it will be technically feasible and economically reasonable to remove the waste for ultimate disposal prior to or upon closure. Applications for development permits for indefinite storage facilities must include post-closure care plans. Therefore, an application for a development permit for a composting facility must include either:

a. A demonstration that the proposed operation is not an indefinite storage facility, or

b. A post-closure care plan (including cost estimates).

C. a. Financial assurance for closure and post-closure care of a composting facility is generally not required unless;

1. the composting activity constitutes "indefinite storage" and

2. the operator is non-governmental as described in 35 IAC 807.601.

b. Financial assurance for closure of a composting facility which is not an indefinite storage is generally not required unless;

1. the composting operation is being permitted for development as a unit within the boundaries of a landfill, and

2. the landfill is required to post financial assurance.

In cases when financial assurance is required, the instrument of financial assurance must be included with the application for an operating permit. The acceptable instruments of financial assurance for closure and post-closure care are described in 35 Ill. Adm. Code, Part 807, Subpart F.

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Illinois Environmental Protection Agency

Bureau of Land • 1021 N. Grand Avenue E. • Box 19276 • Springfield • Illinois • 62794-9276

Application for Permit to Develop A Solid Waste Composting Facility (LPC-PA6)

NOTE: Please complete this form online, save a copy locally, print and submit it to the Permit Section #33, at the above address.

I. Site Identification:

Site Name: _____ IEPA ID Number: _____

Street Address: _____ P.O. Box: _____

City: _____ State: IL Zip Code: _____ County: _____

2. Owner/Operator Identification:

Owner		Operator	
Name:		Name:	
Street Address:		Street Address:	
PO Box:		PO Box:	
City:	State:	City:	State:
Zip Code:	Phone:	Zip Code:	Phone:
Contact:		Contact:	
Email Address:		Email Address:	

Mail Agency correspondence to: _____ Other: _____

Site Ownership:

- ☐ Presently owned by Applicant
- ☐ Presently owned by a Trust
- ☐ Presently owned by a Corporation
- ☐ To be Leased by Applicant for ____ years
- ☐ Years of Lease Remaining ____ years
- ☐ Beginning Date of Lease: _____
- ☐ Ending Date of Lease: _____

Operated by:

- ☐ Illinois Corporation
- ☐ Individual
- ☐ Partnership
- ☐ Trust
- ☐ Government
- ☐ Other: _____

3. Location Information:

Attach a copy of the United States Geological Survey (USGS) quadrangle map (7.5 minute quadrangle, if published) and a topographic map of the area which contains the site. Also provide a legal description of the site including the size in acres, present zoning classification and restrictions (if any).

Quadrangle Map proved: _____ _____

Name: Date:

The topographic map should depict the following aspects of the site:

1. The property boundaries of the facility.
2. The location of all buildings on the site and any other pertinent data with respect to the operation of the proposed facility (i.e., utilities, etc.
3. The boundaries of the area that will be used for operations including the location of the windrows within those boundaries.
4. The locations of all potable water supply wells within 500 feet of the boundaries of the site.
5. The types of land use for the properties immediately adjacent to the facility i.e., residential, commercial, industrial, agricultural, etc.). This should include the zoning codes of those properties and the location (and the function) of all buildings within 500 feet of the site.
6. The topography of the area using 2 foot contour intervals.
7. The drainage patterns of the site and surrounding areas. This should identify the direction of both on and off site drainage as well as the location of any ditches, swales, berms or other structures that exist or will be constructed to control runoff and leachate generated by the compost operation.
8. The location of the 10-year floodplain in the vicinity of the site. If the 10-year floodplain cannot be well represented on a 1" = 200' scale map, it should be shown on the Quadrangle Map.

4. Facility Background:

☐ This is an existing operation begun _____ (month) _____ (year).

☐ This is a proposed operation.

☐ This is a proposed extension to an existing operation.

5. Facility Information:

The following information must accompany the application. In the space provided, identify the page number or location in the supporting documentation where this information can be found.

