May 27, 2016

Ms. Daniela Ortiz de Montellano, Project Manager
Texas Commission on Environmental Quality
Municipal Solid Waste Permit Section (MC-124)
Waste Permits Division
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Re: Response to Permit Application -Notice of Deficiency (NOD) dated April 13, 2016
Sealy Compost Facility - Austin County
Municipal Solid Waste - Permit No.2388
Tracking No.20017868; CN603436114/RN108878331

Dear Ms. Montellano:

On behalf of SouthWaste Disposal, LLC. (SouthWaste), Daniel B. Stephens & Associates, Inc. (DBS&A) is providing responses to the Texas Commission on Environmental Quality (TCEQ) comments in the referenced notice of deficiency (NOD) letter dated April 13, 2016. For clarity purposes, the TCEQ comments are reproduced in italics; DBS&A responses immediately follow each comment.

Part I Comments

TCEQ Item 1: *Please revise the title pages to include the names of the city and county, the permit number, the date of the submittal and the revision date(s) if appropriate to comply with 30 TAC §330.57(g)(2) and §332.47(2).*

The cover and title pages have been revised to include the names of the city and county, the permit number, the date of the submittal and the revision date to comply with 30 TAC §330.57(g)(2) and §332.47(2). The cover page is to be inserted at the beginning of the application (and in the outside pocket of the 3-ring binder), and the title pages are to be inserted at the beginning of each Part.

TCEQ Item 2: *Please provide the firm registration number on title pages of the application in accordance with the Texas Board of Professional Engineers rules 22 TAC §137.33 and §137.77.*

The firm registration numbers are provided on the cover and title pages. The cover page is to be inserted at the beginning of the application and the title pages are to be inserted at the beginning of each Part.

TCEQ Item 3: *The color coding used on Figure 3 - Land Use Map is illegible when copied. Please revise the color coding used in Figure 3 to comply with 30 TAC §330.57(h)(2).*

The color coding for Figure 3 has been revised and is now legible on a black and white photocopy.

Daniel B. Stephens & Associates, Inc.
4030 W. Braker Lane, Suite 325 512-821-2765
Austin, TX 78759 FAX 512-821-2724

TCEQ Item 4: *The latitude and longitude was not depicted on the maps as required by 30 TAC §330.59(c)(1)(A). Please provide map(s) that shows the latitude and longitude coordinates for the facility.*

Figures and drawings have been revised to include the Facility latitude and longitude coordinates. The figures and drawings are to be inserted in the figures and drawings sections.

TCEQ Item 5: *Please provide a boundary metes and bounds description and a survey map of the facility signed and sealed by a registered professional land surveyor to comply with 30 TAC §332.47(8) and 30 TAC §330.59(d)(1)(C).*

A boundary metes and bounds description and a survey plat map of the Facility signed and sealed by a registered professional land surveyor is to be inserted as Appendix A, replacing the former appendix.

TCEQ Item 6: *Section 2 Operation and Process Summary, page 2, provides an estimated amount of incoming feedstock to be received daily as an "approximate" amount. The word "approximate" is vague and does not provide the "maximum" amount. The daily maximum limit of feedstock acceptance is considered a provision of a permit in accordance with 30 TAC §305.62(j)(1)(C). Please revise the section and throughout application for consistency.*

Sections 2 (Part I, p. 2), 10.1 (Part II, p. 11), and 18.3 (Part III, p. 31) have been revised to include text referring to the daily maximum limit of feedstock acceptance volumes in accordance with 30 TAC §305.62(j)(1)(C).

TCEQ Item 7: *Please provide a property owner affidavit as required by 30 TAC §330.59(d)(2)(A) and (C) and §332.42(b).*

A property owner affidavit has been signed and is to be inserted at the beginning of Appendix B of the application.

TCEQ Item 8: *The scale on the topographic map does not meet the one inch equals one mile as required by 30 TAC §305.45(a)(6). Please provide a topographic map with a scale of not less than one inch equals one mile.*

Figure 2, Topographic Map, has been revised with a scale of 1 inch equals 1 mile.

Part II Comments

TCEQ Item 9: *The drawing DWG NO C-1 Site Plan does not depict the fence along the facility's permit boundary and the area for sludge storage in accordance with 30 TAC §332.45(4). Please revise as necessary.*

The Site Plan, Drawing C-1, has been revised to depict a perimeter fence around the Facility's permit boundary. The sludge processing area was already depicted on the Site Plan. A note has been added clarifying that there is not a separate tipping area; sludge is immediately placed within the designated processing area adjacent to the compost pad.

TCEQ Item 10: *Section 13.7 Structures and Site Proximity, page 19 states "The nearest occupied structures are residential buildings owned by the property owner, located approximately 480 feet north of the Facility. The nearest building is Ram Industries, located adjacent to the eastern end of the eastern property line of the Facility." The Site Plan and the narrative does not describe any screening of the facility from public view. Please address 30 TAC §330.61(d) accordingly.*

Section 13.7 (Part II, p. 19) has been revised to indicate that chain link fencing with mesh weave roll or slats will screen the Facility from public view on the east property boundary, and perimeter berms and the raised railroad will screen the Facility from public view on the north, west, and south sides of the property.

TCEQ Item 11: *Figure 3 - Land Use Map depicts the facility within an agricultural/residential land use area. Please provide a narrative regarding land use compatibility in accordance with 30 TAC §332.47(4)(D).*

Section 13.9 includes information regarding land use compatibility in accordance with 30 TAC §332.47(4)(D); therefore no revisions were made in response to this item.

TCEQ Item 12: *Please include the load limits and capacities of the roadways to comply with 30 TAC §33247(5)(A) on Table 5, Roadway Data.*

Table 5 (Part II, p. 22) has been revised to include load limits and capacities of the surrounding roadway system.

Part III Comments

TCEQ Item 13: *Section 17.3 Odor Control, page 27 states "The GSS processing area will be located in a remote area with at least 50-foot buffers to prevent creating odor nuisance." In accordance with 30 TAC §332.44(6), the setback distance from the facility boundary to the areas for receiving, processing, or storing feedstock or final product shall be at least 50 feet. Please revise the language to clearly indicate that the 50-foot buffer, set back, is from the facility boundary to the processing areas to comply with 30 TAC §33244(6).*

Section 17.3 (Part III, p. 27) has been revised to clearly indicate that the 50-foot buffer, set back, is from the Facility boundary.

TCEQ Item 14: *Section 17.5.4 Feedstock Storage Area, page 28 states in part "The feedstock storage area is the receiving area for liquid waste transporters and the liquid feedstock storage area. The area is comprised of eight 31,500-gallons, welded steel storage tanks as specified in Section 17.5.1."Please note that Section 17.5.1 states in part "Tanks are planned to be 750 barrels (or approximately 31,500 gallons), but will be no more than 2,000 barrels (840,000 gallons)." It appears that the amount of gallons reported in the application for 2,000 barrels is incorrect. In addition, the secondary containment must be designed to contain the largest volume. Please revise the maximum amount of gallons to be stored at any one point in time and secondary containment design to properly account for the maximum volume and revise the application accordingly.*

Section 17.5.1 (Part III, p. 28) has been revised to state only that tanks are planned to be 750 barrels (or approximately 31,500 gallons). A larger tank size is not proposed in the design, and secondary containment has been designed for a tank volume of 31,500 gallons.

TCEQ Item 15: *Section 17.6 Containment Dikes or Walls, page 29 states in part "The secondary containment for the feedstock storage area is designed to hold at least the volume of the largest tank (31,500 gallons) and a 25-year, 24-hour rain event (8.5 inches)." Please revise to account for the largest tank volume, see comment 14 above.*

Secondary containment accounts for the largest tank volume (see response to comment 14). Section 17.6 (Part III, p. 29) was revised to also state that secondary containment provides 12 inches of freeboard.

TCEQ Item 16: *Section 18.3 Feedstock Identification, page 31 states in part "Initially, incoming grease trap waste will be brown grease, but yellow grease processing may be included in future operations. A permit modification will be requested when this change is anticipated." In addition, a "Possible Future Yellow Grease Processing Area" is included on the Site Plan drawing. Please note that TCEQ does not regulate yellow grease processing. The modification request referenced in the above statement is not necessary unless the "Possible Future Yellow Grease Processing Area" is relocated. Please revise the above statement to indicate that a modification will be requested if the yellow grease operation area is revised. For authorization to process yellow grease (waste cooking grease), contact the Department of State Health and Services. Regulations related to "waste cooking grease" may be found in 25 TAC Chapter 221, Subchapter A.*

Section 18.3 (Part III, p. 31) has been revised to indicate that a modification will be requested if the yellow grease operation area is relocated.

TCEQ Item 17: *Sections 18.6 Post-Processing and 18.9 Non Hazardous Waste Storage and Disposal, pages 34 and 36 respectively do not address the storage of "waste grade compost" as required under 30 TAC §332.47(6)(E)(iv). Please include in the application a statement that describes where and how long "waste grade compost" product will be stored on-site prior to transporting to an authorized disposal facility. In addition, please depict the "waste grade compost" storage area on the Site Plan in accordance with a 30 TAC §332-47(6)(D).*

A note has been added to the Site Plan, Drawing C-1, stating that waste grade compost will be stored on the compost pad and will be reprocessed as soon as practicable.

TCEQ Item 18: *Please revise Table 7 Equipment to include the minimum number of storage units to be used to store "waste grade compost". In addition, include the material of construction and operational capacity as required in accordance with 30 TAC §332.47(7)(B).*

Storage units will not be required to store waste grade compost. This compost will be stored on the lined compost pad and reprocessed as soon as practicable.

TCEQ Item 19: *Section 18.7 Product Distribution, page 35. Please include the intended used of Grade 1 and 2 compost products and tracking of bulking material in accordance with 30 TAC §332.47(6)(E)(v) and revise the application accordingly.*

Sections 18.7.1 (Part III, p. 34), 26.2.2 (Part IV, p. 58), and 26.4 (Part IV, p. 60) have been revised to include information regarding the intended used of Grade 1 and 2 compost products and tracking of bulking material.

TCEQ Item 20: *Figure 15 depicts an existing stormwater pond and a proposed retention pond. The retention pond is located west of the compost pad and it is used to collect leachate from the compost pad. The existing stormwater pond is located east of the compost pad. Please note that Figure 11, Sheets 3, 4 and 6 named the pond located west of facility "stormwater retention pond" even though this pond appears to collect leachate from the compost pad. Please revise the naming of the pond on Figure 11, sheets, and applicable narrative accordingly.*

Figures 11 and 15 and Sheets 3, 4, 6, and 8 of the drawings have been revised to refer to the stormwater retention pond on the west side of the compost pad as the "Compost Pad Retention Pond." The terminology change was also made globally throughout the narrative (Part I, p. 1, Part III, pp. 28, 35 through 40, and 47, and Part IV, p. 59).

TCEQ Item 21: *Section 18.8 Sanitation, page 35, states "Pending inspection, accumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the stormwater retention pond". It is not clear the naming of this pond, please revise.*

Text in Section 18.8.1 (Part III, p. 35) has been revised to clarify that any accumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the compost pad retention pond, the stormwater pond located within the lined compost pad area.

TCEQ Item 22: *Section 19 Endangered Species Protection, page 36, and Appendix F Biological Assessment. Please indicate if the biological assessment was prepared by a qualify biologist in accordance with 30 TAC §330.61(n).*

Section 19 (Part III, p. 36) has been revised to state that the biological assessment was prepared by a qualified biologist in accordance with standard procedures of the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department (TPWD), and the letter certifying such is to be inserted at the beginning of Appendix F. Additionally, Section 19 (Part III, pp. 36-37) has been updated to reference the review performed by the TPWD Wildlife Habitat Assessment Program. The TPWD signed acknowledgement stamp is presented on the cover page of the Biological Assessment (BA). The stamped cover page is to be inserted immediately following the certification letter, replacing the cover page of the BA in Appendix F.

TCEQ Item 23: *Appendix M, Closure Cost Summary and Estimate, does not account for expenses such as site survey, preparation of engineering plans and bid documents, installation of sign stating facility closure, closure notification, site security, closure certification preparation and site inspection, disinfection of equipment and site, verification sampling, etc. Also the closure cost estimate should show the units of each item and cost per unit and should account for maximum amount of feedstock and compost products stored onsite at any one point in time. Please revise accordingly.*

The Closure Cost Summary and Estimate has been revised to include administrative expenses such as site survey, engineering fees, and closure certification, sampling, and reporting. A note was added clarifying that the cost estimate accounts for maximum amounts of feedstock, compost, and stormwater. The closure cost estimate includes two parts: a summary page and a detail page that shows unit costs, quantities, and references for the cost. The updated Closure Cost Summary and Estimate is to be inserted as Appendix N, replacing the former appendix.

Part IV Comments

TCEQ Item 24: *The Site Operating Plan does not provide an estimate of the amount of each waste to be received daily, maximum amount of waste and feedstock stored at any one time, maximum and average time waste will remain on-site, maximum and average processing time, intended destination of generated waste (if any) in accordance with 30 TAC §330.203(b).*
Please revise accordingly.

Section 26 (Part IV, pp. 57-59) has been revised to provide an estimate of the amount of each waste to be received daily, the maximum amount of waste and feedstock stored at any one time, the maximum and average time waste will remain on-site, the maximum and average processing time, and the intended destination of generated waste (if any) in accordance with 30 TAC §330.203(b).

TCEQ Item 25: *Section 28.2 Sanitation and Litter, Facility Generated Waste, page 61 states in part "Wastewater generated by a facility will be processed as feedstock." Please specify the sources and amount of the wastewater generated at the facility that will be used as feedstock in accordance with 30 TAC §§332.47(6)(E)(i) and 330.61(b)(1).*

Section 28.2.1 (Part IV, p. 61) has been revised to indicate that the Facility's septage will be processed as feedstock.

TCEQ Item 26: *Section 28.2 Sanitation and Litter, page 61 indicates that the facility will conduct testing of nonstandard sludge prior to disposal at a landfill. The facility shall be designed and operated in a manner that sludges produced pass the Paint Filter Liquid Test and does not exceed benzene, lead and total petroleum hydrocarbon concentration limits prior to disposal at a municipal solid waste landfill in accordance with 30 TAC §330.205. Please define nonstandard sludge and provide the source(s) for nonstandard sludge and revise the application accordingly.*

Section 28.2.1 (Part IV, p. 61-62) has been updated to define the nonstandard sludge as septage generated by the Facility's septic tank.

TCEQ Item 27: *Section 29 Vector Control, page 64, states in part "The Facility reserves the right to train its employees and obtain applicable licenses and/or certification to apply pesticides at the Facility or contract with a professional service provider. Pesticides would be applied in accordance with manufacturers' instructions and in conformance with applicable federal, state and local regulations." In accordance with 30 TAC §332.45(10) prohibited substances - Fungicides, herbicides, insecticides or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents or on the Hazardous Substance List as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) shall not be applied to or incorporated* *into feedstocks, in- process materials or processed materials. Please explain how the facility will manage to prevent pesticide contacting feedstocks to comply with 30 TAC §332-45(10).*

Section 29.2 (Part IV, p. 66) has been revised to indicate that prohibited fungicides, herbicides, insecticides or other pesticides will not be used at the Facility.

TCEQ Item 28: *Section 34.3 Reporting Requirements, page 74, does not clearly address 30 TAC §332.71(j)(1)(D). If the final product is not Grade 1 or Grade 2 Compost it is considered "waste grade compost" and shall be disposed at an authorized disposal facility. Please revise as necessary.*

Section 34.3.1 (Part IV, p. 75) has been updated in accordance with 30 TAC §332.71(j)(1)(D).

TCEQ Item 29: *Section 32 Fire Prevention and Control Plan, pages 68 -70, does not indicate if the fire protection plan complies with local fire codes. In accordance with 30 TAC §§330.221 and 332.47(7)(E) a fire protection plan shall comply with local fire codes. Please address accordingly.*

Section 32.2 (Part IV, p. 70) has been revised to indicate that the fire protection plan complies with local fire codes.

TCEQ Item 30: *Section 33 and Spill Containment and Contingency Plan, pages 70 and 71 indicates that stormwater will be inspected for contamination and will be used as a feedstock if contaminated. It also says that if stormwater determined to be contaminated, the stormwater is discharged into the stormwater drainage system. Please discuss the parameters and the procedures to determine stormwater contamination in the application.*

Text in Section 33.1.1 (Part IV, p. 72) has been revised to state that any accumulated water within the secondary containment berm will be pumped out and sprayed onto the composting pad. As this is a lined processing area, it will not be inspected prior to being removed from the secondary containment area. Text in Section 33.2.1 (Part IV, p. 72) was revised similarly to the Section 33.1.1 revision. Due to a conflict with Section 33.2.1, text in Section 33.1.1 (Part IV, p. 72) was further clarified to note that inspections of the liquid feedstock storage tanks will occur daily.

TCEQ Item 31: *Section 33.2 Spill Prevention and Control, page 71, states in part "Wash-water will be collected and diverted to the liquid feedstock storage tanks for processing. The OIC will monitor the clean-up and collection procedures for leaks and spills. Spills will be cleaned up and liquids will either be applied to the windrows, diverted to the liquid feedstocks storage tanks, or discharged to the stormwater retention pond." Please note that Section 28.2 Sanitation and Litter, page 61, states in part "Chemicals used during washing will not interfere with the feedstock processing." Please explain how chemicals used during washing will not contaminate feedstocks and final products.*

Sections 28.2 (Part IV, p. 61) and 33.2.2 (Part IV, pp. 72-73) have been revised to indicate that only freshwater will be used for washing activities.

TCEQ Item 32: *Section 33.3 Spill Emergency Actions, page 72 states in part "Spills will be remediated to background levels of soil and groundwater or appropriate regulatory assessment levels." Please specify the types of solid spills and how the solids will be remediated. In addition, explain what it is meant* *by "spills will be remediated to background levels of soil and groundwater or appropriate regulatory assessment levels."*

Section 33.3 (Part IV, p. 73) has been revised to specify sludge as the type of solid. In addition, the third bullet of Section 33.3 (Part IV, p. 73) has been clarified.