Page number or location of information:

A. Operating Plan:

_____ 1. The types of waste that are proposed to be handled by the facility.

_____ 2. The area to be served by this facility (i.e., the municipalities, townships, counties, etc.)

_____ 3. An estimate of the maximum annual volume of waste the facility will be able to process.

4. The management procedures that will be used in composting. This should include:

_____ i. A description of any treatment the wastes will receive prior to windrowing (e.g., pre-shredding).

_____ ii. The specifications to which the windrows will be constructed, that is, their width, height and length. The calculations of the maximum capacity of the facility should also be provided.

_____ iii. A list of any additives that will be used to adjust the moisture and/or nitrogen content of the composting material (if applicable). The rates and methods of application should also be provided.

_____ iv. The method and frequency of aerating the windrows as well as a description of the equipment that will be used for this purpose.

_____ v. An estimate of length of time that will be necessary to complete the composting process.

_____ vi. The criteria for determining when the composting process is complete.

_____ 5. Descriptions of the storage areas (including their capacities) that will be used to stage the waste before windrowing and to store the finished compost product.

6. Management procedures for containment and disposal of non-compostable wastes received at the facility.
7. Descriptions of the measures that will be taken to control dust, odor and noise generated by the facility's operations (e.g., chipping, shredding, and turning the windrows).
8. Management procedures for containment and disposal of non-compostable wastes received at the facility.
9. A description of the access controls to be employed at the facility (e.g., fencing).
10. A description of how the finished compost product will be used or disposed.
11. A description of the recordkeeping procedures that will be used.

B. Description of the Facility Development that will be Completed Before Submittal of an Operating Permit Application (Development Plan