TCEQ Item 33: *Section 34.2 Signatory, page 73, properly address signatory to reports in accordance with 30 TAC §330.219(c).*

Section 34.2 (Part IV, pp. 74-75) has been revised in accordance with 30 TAC §330.219(c).

TCEQ Item 34: *Please address facility sign requirements in accordance with 30 TAC §332.45(7).*

Section 30.1 (Part IV, p. 67) has been updated to meet the Facility sign requirements.

TCEQ Item 35: *Table 15 Final Product Analytical Requirements and Standards, page 77, provide for the testing of pathogens in accordance with 30 TAC §332.71(b)(2).*

Table 15 includes the requirement for testing of pathogens, specifically salmonella and fecal coliform, in accordance with 30 TAC §332.71(b)(2). Table 15 (Part IV, p. 79) has been reorganized and formatting adjustments have been made to indicate the different categories of testing (including pathogen testing) more prominently.

TCEQ Item 36: *Table 15 Final Product Analytical Requirements and Standards, page 77, provide for the testing of foreign matter in accordance with 30 TAC §332.71(b)(3).*

Table 15 includes the requirement for the testing of foreign matter in accordance with 30 TAC §332.71(b)(2). Table 15 (Part IV, p. 79) has been reorganized to clarify the testing parameters, and the testing method reference for foreign matter has been added to the table.

TCEQ Item 37: *Section 35.3 Compost, Sampling and Analysis for Maturity, page 76. In accordance with 30 TAC §332.71(d), the Maturity Testing Protocol shall be described in the facility QA/QC and shall select a minimum of three test methods. Please properly address the maturity testing protocol requirements in accordance with 30 TAC §332.71(d).*

In accordance with 30 TAC §332.71(d), the maturity testing protocol shall be described in the Facility QA/QC manual. The protocol shall consist of the ROM method or a comparison of the interim ROM method to a minimum of three test methods, with one test method selected from each of subparagraphs (A), (B), and (C) of 30 TAC §332.71(d), together with any method in subparagraph (D) of this paragraph. The comparison of the interim ROM method to a minimum of three test methods is an optional method; therefore, Section 35.3 was not revised. The maturity protocol for the Facility will include sampling to measure the reduction of organic matter (ROM) in composting material from the time it is initially mixed until it is mature.

TCEQ Item 38: *Please address the labeling requirements in accordance with 30 TAC §332.74(b).*

Section 28.5 (Part IV, pp. 64-65) was revised to outline the labeling requirements.

TCEQ Item 39: *In accordance with 30 TAC §332.71(h) include a statement in the SOP indicating that the executive director may request that final compost products be tested for additional parameters.*

Section 35.3.2 (Part IV, p. 79) has been revised to include the following statement: "The executive director may at any time request that additional parameters be tested."

Other Comments / Inclusions

TCEQ Item 40: *Section 20.1 indicates that an enhanced evaporation unit (e.g., Turbomist Model S30L) will be used to maintain adequate capacity of the stormwater retention pond in the processing or windrow area. The enhanced evaporation unit is designed to spray water droplets about 10 - 20 feet into the air which increases the evaporation rate significantly. However, stormwater in the retention pond is contaminated water which may contain pathogens and spraying contaminated water may result in airborne pathogens. To comply with 30 TAC §330.245 (relating to Air Pollution Control), please remove the use of the evaporation unit.*

The evaporation unit has been removed from the design. Reference to the evaporation unit has been removed from Table 7 (Part III, p. 30) and from Sheets 3 and 6 of the drawings. Section 17.5.3 text (Part III, p. 28) has been removed entirely, and text in Section 20.1 (Part III, p. 38) referring to the evaporation unit has been stricken.

TCEQ Item 41: *Section 33 indicates that spill containment design is sufficient to control and contain a worst case spill or release for precipitation from a 25-year, 24-hour storm. Please define the "worst case spill", usually a volume of the largest tank within the secondary containment area. Furthermore, in accordance with 30 TAC §330.227, the secondary containment design capacity must be sufficient to control and contain a worst case spill or release, and, for unenclosed containment, precipitation from a 25-year, 24-hour storm must be accounted for. Please provide the secondary containment capacity calculations and engineering design details, including sufficient freeboard, in accordance with 30 TAC §330.63(b)(2)(F).*

Section 33 text (Part IV, p. 72) has been clarified to define the worst case spill as the largest tank volume within the liquid feedstock storage area. The text was further clarified to specify that secondary containment design is factored in both the largest tank volume and precipitation from the 25-year, 24-hour design storm. Secondary containment calculations were added and are to be inserted as Appendix I, replacing the former appendix. Details of the secondary containment area are shown on Sheet 7 of the drawings.

TCEQ Item 42: *Table 8 calculations do not match Section 18.7 quantities.*

Section 18.7.1 (Part III, p. 34) has been corrected to reflect that the estimated compost production volume is based on 2,700 tons of wood chips per month and 22,300 tons of liquid feedstock per month (not per year).

TCEQ Item 43: *Revise first sentence in Section 14.1.*

Section 14.1 (Part II, p. 19) has been revised to clarify that construction of the Facility will disturb more than 5 acres of ground surface.

TCEQ Item 44: *Update the waste acceptance hours to be more specific.*

Sections 17.2.2, 17.2.3 (Part III, pp. 25 and 26), and 30 (Part IV, Section 67) have been revised to specify the waste acceptance hours.

TCEQ Item 45: *Add the flood zone designation to Figure 7.*

The flood zone designation (Zone X) has been emphasized on Figure 7.

In addition to the revisions indicated above, DBS&A has made two additional modifications to the draft permit:

- Documentation of coordination for roadway improvements and coordination with the Texas Department of Transportation (TXDOT) for traffic and location restrictions in accordance with 30 TAC 330.61(i)(4) was received from TXDOT on December 28, 2015. The TXDOT letter is to be added as Appendix O of the application.

- A revised, signed, and notarized TCEQ Part I Application Form #0650 will replace the former version located in front of the application. The revised application was prepared in response to this NOD response in accordance with 30 TAC §305.44.

An original and three copies of the application revisions are included with this letter as Attachment A. The redline/strikeout revisions are included as Attachment B of this letter. The application revisions were prepared in a format that allows for the replacement of application pages with the revised pages. Revisions were made in accordance with to 30 TAC §330.57(g)(6). The revisions have been posted to the internet web site (http://dbsa-client-access.com/application/file_access.html) and the Bellville Public Library. Should you have any questions or comments, please do not hesitate to contact me at (512) 651-6019.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Ben Camacho
Compliance and Permitting Specialist

cc: TCEQ Region 13 Office, San Antonio, TX
Mr. Tim Cox, Market Manager, SouthWaste Disposal, LLC

Attachment A

Application Revisions

Facility Name: Sealy Composting Facility
Permittee/Registrant Name: SouthWaste Disposal, LLC.
MSW Authorization #: 2388
Initial Submittal Date: 11/16/2015
Revision Date: 05/27/2016

TCEQ

Texas Commission on Environmental Quality

Part I Form

New Permit/Registration and Amendment Applications for an MSW Facility

1. Reason for Submittal

☐ Initial Submittal ☒ Notice of Deficiency (NOD) Response

2. Authorization Type

☒ Permit ☐ Registration

3. Application Type

☒ New ☐ Major Amendment
☐ Major Amendment (Limited Scope)

4. Application Fees

☒ Pay by Check ☐ Online Payment

If paid online, e-Pay Confirmation Number:

5. Application URL

Is the application submitted for Type I Arid Exempt (AE) and/or Type IV AE facility?

☐ Yes ☒ No

If the answer is "No", provide the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted.
http:// dbsa-client-access.com/application/file_access.html

6. Application Publishing

Party Responsible for Publishing Notice:

☐ Applicant ☐ Agent in Service ☒ Consultant

7. Alternative Language Notice

Is an alternative language notice required for this application? (For determination refer to Alternative Language Checklist on the Public Notice Verification Form TCEQ-20244-Waste)

☒ Yes ☐ No

8. Public Place Location of Application

Name of the Public Place: Bellville Public Library

Physical Address: 12 W. Palm

City: Bellville County: Austin State: Texas Zip Code: 77418

(Area code) Telephone Number: 979-865-3731

9. Consolidated Permit Processing

Is this submittal part of a consolidated permit processing request, in accordance with 30 TAC Chapter 33?

☒ Yes ☐ No ☐ Not Applicable

If "Yes", state the other TCEQ program authorizations requested: Composting, Air Quaility

10. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

11. Permits and / or Construction Approvals

Select all that apply	Received	Pending	Not Applicable
Hazardous Waste Management Program under the Texas Solid Waste Disposal Act	☐	☐	☒
Underground Injection Control Program under the Texas Injection Well Act	☐	☐	☒
National Pollutant Discharge Elimination System Program under the Clean Water Act and Waste Discharge Program under Texas Water Code, Chapter 26	☐	☒	☐
Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA). Nonattainment Program under the FCAA	☐	☐	☒
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA	☐	☐	☒

Select all that apply	Received	Pending	Not Applicable
Ocean Dumping Permits under the Marine Protection Research and Sanctuaries Act	☐	☐	☒
Dredge or Fill Permits under the CWA	☐	☐	☒
Licenses under the Texas Radiation Control Act	☐	☐	☒
Other Environmental Permits			
Notice of Intent to Apply for a Compost Facility Permit or Regis	☒	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

12. General Facility Information

Facility Name: **Sealy Composting Facility**

MSW Authorization No. (if available):

Regulated Entity Reference No. (if issued)*: RN 108878331

Physical or Street Address (if available):

City: Sealy County: Austin State: Texas Zip Code: 77474

(Area Code) Telephone Number: 866-413-9494

Latitude (Degrees, Minutes Seconds): 29° 46' 33.55”

Longitude (Degrees, Minutes Seconds): -96° 04' 41.00"

Benchmark Elevation (above mean sea level): 148 ft.

Provide a description of the location of the facility with respect to known or easily identifiable landmarks: Northwest corner of Bartlett Road and U.S. Interstate 10 in Austin County, Texas. The Facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Detail access routes from the nearest United States or state highway to the facility: Traversing on U.S. Interstate 10, exit onto Bartlett Road and turn north on Bartlett Road. Then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located adjacent to Brazos 10 Lane on the south.

*If this number has not been issued for the facility, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Facility as the Regulated Entity.

13. Facility Type(s)

- ☐ Type I
- ☐ Type IV
- ☒ Type V
- ☐ Type I AE
- ☐ Type IV AE
- ☐ Type VI

14. Activities Conducted at the Facility

- ☒ Storage
- ☒ Processing
- ☐ Disposal

15. Facility Waste Management Unit(s)

- ☐ Landfill Unit(s)
- ☐ Class 1 Landfill Unit(s)
- ☒ Process Tank(s)
- ☒ Storage Tank(s)
- ☐ Tipping Floor
- ☐ Storage Area
- ☐ Container(s)
- ☐ Roll-off Boxes
- ☐ Surface Impoundment
- ☐ Incinerator(s)
- ☐ Autoclave(s)
- ☐ Refrigeration Unit(s)
- ☐ Mobile Processing Unit(s)
- ☐ Type VI Demonstration Unit
- ☒ Compost Pile(s) and/or Vessel(s)
- ☒ Other (Specify) retention pond
- ☐ Other (Specify)
- ☐ Other (Specify)

16. Description of the Revisions to the Facility

Skip this box, if "New" is selected under "Application Type".

Provide a brief description of all revisions to the permit conditions and supporting documents referenced by the permit. Also, provide an explanation of why the amendment is requested.

17. Facility Contact Information

Site Operator (Permittee/Registrant) Name: SouthWaste Disposal, LLC.

Customer Reference No. (if issued)*: CN 603436114

Mailing Address: Attn: Tim Cox, Vice President of Operations - 9575 Katy Freeway, Suite 130

City: Houston County: Harris State: Texas Zip Code: 77024

(Area Code) Telephone Number: 866-413-9494

E-mail Address: tcox@southwaste.com

TX Secretary of State (SOS) Filing Number: 800553020

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Operator Name[1]: Same as "Site Operator (Permittee/Registrant)"

Customer Reference No. (if issued)*:

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-mail Address:

TX SOS Filing Number:

[1]If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".
*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

Consultant Name (if applicable): Daniel B. Stephens & Associates, Inc. - Attn: Tom Golden

Texas Board of Professional Engineers Firm Registration Number: F-286

Mailing Address: Attn: Thomas Golden, P.E., Project Engineer - 4030 West Braker Lane, Suite 325

City: Austin County: Travis State: Texas Zip Code: 78759

(Area Code) Telephone Number: 800-933-3105

E-Mail Address: tgolden@dbstephens.com (Tom Golden, P.E. / Project En

Agent in Service Name (required only for out-of-state):

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

18. Facility Supervisor's License

Select the Type of License that the Solid Waste Facility Supervisor, as defined in 30 TAC Chapter 30, Occupational Licenses and Registrations, will obtain prior to commencing facility operations.

☐ Class A ☒ Class B

19. Ownership Status of the Facility

☒ Corporation	☐ Limited Partnership	☐ Federal Government
☐ Individual	☐ City Government	☐ Other Government
☐ Sole Proprietorship	☐ County Government	☐ Military
☐ General Partnership	☐ State Government	☐ Other (Specify):

Does the Site Operator (Permittee/Registrant) own all the facility units and all the facility property?

☐ Yes ☒ No

If "No", provide the information requested below for any additional ownership.

Owner Name: Mike Hicks

Street or P.O. Box: 1228 Brazos Ten Lane

City: Sealy County: Austin State: Texas Zip Code: 77474

(Area Code) Telephone Number: 832-643-0576

E-mail Address (optional): counthix@aol.com

20. Other Governmental Entities Information

Texas Department of Transportation District: Yoakum District

District Engineer's Name: Paul Reitz, P.E.

Street Address or P.O. Box: 403 Huck Street

City: Yoakum County: DeWitt State: Texas Zip Code: 77995

(Area Code) Telephone Number: (361) 293-4332

E-Mail Address (optional):

The Local Governmental Authority Responsible for Road Maintenance (if applicable): Austin County Commissioner, Precinct 4

Contact Person's Name: Douglas King

Street Address or P.O. Box: P.O. Box 754

City: Wallis County: Austin State: Texas Zip Code: 77485

(Area Code) Telephone Number: 979-478-7121

E-Mail Address (optional): dking@austincounty.com

City Mayor Information

City Mayor's Name: The Facility is located in area unincorporated area of Austin County, Texas

Office Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address (optional):

City Health Authority: Facility is located in area unincorporated area of Austin County, Texas

Contact Person's Name:

Street Address or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address (optional):

County Judge Information

County Judge's Name: Judge Tim Lapham

Street Address or P.O. Box: One East Main

City: Bellville County: Austin State: Texas Zip Code: 77418

(Area Code) Telephone Number: 979-865-5911

E-Mail Address (optional): tlapham@austincounty.com

County Health Authority: HEALTH SERVICE REGION 6/5 SOUTH

Contact Person's Name: Paul K. McGaha, D.O., M.P.H

Street Address or P.O. Box: 5425 Polk, Suite J

City: Houston County: Harris State: Texas Zip Code: 77023

(Area Code) Telephone Number: 979-865-5211

E-Mail Address (optional):

State Representative Information

District Number: Texas State House District 13

State Representative's Name: Representative Leighton Schubert

District Office Address: P.O. Box 2910

City: Austin County: Travis State: Texas Zip Code: 78768

(Area Code) Telephone Number: (512) 463-0600

E-Mail Address (optional):

State Senator Information

District Number: Texas State Senate District 18

State Senator's Name: Senator Lois W. Kolkhorst

District Office Address: 2000 S. Market St. #101

City: Brenham County: Austin State: Texas Zip Code: 77833

(Area Code) Telephone Number: (979) 251-7888

E-Mail Address (optional):

Council of Government (COG) Name: Houston-Galveston Area Council

COG Representative's Name: Mr. Jack Steele

COG Representative's Title: Executive Director

Street Address or P.O. Box: P.O. Box 22777

City: Houston County: Harris State: Texas Zip Code: 77227

(Area Code) Telephone Number: (713) 627-3200

E-Mail Address (optional): jack.steele@h-gac.com

River Basin Authority Name: Brazos River Authority

Contact Person's Name: Richard Ball

Watershed Sub-Basin Name: Lower Brazos Watershed

Street Address or P.O. Box: 4600 Cobbs Drive

City: Waco County: McLennan State: Texas Zip Code: 76710

(Area Code) Telephone Number: (254) 761-3100

E-Mail Address (optional):

Coastal Management Program

Is the facility within the Coastal Management Program boundary?

☐ Yes ☒ No

U.S. Army Corps of Engineers

The facility is located in the following District of the U.S. Army Corps of Engineers:

☐ Albuquerque, NM ☒ Galveston, TX

☐ Ft. Worth, TX ☐ Tulsa, OK

Local Government Jurisdiction

Within City Limits of: N/A

Within Extraterritorial Jurisdiction of: N/A

Is the facility located in an area in which the governing body of the municipality or county has prohibited the storage, processing or disposal of municipal or industrial solid waste?

☐ Yes ☒ No

(If "Yes", provide a copy of the ordinance or order as an attachment):

Signature Page

I, Tim Cox, VP of Operations,
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Tim Cox Date: 5-20-2016

- -

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, ____________________, hereby designate ____________________
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

____
Printed or Typed Name of Operator or Principal Executive Officer

____
Signature

- -

SUBSCRIBED AND SWORN to before me by the said Tim Cox
On this 20th day of May, 2016
My commission expires on the 4th day of December, 2017
Kayla M. Kabra
Notary Public in and for
HARRIS County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

Part I Attachments

(See Instructions for P.E. seal requirements.)