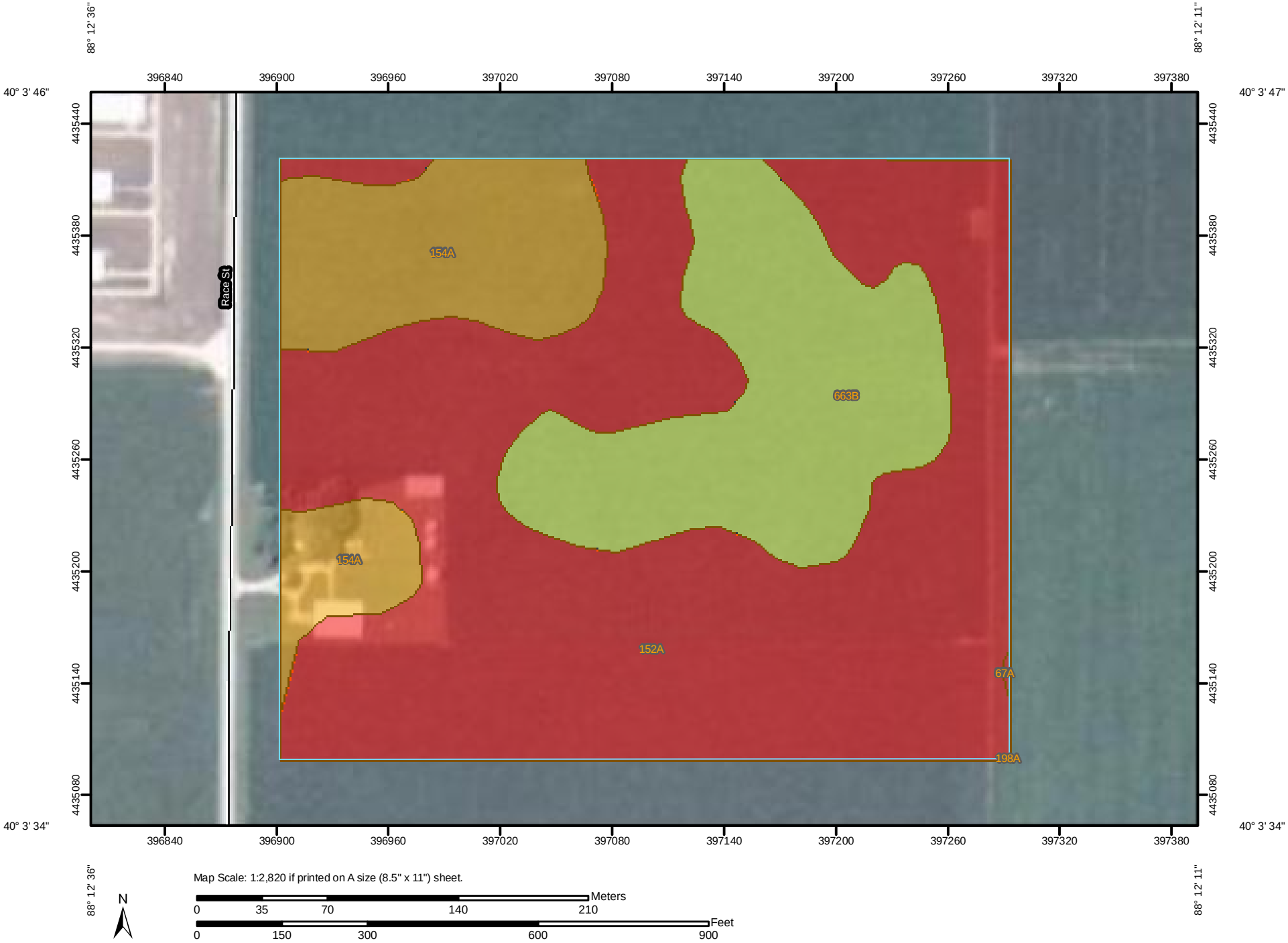
C. Documentation

Documentation that the proposed site meets the following requirements must be provided. The sources of information used in the documentation process need to be referenced.

1. There is a 200' setback between the boundaries of the site and any potable water supply well.
2. The site is outside the 10-year floodplain or the site shall be flood-proofed, in which case the flood-proofing must be provided.
3. The location of the site shall minimize the incompatibility with the character of the surrounding area.
4. There is a 200' setback between the boundaries of the site and any residence.
5. The design of the facility is such that:
   i. No compost will be placed within 5 feet of the water table.
   ii. Best management practices used to control runoff; and
   iii. Other leachate generated on-site will be collected and managed.

6. Closure Plan and Post-Closure Care:

Include the separate form "Closure Plans and Post-Closure Care Plans" (LPC-PA11). The portions pertaining to post-closure care need to be completed only if composting operations are indefinite storage facilities. For operations that do not meet the definition of indefinite storage, include a narrative explaining why it is not an indefinite storage facility.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4435380
4435320
4435260
4435200
4435140
4435080
40° 3' 34"
Race St
154A
663B
154A
152A
67A
198A
Map Scale: 1:2,820 if printed on A size (8.5" x 11") sheet.
N
Meters
0
35
70
140
210
Feet
0
150
300
600
900

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:2,820 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 16N NAD83

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

Soil Survey Area: Champaign County, Illinois
Survey Area Data: Version 6, Jul 8, 2010

Date(s) aerial images were photographed: 7/31/2007

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

Depth to Water Table

Depth to Water Table— Summary by Map Unit — Champaign County, Illinois (IL019)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
67A	Harpster silty clay loam, 0 to 2 percent slopes	15	0.0	0.1%
152A	Drummer silty clay loam, 0 to 2 percent slopes	15	19.5	62.6%
154A	Flanagan silt loam, 0 to 2 percent slopes	46	4.9	15.6%
198A	Elburn silt loam, 0 to 2 percent slopes	46	0.0	0.0%
663B	Clare silt loam, 2 to 5 percent slopes	84	6.8	21.8%
Totals for Area of Interest			**31.1**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