Required Attachments	**Attachment No.**
Supplementary Technical Report	Part III, App Q
Property Legal Description	Part I, App A
Property Metes and Bounds Description	Part I, App A
Facility Legal Description	Part I, App A
Facility Metes and Bounds Description	Part I, App A
Metes and Bounds Drawings	Part I, App A
On-Site Easements Drawing	Part I, App A
Land Ownership Map	Figure 4
Land Ownership List	Part I, Table 1
Electronic List or Mailing Labels	App R
Texas Department of Transportation (TxDOT) County Map	Figure 1
General Location Map	Figure 1
General Topographic Map	Figure 2
Verification of Legal Status	Part I, App C
Property Owner Affidavit	App B
Evidence of Competency	Part I

Additional Attachments as Applicable- Select all those apply and add as necessary

- [x] TCEQ Core Data Form(s)
- [x] Signatory Authority Delegation
- [x] Fee Payment Receipt
- [ ] Confidential Documents
- [ ] Waste Storage, Processing and Disposal Ordinances
- [ ] Final Plat Record of Property
- [x] Certificate of Fact (Certificate of Incorporation)
- [ ] Assumed Name Certificate

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application (Permit No. 2388)
San Felipe, Austin County, Texas

Submitted to **Texas Commission on Environmental Quality**
Austin, Texas

November 16, 2015
Revised
May 27, 2016

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

DBS&A engineering geoscience hydrology

Daniel B. Stephens & Associates, Inc.

Texas Registered Engineering Firm F-286
Registered Texas P.G. Firm #50045

4030 W. Braker Lane, Suite 325 • Austin, Texas 78759

Table of Contents

Part I Requirements of 30 TAC §330.59 for a Composting Facility

Section 1. Facility Permit Requirements 1
1.1 Municipal Solid Waste 1
1.1.1 Permit Applicability 1
1.1.2 MSW Permits 1
1.1.3 Water and Storm Water 1
1.1.4 Air Quality 2
1.1.5 Miscellaneous 2
1.2 Texas State Laws 2

Section 2. Operation and Process Summary 2

Section 3. Facility Location 3
3.1 Location 3
3.2 Access Routes 4
3.3 Geographic Coordinates 4

Section 4. Maps 4
4.1 General Location 4
4.2 General Topographic Maps 4
4.3 Land Use 4
4.4 Land Ownership 5

Section 5. Property Owner Information 5
5.1 Legal Description of the Facility 5
5.2 Property Owner Affidavit and Lease Agreement 5

Section 6. Legal Authority and Appointments 7
6.1 Legal Authority 7
6.2 Appointments 7

Section 7. Evidence of Competency 7
7.1 Other Operation Ownership 7
7.2 Financial Interest or Enforcement Actions 9

Part II Requirements of 30 TAC §330.60, Part II of the Application

Section 8. Existing Conditions Summary 10
8.1 Historical Land Use 10
8.2 Site Specific Conditions 10

Section 9. Climate 10

Section 10. Waste Acceptance Plan 11
10.1 Sources and Characteristics 11
10.2 Limiting Parameters 11
10.3 Prohibited Wastes and Materials 13
10.4 Un-compostable Materials 13

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Section 11. Feedstocks and Sources 13
11.1 Grease Trap Waste 14
11.2 OSSF Wastes 14

Section 12. Generation Areas 15
12.1 Service Population 15
12.2 Growth Trends 15

Section 13. Land Use 16
13.1 Zoning 16
13.2 Land Use Characterization 16
13.3 Site Soils and Geology 16
13.4 Waterways, Wetland, and Floodplain Use and Characterization 17
13.5 Groundwater and Water Wells 18
13.6 Other Wells 18
13.7 Structures and Site Proximity 19
13.8 Texas Historical Commission Review 19
13.9 Compatibility 19

Section 14. Water Quality 19
14.1 Construction Storm Water Discharge Permit 19
14.2 Multi Sector Storm Water Discharge Permit 19

Section 15. Air Quality 20
15.1 Control of Airborne Emissions 20
15.2 Minimizing Odors 20
15.3 Control of Windblown Material 20
15.4 Authorizations and Permits 20

Section 16. Access Roads 21
16.1 Roadway Data 21
16.2 Vehicular Traffic Volume 22
16.3 Facility Access Road Design Data 23
16.4 Facility Impact on Roadway System 23

References 23

Part III Site Development Plan for a Composting Facility

Section 17. General Facility Design 25
17.1 Facility Plan and Facility Layout 25
17.2 Facility Access 25
17.2.1 Operator in Charge 25
17.2.2 Operating Hours 25
17.2.3 Variance # 1 26
17.2.4 Facility Sign 26
17.2.5 Facility Access Control 26
17.3 Odor Control 27
17.4 Dust Control 27
17.5 Storage Units and Equipment Details 28
17.5.1 Storage Units 28
17.5.2 Compost Pad 28

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
5/27/16

17.5.3 Feedstock Storage Area 28
17.5.4 Liquid Transfer Equipment 28
17.5.5 Final Product Screening and Stockpile 29
17.6 Containment Dikes or Walls 29

Section 18. Process Description and Controls 29
18.1 Process Diagrams and Drawings 29
18.1.1 Variance #2 29
18.2 Equipment 30
18.3 Feedstock Identification 31
18.4 Receiving/Tipping Process 32
18.4.1 Feedstock 32
18.5 Processing 33
18.5.1 Material Processing 33
18.6 Post-Processing 34
18.7 Product Distribution 34
18.7.1 Compost 34
18.8 Sanitation 35
18.8.1 Run-on and Run-off Control 35
18.8.2 Cleaning Equipment and Connections 35
18.9 Non Hazardous Waste Storage and Disposal 36
18.9.1 Non-Hazardous Waste 36
18.9.2 Hazardous Wastes 36

Section 19. Endangered Species Protection 36

Section 20. Surface Water Protection Plan 37
20.1 Run-On and Run-Off Management System 37
20.2 Drainage Calculations 39
20.3 Erosion Control 39
20.4 Drainage Maps and Plans 39

Section 21. Geological Report 40
21.1 Regional and Local Geology/Hydrogeology 40
21.2 Subsurface Soil Investigation 40
21.3 Groundwater Investigation 42
21.4 Surrounding Water Wells 43
21.5 Geotechnical Study 45
21.6 Active Geologic Processes 45

Section 22. Groundwater Protection Plan 46
22.1 Liner and Pad System 46
22.2 Liner Quality Control Plan 46
22.3 Management Practices 47
22.4 Groundwater Monitor System 48

Section 23. Facility Closure Plan and Financial Assurance 48
23.1 Closure Plan Requirements 48
23.2 Operation Termination Requirements 49
23.3 Procedure for Closure of Facility by Operator 50
23.3.1 Removal 50

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

23.3.2 Decontamination 50
23.4 Closure Sampling and Analysis Plan 51
23.4.1 Sampling 51
23.4.2 Analysis 51
23.5 Reporting 52
23.6 Procedure for Closure of Facility by an Independent Third Party 52
23.7 Financial Assurance 53

References 53

Part IV Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a Composting Facility

Section 24. Personnel 55
24.1 Operator in Charge 55
24.1.1 Training 55
24.1.2 Duties 55
24.2 Laborers 55

Section 25. Equipment 56
25.1 Equipment Type, Function, Inspection, and Maintenance 56

Section 26. Production Processes 56
26.1 Control of Unloading for Unauthorized Materials 56
26.2 Material Processing 57
26.2.1 Liquids 57
26.2.2 Solids 58
26.2.3 Composting 58
26.3 Waste Storage and Disposal 59
26.3.1 Non-Hazardous Waste 59
26.3.2 Hazardous Wastes 59
26.4 Product Distribution 60

Section 27. Alternate Disposal 60
27.1 Non Standard Products 60

Section 28. Pollution Prevention Plan 60
28.1 Unauthorized Material 60
28.2 Sanitation and Litter 61
28.2.1 Facility Generated Wastes 61
28.2.2 Storage Requirements 62
28.2.3 Materials along the Route to the Facility 62
28.2.4 Work Area Sanitation 62
28.2.5 Employee Sanitation Facilities 62
28.2.6 Control of Windblown Material 62
28.2.7 Road Maintenance 63
28.3 Ventilation and Odor Control 63
28.4 Overloading and Breakdown 63
28.4.1 Design Capacity 63
28.4.2 Equipment Failures 64
28.4.3 Back Up Processing or Disposal 64

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

28.5 Final Product Use 64

Section 29. Vector Control Plan 65
29.1 Inspection and Monitoring 65
29.2 Facility Program Evaluation 66
29.3 Records and Documents 66

Section 30. Security 67
30.1 Facility Access 67

Section 31. Emergency Action Plan 68
31.1 Spills 68
31.2 Fire 68
31.3 Medical 68
31.4 Adverse Weather 68
31.5 Health and Safety Training 69

Section 32. Fire Prevention and Control Plan 69
32.1 Fire Response 69
32.2 Fire Prevention 70
32.3 Fire Control 71
32.4 Staff Training 71

Section 24. Personnel 55
24.1 Operator in Charge 55
24.1.1 Training 55
24.1.2 Duties 55
24.2 Laborers 55

Section 25. Equipment 56
25.1 Equipment Type, Function, Inspection, and Maintenance 56

Section 26. Production Processes 56
26.1 Control of Unloading for Unauthorized Materials 56
26.2 Material Processing 57
26.2.1 Liquids 57
26.2.2 Solids 58
26.2.3 Composting 58
26.3 Waste Storage and Disposal 59
26.3.1 Non-Hazardous Waste 59
26.3.2 Hazardous Wastes 59
26.4 Product Distribution 60

Section 27. Alternate Disposal 60
27.1 Non Standard Products 60

Section 28. Pollution Prevention Plan 60
28.1 Unauthorized Material 60
28.2 Sanitation and Litter 61
28.2.1 Facility Generated Wastes 61
28.2.2 Storage Requirements 62
28.2.3 Materials along the Route to the Facility 62

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
5/27/16

28.2.4 Work Area Sanitation 62
28.2.5 Employee Sanitation Facilities 62
28.2.6 Control of Windblown Material 62
28.2.7 Road Maintenance 63
28.3 Ventilation and Odor Control 63
28.4 Overloading and Breakdown 63
28.4.1 Design Capacity 63
28.4.2 Equipment Failures 64
28.4.3 Back Up Processing or Disposal 64
28.5 Final Product Use 64

Section 29. Vector Control Plan 65
29.1 Inspection and Monitoring 65
29.2 Facility Program Evaluation 66
29.3 Records and Documents 66

Section 30. Security 67
30.1 Facility Access 67

Section 31. Emergency Action Plan 68
31.1 Spills 68
31.2 Fire 68
31.3 Medical 68
31.4 Adverse Weather 68
31.5 Health and Safety Training 69

Section 32. Fire Prevention and Control Plan 69
32.1 Fire Response 69
32.2 Fire Prevention 70
32.3 Fire Control 71
32.4 Staff Training 71

Section 33. Spill Containment and Contingency Plan 72
33.1 Leak Detection 72
33.1.1 Storage Tanks 72
33.1.2 Liner 72
33.2 Spill Prevention and Control 72
33.2.1 Receiving and Liquid Feedstock Transfers 72
33.2.2 Sanitation 72
33.3 Spill Emergency Actions 73

Section 34. Recordkeeping and Reporting Requirements 73
34.1 Recordkeeping 73
34.2 Signatory 74
34.3 Reporting Requirements 75
34.3.1 Documentation and Reporting of Final Product Testing 75
34.3.2 Annual Reporting 75

Section 35. Sampling and Monitoring 76
35.1 Facility Inspections 76
35.1.1 Inspection Locations and Procedures 76
35.1.2 Reporting Requirements 76

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
5/27/16

35.2 Odor Audit/Investigation 77
35.3 Compost 78
35.3.1 Sampling and Analysis for Maturity 78
35.3.2 Sampling and Analysis of Final Product 79
35.4 Groundwater 80
35.4.1 Background Samples 80
35.4.2 Annual Samples 81
35.4.3 Analytical Methods 82
35.5 Data Precision and Accuracy 82
35.6 Documentation 82
35.7 Reporting Requirements 82

Section 36. Quality Assurance and Quality Control 83
36.1 Sampling, Monitoring, and Inspection 83
36.1.1 Records Control 83
36.1.2 Matrix Spikes and Matrix Spike Duplicates 84
36.1.3 Method Blanks 84
36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates 85
36.1.5 Surrogates 85
36.1.6 Data Reduction, Evaluation, and Review 85
36.1.7 Matrix Interferences and Sample Dilutions 85
36.1.8 Chain of Custody 86
36.1.9 Sample Collection and Preparation 87
36.1.10 Analytical Method Detection Limits and Method Performance 87
36.1.11 Instrument and Equipment Calibration and Frequency 88
36.1.12 Laboratory Case Narrative 89
36.2 Final Product Compost QA/QC 90

References 90

Requested Variances and Waivers

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

Part I

None

Part II

None

Part III

Variance #1 Extended waste acceptance hours. 26

Variance #2 Storage of bulk material and finished Grade 1 or Grade 2 compost. 29

Part IV

None

List of Tables

Part I

Table 1. Landowner List (½ Mile Radius) 6

Part II

Table 2. Final Product Analytical Requirements and Standards 12

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations 14

Table 4. Service Area and Population 15

Table 5. Roadway Data 22

Table 6. Vehicular Traffic Volume 23

Part III

Table 7. Equipment 30

Table 8. Energy and Mass Balance Calculations 31

Table 9. Surrounding Well Information 42

Table 10. Wells within ½ Mile 43

Table 11. Saturated Hydraulic Conductivities 45

Part IV

Table 12. MSW Disposal Limits 61

Table 14. Facility Inspections 76

Table 15. Final Product Analytical Requirements and Standards 79

Table 16. Groundwater Sampling Parameters 81

List of Figures

Part I

Figure 1 Facility Location Map

Figure 2 Topographic Map

Figure 3 Land Use Map

Figure 4 Landowner Property Map

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

List of Figures (continued)

Part II

Figure 5 Wind Rose Map

Figure 6 Wetland Map

Figure 7 Flood Plain Map

Figure 8 Access Road Map

Part III

Figure 9 Process Diagram

Figure 10 Pre-Construction On-Site Drainage Map

Figure 11 Post-Construction On-Site Drainage Map

Figure 12 Geologic Map

Figure 13 Stratigraphic Column

Figure 14 Hydrogeologic Cross Section

Figure 15 Potentiometric Surface Elevation Map, October 2015

Figure 16 Generalized Cross-Section A-A'

List of Drawings

Part III

Sheet 1 Title Sheet

Sheet 2 General Notes and Legend

Sheet 3 Site Plan

Sheet 4 Grading Plan and Profile - 1

Sheet 5 Grading Plan and Profile - 2

Sheet 6 Drainage Plan

Sheet 7 Civil Details

Sheet 8 Drainage Details

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

List of Appendices

Part I

Appendix A Boundary Metes and Bounds with Drawing

Appendix B Owner Affidavit and Lease Agreement

Appendix C Secretary of State Certificate of Incorporation

Part II

Appendix D Historical Aerial Photographs

Appendix E NRCS Custom Soil Resource Report

Appendix F Biological Assessment

Appendix G EDR TX Water Well Report & Oil and Gas Report

Appendix H Texas Historical Commission Review

Part III

Appendix I Stormwater Drainage Analysis

Appendix J Approved Boring Plan

Appendix K Boring Logs

Appendix L Geotechnical Laboratory Reports

Appendix M Liner Construction Quality Assurance Plan

Appendix N Closure Cost Summary & Estimate

Part IV

None

General Appendices

Appendix O TxDOT Correspondence

Appendix P Council of Government and Local Government Correspondence

Appendix Q Supplementary Technical Report

Appendix R Mailing Labels

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSDS	Material Safety Data Sheet
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility

List of Acronyms (continued)

pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
yd	yard(s)

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Part I

Requirements of 30 TAC §330.59 for a Composting Facility

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART I

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN:	603436114
Owner/Operator:	SouthWaste Disposal, LLC.
Address:	9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024
Telephone:	866-413-9494
Email:	tcox@southwaste.com
Fed Tax ID:	203596390

Preparer Information

Firm:	Daniel B. Stephens & Associates, Inc. (Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)
Preparer:	Benjamin Camacho
Engineer:	Thomas Golden, P.E.
Address:	4030 West Braker Lane, Suite 325, Austin, Texas 78759
Telephone:	800-933-3105
Email(s):	bcamacho@dbstephens.com & tgolden@dbstephens.com

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Table of Contents

Part I *This document constitutes the requirements of 30 TAC §330.59 for a composting facility.*

Section 1. Facility Permit Requirements 1
1.1 Municipal Solid Waste 1
1.1.1 Permit Applicability 1
1.1.2 MSW Permits 1
1.1.3 Water and Storm Water 1
1.1.4 Air Quality 2
1.1.5 Miscellaneous 2
1.2 Texas State Laws 2

Section 2. Operation and Process Summary 2

Section 3. Facility Location 3
3.1 Location 3
3.2 Access Routes 4
3.3 Geographic Coordinates 4

Section 4. Maps 4
4.1 General Location 4
4.2 General Topographic Map 4
4.3 Land Use 4
4.4 Land Ownership 5

Section 5. Property Owner Information 5
5.1 Legal Description of the Facility 5
5.2 Property Owner Affidavit and Lease Agreement 5

Section 6. Legal Authority and Appointments 7
6.1 Legal Authority 7
6.2 Appointments 7

Section 7. Evidence of Competency 7
7.1 Other Operation Ownership 7
7.2 Financial Interest or Enforcement Actions 9

Requested Variances and Waivers

Part I

None

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

List of Tables

Part I

Table 1. Landowner List (½ mile radius) 6

List of Figures

Part I

Figure 1	Facility Location Map
Figure 2	Topographic Map
Figure 3	Land Use Map
Figure 4	Landowner Property Map

List of Drawings

Part I

None

List of Appendices

Part I

Appendix A	Boundary Metes and Bounds with Drawing
Appendix B	Owner Affidavit and Lease Agreement
Appendix C	Secretary of State Certificate of Incorporation

List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality

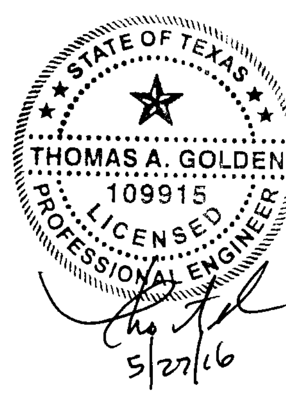
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

°F	Fahrenheit degrees
FM	Farm to Market Road
ft	feet
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	Safety Data Sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program



Section 1. Facility Permit Requirements

The SouthWaste Disposal, LLC Sealy Composting Facility (the Facility) will generate approximately 5,200 cubic yards of finished compost per month and is required to obtain a permit for the composting operations. The Facility requires a permit and is subject to 30 TAC §330, 30 TAC §332, and other sundry rules.