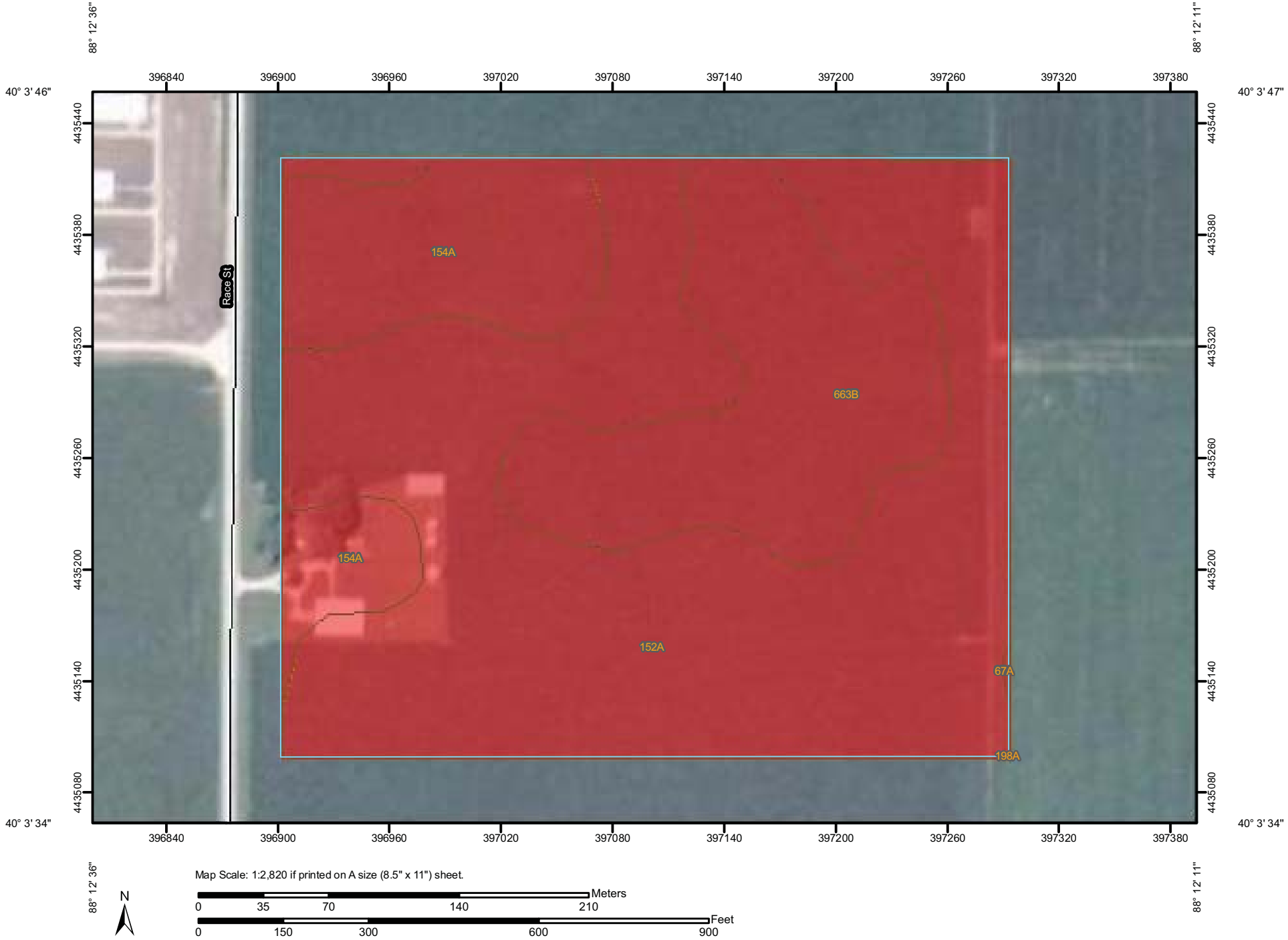
Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December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N
Meters
0
35
70
140
210
Feet
0
150
300
600
900

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:2,820 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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Date(s) aerial images were photographed: 7/31/2007