The Facility will consist of bulk material chipping and storage areas, a lined grease trap waste/septic/sewage sludge (GSS) processing area (composting pad), a composting area for other approved non-GSS waste, a compost pad retention pond, a post-processing area, aboveground feedstock storage tanks, and office areas (which include toilet and potable water facilities). GSS composting and curing processes will be restricted to the lined GSS processing area. Yellow grease processing may be added to future operations, which would be discussed in a future permit modification.

1.1 Municipal Solid Waste

1.1.1 Permit Applicability

The Facility will store, handle, process, and dispose of municipal solid waste (MSW). This application is for a new composting permit to process GSS and non-GSS waste and to compost the solids from these waste sources. Other activities performed within the Facility boundaries that do not require a permit under 30 TAC §332 include the use of tankage/equipment related to a liquid waste transfer station, storage and composting of food wastes, and chipping and grinding operations. These activities will be incorporated as part of this Facility permit. The Facility is not a medical waste mobile treatment or a mobile treatment unit.

Compliance information is discussed in the Site Development Plan presented in Part III of this application. This Facility does not store combustible material and is not required to comply with TAC §37, Subchapter J. Groundwater monitoring may be required by the Executive Director and will be maintained in accordance with the requirements of §330 Subchapter J, if required.

1.1.2 MSW Permits

1. Municipal Solid Waste Facilities TAC §30§330
    a. 30TAC §330.1 (d): The Facility will compost MSW in accordance with the requirements of 30TAC §332, but is required to apply for a permit in accordance with 30TAC §332.3(a). The application will follow the applicable requirements of 30TAC §330 Subchapter B.
2. 30TAC §332: Composting

1.1.3 Water and Storm Water

1. Spill Prevention and Control 30TAC §327
2. TPDES Multisector General Permit TXR050000 – Storm Water
    a. Sector C: Chemical and Allied Products

1.1.4 Air Quality

1. RULE §106.4 Requirements for Permitting by Rule
2. RULE §106.472 Organic and Inorganic Liquid Loading and Unloading
3. Composting Standard Permit Rule §332.8 Air Quality Requirements

1.1.5 Miscellaneous

4. Financial Assurance 30TAC §37
5. Public Notice 30TAC §39

1.2 Texas State Laws

6. Texas Solid Waste Disposal Act, Texas Health and Safety Code (THSC) Chapter 361
7. Texas Litter Abatement Act, THSC Chapter 365
8. Texas Toxic Chemical Release Reporting Act, THSC Chapter 370
9. Texas Clean Air Act, THSC Chapter 382
10. Texas Water Code (TWC) Chapter 26 (relating to Water Quality Control)

Section 2. Operation and Process Summary

The Facility will divert organic materials from typical MSW streams for beneficial reuse while maintaining standards for human health and safety and environmental protection. The Facility will produce compost from non-hazardous MSW. The Facility is required to obtain a compost permit.

The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this Facility. The other feedstock accepted at the Facility will include municipal sewage sludge, food processing waste, and septage wastewater. The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be received either chipped or screened or in raw form, in which case it will be chipped on the property. All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking materials will be stored and then chipped and screened at a designated area. The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

The liquid feedstock will be pumped either into aboveground storage tanks for temporary storage or to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks.

Feedstock material will be applied to the windrows using a vacuum truck or equivalent. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstock material to be evenly distributed throughout the windrows and prevents moisture or liquids from collecting at the base of the compost material. Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, then the temperature within the mixture throughout the windrow will be monitored.

After the monitoring period, the final composted product will be placed in a stockpile on the lined processing area for curing. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches and will be tested for maturity and final product parameters. Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (waste grade compost) will be disposed off-site at an authorized MSW facility. Compost will initially be sold in bulk form. However, the facility may sell containerized compost at some time in the future.

Section 3. Facility Location

3.1 Location

Project Name: SouthWaste Disposal, LLC Sealy Composting Facility

Project Location: Northwest corner of Bartlett Road and U.S. Interstate 10 in Austin County, Texas

Project Location Description: The Facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

3.2 Access Routes

Route 1: Traversing on U.S. Interstate 10, exit onto Bartlett Road and turn north on Bartlett Road. Then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located adjacent to Brazos 10 Lane on the south.

3.3 Geographic Coordinates

The latitude and longitude of the approximate centroid of the property are 29° 46' 33.55” North and –96° 04' 41.00" West, respectively (North American Datum of 1983).

Section 4. Maps

4.1 General Location

The Site is located near the city of San Felipe, just east of the city of Sealy, in Austin County, Texas. See Figure 1 for a Facility Location Map. The Facility Location Map is scaled at ½ inch equals 1 mile. The property boundaries and longitudinal and latitudinal coordinates have been overlaid on the enlarged map. The Facility location map accurately shows proximity to surrounding features.

The property is 32.209 acres in size and irregular in shape.

4.2 General Topographic Map

The Topographic Map (Figure 2) is an excerpt of United States Geological Survey 7½-minute quadrangle sheets as an equivalency for the facility. The topographic map is at a scale of 1 inch equals 2,000 feet (1:24,000).

4.3 Land Use

The Land Use Map (Figure 3), on a scale of 1 inch equals ½ mile, depicts boundaries of the tract of land to be used by the applicant and extends at least 1 mile beyond the tract boundaries sufficient to show the following:

- Each well, spring, and surface water body or other water of the state within the map area;
- The general character of the areas adjacent to the Facility, including public roads, towns, and the nature of development of adjacent lands such as residential, commercial, agricultural, recreational, undeveloped, and so forth;
- The location of any waste disposal activities conducted on the tract not included in the application; and,
- The ownership of tracts of land adjacent to the Facility and within a reasonable distance from the proposed point or points of discharge, deposit, injection, or other place of disposal or activity.

4.4 Land Ownership

The landowners within ½ mile of the Facility boundaries listed in the following table are shown on Figure 4. The source of the names and addresses of property owners is the Austin County Appraisal District Database.

The Land Ownership Map (Figure 4), along with the list of landowners (Table 1), identifies properties owned by adjacent and potentially affected landowners within ½ mile of the Facility boundaries. The mineral interest ownership, designated as executive rights, under the facility is owned by the property owner, Michael and Carolyn Hicks (INST #997087 DRACTX).

Section 5. Property Owner Information

5.1 Legal Description of the Facility

The Facility is located near the cities of Sealy and San Felipe in Austin County, Texas. The following is a legal description with deed record information.

> Legal Description: 32.209 ACRES: ALL THAT TRACT OR PARCEL OF LAND consisting of 32.209 Acres located in the Stephen F. Austin Survey, A7, Austin County, Texas. Subject tract being a portion of the 62.53606 Acre tract described in Deed to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas.

As of submission of this application, the County had not completed its final plat in its records for this property. The survey (Appendix A) drawing is considered the final plat submitted to Austin County.

The Boundary Metes and Bounds with Drawing, included as Appendix A, is an official metes and bounds description and drawing of the proposed facility prepared and sealed by a registered surveyor.

5.2 Property Owner Affidavit and Lease Agreement

A property owner affidavit signed by the property owner includes the statements and affirmations of §330.59 (d) (2) (A), (B), (C). An executed Commercial Contract for Unimproved Property between SouthWaste, the "Buyer," and Mr. Mike Hicks dated May 4, 2015, the property owner and "Seller," is included in Appendix B.

According to the Commercial Contract for Unimproved Property, SouthWaste has agreed to lease the property for a term of 24 months, beginning 60 days following the effective date of the contract. At the end of the 24-month lease term, the 32.209-acre property will be sold to SouthWaste.