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

Flooding Frequency Class

Flooding Frequency Class— Summary by Map Unit — Champaign County, Illinois (IL019)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
67A	Harpster silty clay loam, 0 to 2 percent slopes	None	0.0	0.1%
152A	Drummer silty clay loam, 0 to 2 percent slopes	None	19.5	62.6%
154A	Flanagan silt loam, 0 to 2 percent slopes	None	4.9	15.6%
198A	Elburn silt loam, 0 to 2 percent slopes	None	0.0	0.0%
663B	Clare silt loam, 2 to 5 percent slopes	None	6.8	21.8%
Totals for Area of Interest			**31.1**	**100.0%**

Description

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

LARGE-SCALE FOOD COMPOSTING
COST ESTIMATE

BASE BID

CONSTRUCTION STAKING	LS	$10,000.00	1	$10,000.00
EROSION CONTROL SILT FENCE	FOOT	$1.70	5,300	$9,010.00
EARTHWORK	CY	$10.00	16,500	$165,000.00
FILTER FABRIC OR LMS	SY	$6.00	3,560	$21,360.00
AGGREGATE SURFACE COURSE	TON	$30.00	1,950	$58,500.00
8" PCC	SY	$65.00	239	$15,570.00
12" CULVERT	FOOT	$30.00	80	$2,400.00
LANDSCAPING	ACRE	$3,000.00	5.6	$16,800.00
CONTINGENCY - 20%	LS	$59,730.00	1	$59,730.00
TOTAL				**$358,370.00**

ALTERNATE ONE

ELECTRIC CONNECTION	LS	$10,000.00	1	$10,000.00
12" SECURITY LIGHT	EA	$500.00	1	$500.00
TOTAL				**$10,500.00**

ALTERNATE TWO

TAPPING SLEEVE AND VALVE	EA	$1,800.00	1	$1,800.00
4" WATER MAIN	FT	$30.00	1,200	$36,000.00
CONNECTION POINT	EA	$450.00	6	$2,700.00
TOTAL				**$40,500.00**

ALTERNATE THREE

TAPPING SLEEVE AND VALVE	EA	$1,800.00	1	$1,800.00
4" WATER MAIN	FT	$30.00	850	$25,500.00
CONNECTION POINT	EA	$450.00	6	$2,700.00
METER	EA	$1,500.00	1	$1,500.00
TOTAL				**$31,500.00**

ALTERNATE FOUR

FILTER FABRIC OR LMS	SY	$6.00	825	$4,950.00
AGGREGATE SURFACE COURSE	TON	$30.00	470	$14,100.00
8" PCC	SY	$65.00	20	$1,300.00
TOTAL				**$20,350.00**

LARGE-SCALE FOOD COMPOSTING

PROJECT NUMBER U12012

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN CAMPUS

GENERAL NOTES - AUTHORITY AND RESPONSIBILITY

THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF CONSTRUCTION, NOR SAFETY ON THE JOB SITE, NOR SHALL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. NEITHER THE PROFESSIONAL ACTIVITIES OF THE ENGINEER NOR THE PRESENCE OF THE ENGINEER AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR OF THEIR OBLIGATIONS, DUTIES, AND RESPONSIBILITIES INCLUDING ANY HEALTH AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. IN ADDITION, THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL BE MODIFIED AS FOLLOWS:

UNDER SECTION 105, ADD THE FOLLOWING SENTENCE:

NOTHING CONTAINED HEREIN SHALL RELIEVE CONTRACTOR OF ITS DUTY TO OBSERVE AND COMPLY WITH ALL APPLICABLE LAWS, NOR SHALL ENGINEER BE RESPONSIBLE FOR CONTRACTOR'S COMPLIANCE OR NONCOMPLIANCE WITH SUCH LAWS.

UNDER SECTION 107.01, ADD THE FOLLOWING SENTENCE:

ENGINEER SHALL NOT BE RESPONSIBLE FOR CONTRACTOR'S DUTY TO OBSERVE AND COMPLY WITH THE PROVISIONS OF THIS SECTION, OR FOR CONTRACTOR'S FAILURE TO DO SO.

GENERAL NOTES - SPECIFICATIONS

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" IN ILLINOIS, ADOPTED JANUARY 1, 2007, INCLUDING ALL ADDENDA AND SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2011 HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS AND TO THE STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS ADOPTED JULY 2009.

FOR:
BOARD OF TRUSTEES
UNIVERSITY OF ILLINOIS
URBANA-CHAMPAIGN, ILLINOIS

PREPARED BY:
Foth Infrastructure & Environment, LLC
1610 BROADMOOR DRIVE
CHAMPAIGN, ILLINOIS 61821
(217)352-4169
ILLINOIS LICENSE NUMBER 184.004913

LOCATION MAP

INDEX OF SHEETS

MEMBER ONE CALL SYSTEM

CALL J.U.L.I.E. BEFORE YOU DIG
1-800-892-0123
COUNTY/CITY CHAMPAIGN / URBANA
SECTION SE 1/4, NW 1/4, SEC. 18, T.19N., R.8E., 3RD P.M.

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

THOMAS B. JORDAN — DATE
PROJECT COORDINATOR

MATTHEW J. MOFFITT — DATE
IL. LICENSED PROFESSIONAL
ENGINEER, NO. 062.063296
EXPIRES NOVEMBER 30, 2013

SCHEMETIC
DOCUMENTS
DECEMBER, 2011

Date of Preparation: Dec, 2011 | PROJECT ID 11U013.00

Foth
Foth Infrastructure & Environment, LLC
1610 Broadmoor Drive
Champaign, IL 61821
Phone: 217-352-4169 Fax: 217-352-0085

SHEET NO. 1 OF 2 SHEETS

Illinois Professional Design Firm No. 184.004913

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EXISTING OVERHEAD ELECTRIC

EXIST. WATERMAIN

NEW POTABLE WATERMAIN ALTERNATE

NEW OVERHEAD ELECTRIC SERVICE ALTERNATE

PROPOSED CONC. ENTRANCE

PROPOSED 12' AGGREGATE DRIVE

TEMPORARY EROSION CONTROL FENCE

PROPOSED 12" CORRUGATED STEEL CULVERT

RACE STREET

PROPOSED 12" CORRUGATED STEEL CULVERT

MEET EXIST. GRADE, TYP.

Bulking Storage

Equipment Storage

Bulking Storage

Food Waste Storage

Compost Storage

Compost Curing Piles

Compost Windrows

MEET EXIST. GRADE, TYP.

TEMPORARY EROSION CONTROL FENCE

LEGEND

	PROP. EROSION CONTROL FENCE
W W	PROPOSED WATERMAIN
W W	EXISTING WATERMAIN
OHE	EXISTING OVERHEAD ELECTRIC
OHE OHE	PROPOSED OVERHEAD ELECTRIC
714	PROPOSED CONTOUR LINE
710	EXIST. CONTOUR LINE
× 712.5	PROP. SPOT ELEVATION
× 710.9	EXIST. SPOT ELEVATION

SCHEMATIC DOCUMENTS DECEMBER, 2011

Foth Infrastructure & Environment, LLC
1610 Broadmoor Drive
Champaign, IL 61821
Phone: 217-352-4169 Fax: 217-352-0085
Illinois Professional Design Firm No. 184.004913

LARGE-SCALE FOOD COMPOSTING

PROJECT NUMBER U12012

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN CAMPUS

CHAMPAIGN COUNTY ILLINOIS

REVISIONS NO.	BY	DESCRIPTION	DATE

RECORD DRAWINGS OF COMPLETED CONSTRUCTION BY

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____ DATE _____

Date of Preparation: December, 2011

	BY	DATE
SURVEYED	.	.
DRAWN	WKH	12/11
DESIGNED	MJM	12/11
CHECKED	TBJ	12/11

SITE PLAN

PROJECT ID 11U013

2

SHEET 2 OF 2

X:\CHE\E2011\11U013-00\CAD\Plans\SITE-PLAN.dwg
Jan 03, 2012 - 8:36am mjm3