Table 1. Landowner List (½-mile radius)

Map #	Owner	Address
34, 35	Alvin Konvicka	516 Acres Lane, Sealy, Texas 77474
32	Barry Wayne Jackson	1723 Prince George Court, Katy, Texas 77492
40, 41	Beatrice Mae Haczynski	12040 Mlcak Road, Sealy, Texas 77474
46	Bhaidani Ali	5003 Skipping Stone Loane, Sugarland, Texas 77479
11	Brian and Ramona Valenti	3911 Wood Park, Sugarland, Texas 77479
47	Cardenas Rebecca	5408 Holly St, Bellaire, TX 774014704
37	Charles Mlcak	4106 Sea Meadow Court, Katy, Texas 77494
39	Christopher Haczynski	12040 Mlcak Road, Sealy, Texas 77474
22	Clem Buchala	263 Manak Road, Sealy, Texas 77474
17	David Wickens Family Partnership, LTD.	3027 Willow Oak Lane, Sealy, Texas 77418
13	DNAR, LLC	PO Box 396, Barker, Texas 77413
45	Donna Cash	7625 SE IH 10 Frontage Road, Sealy, Texas 77474
12	Douglas and Linda Simmons	11326 Inwood Drive, Houston, Texas 77077
8	Farshad Nazemi	11305 Green Vale, Houston, Texas 77024
15	Frank and Victoria Chou	2585 Meyer Road, Sealy, Texas 77474
36	Fred and JoAnn Buri	7918 Hilshire Green Drive, Houston, Texas 77005
9, 10	GeoSouthern Energy Corporation	1425 Lake Front Circle, Suite 200, The Woodlands, Texas 77380
44	Geraldine Hamil	7595 SE IH 10 Frontage Road, Sealy, Texas 77474
42	James Lezak	9455 Lake Drive, Chappell Hill, Texas 77426
30	Jeanette Kucera	131 Lezak Road, Sealy, Texas 77474
38	Jeanne Netardus	8518 Ivy Falls Court, Houston, Texas 77040
27	John Gannon, Inc.	525 Park Grove, Katy, Texas 77450
20	Joseph Walker Dudgeon, Jr. Trustee	23042 260th Avenue, Centerville, Iowa 52544
25, 29	JWJ Stone Properties	PO Box 277, San Felipe, Texas 77473
26	Kenneth and Cheri Bumbera	413 Brazos Hill Lane, Sealy, Texas 77474
48	Levine Sidney	PO Box 592, Sealy, TX 77474
43	Maxine Rudloff	7439 SE IH 10 Frontage Road, Sealy, Texas 77474
1	Michael and Carolyn Hicks	1228 Brazos Ten Lane, Sealy, Texas 77474
28	Patricia Bagwell	PO Box 473, San Felipe, Texas 77473
2, 4	Pencco	PO Box 600, San Felipe, Texas 77473
3	Reactive Metals & Alloy Metals	PO Box 786, Sealy, Texas 77474
16, 21	Richard and Carol Papso	10 Preston Court, Sugarland, Texas 77479
24	Rubie Mae Buchala	477 Manak Road, Sealy, Texas 77474
19	Rudolfo and Celia Pena	3226 Mulberry Lane, Houston, Texas 77084
14	Terrell Burtschell	106 6th Street, Sealy, Texas 77474
23	Victoria Buchala	6060 NE IH 10 Frontage Road, Sealy, Texas 77474
5, 6, 7	Vital Link, Inc.	PO BOX 303, San Felipe, Texas 77473
33	Whitehorse Development, LLC	2352 FM 1094, Sealy, Texas 77474
18	William Skrivanek	2226 Skrivanek Road, Sealy, Texas 77474
31	Woodridge Development LP	PO Box 22606, Houston, Texas 77227

Section 6. Legal Authority and Appointments

6.1 Legal Authority

SouthWaste has provided verification of legal status in the form of a one-page certificate of incorporation issued by the Secretary of State (Appendix C). The Secretary of State filing number for SouthWaste (owner and operator) is SOS#800553020.

6.2 Appointments

SouthWaste Disposal, LLC is a corporation, and the application will be signed by Mr. Tim Cox, Vice President of Operations for SouthWaste. Mr. Cox meets the requirements of TAC §305.44 related to the delegation of signatory authority. Mr. Cox has been granted legal authority to sign and encumber SouthWaste Disposal, LLC.

Section 7. Evidence of Competency

7.1 Other Operation Ownership

SouthWaste owns and operates several active MSW facilities throughout Texas, as indicated below:

RN Number:	RN101478071		
Name:	SouthWaste Disposal, LLC San Antonio Facility		
Primary Business:	Organic composting		
Street Address:	20805 Old Limn Road		
County: Bexar	*Nearest City:* Elmendorf	*State:* TX	*Zip Code:* 78112
Physical Location:			
7 miles west of Elmendorf near roadway 1 mile southwest of Interstate Highway 37			
Customer's Role:	Owner / Operator	*Begin Date*:	06/04/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2317	Active
Petroleum storage tank	Registration	87042	Active
Storm water	Permit	TXR05BC61	Active

RN Number:	RN105876601		
Name:	Austin Liquid Waste Processing Facility		
Primary Business:	No primary business description on file		
Street Address:	828 Linger Lane		
County: Travis	*Nearest City:* Austin	*State:* TX	*Zip Code:* 78725
Physical Location:			
Located on Linger Lane approximately 800 feet southwest of the intersection of Highway 183 and Linger Lane			
Customer's Role:	Owner	*Begin Date*:	NA
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2367	Active

RN Number:	RN101289171		
Name:	SouthWaste Disposal, LLC South Plains Facility		
Primary Business:	Grease and grit trap processing		
Street Address:	801 North Avenue P		
County: Lubbock	*Nearest City:* Lubbock	*State:* TX	*Zip Code:* 79403
Physical Location:			
No physical location description on file			
Customer's Role:	Owner / Operator	*Begin Date*:	05/05/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2231	Active

RN Number:	RN103155800 RN101288603		
Name:	SouthWaste Disposal Hurst Facility		
Primary Business:	Industrial chemical manufacturing plant		
Street Address:	6407 Hurst Street		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77024
Physical Location:			
1.933 acres located on 6407 Hurst Street in Houston, Harris County			
Customer's Role:	Owner / Operator	*Begin Date*:	01/01/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Sludge	Registration	23737	Cancelled
Sludge	Registration	24075	Active
Air new source permits	Registration	120677	Active
Air new source permits	Registration	120683	Active
MSW processing	Permit	2241A	Active
MSW processing	Permit	2241B	Pending
Storm water	Permit	TXR05BV26	Active

RN Number:	RN102327715		
Name:	SouthWaste Disposal Dallas Facility		
Primary Business:	No primary business description on file.		
Street Address:	525 South 6th Avenue		
County: Tarrant	*Nearest City:* Mansfield	*State:* TX	*Zip Code:* 76063
Physical Location:			
Located at 525 South 6th Avenue in the city of Mansfield approximately ½ mile south of the intersection of 6th Avenue and Broad Street			
Customer's Role:	Owner / Operator	*Begin Date*:	10/23/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air New Source Permits	Registration	115976	Active
MSW Processing	Permit	2256	Active
Storm water	Permit	TXRNEW710	Active

RN Number:	RN102803590		
Name:	SouthWaste Disposal Lockwood Facility		
Primary Business:	No primary business description on file		
Street Address:	753 Lockwood Drive		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 78112
Physical Location:			
753 Lockwood Drive 0.4 mile south of Clinton Drive, Houston, Texas			
Customer's Role:	Owner / Operator	*Begin Date*:	02/16/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air new source permits	Registration	11741	Active
MSW processing	Permit	1117	Canceled

SouthWaste is experienced with MSW facility type operations and understands the MSW rules and regulations set forth by the State of Texas. SouthWaste is currently staffed with several licensed solid waste facility supervisors that manage SouthWaste operations throughout Texas. Prior to operating the Sealy Composting Facility, SouthWaste will designate a licensed solid waste facility supervisor. In addition, the Facility will employ at least one TCEQ-certified compost operator within six months from the initiation of operations at the Facility. The TCEQ-certified compost operator will routinely be on-site during the hours of operation. Mr. Tim Cox is the principal and supervisor of the Facility's organization.

7.2 Financial Interest or Enforcement Actions

Currently, SouthWaste has one financial interest in a solid waste site in another state, territory, or country outside the State of Texas, which includes their Central Florida Disposal Interests facility located in Groveland, Florida. SouthWaste does not have any final enforcement orders, court judgments, consent decrees, or criminal convictions by the State of Texas, the State of Florida, or the federal government within the last five years relating to compliance with applicable legal requirements relating to the handling of solid or liquid waste under the jurisdiction of the TCEQ, the Florida Department of Environmental Protection, or the United States Environmental Protection Agency (U.S. EPA).

Part II

Requirements of 30 TAC §330.60

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART II

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Table of Contents

Part II *This document constitutes the requirements of 30 TAC §330.60, Part II of the Application.*

Section 8. Existing Conditions Summary 10
8.1 Historical Land Use 10
8.2 Site Specific Conditions 10

Section 9. Climate 10

Section 10. Waste Acceptance Plan 11
10.1 Sources and Characteristics 11
10.2 Limiting Parameters 11
10.3 Prohibited Wastes and Materials 13
10.4 Un-compostable Materials 13

Section 11. Feedstocks and Sources 13
11.1 Grease Trap Waste 14
11.2 OSSF Wastes 14

Section 12. Generation Areas 15
12.1 Service Population 15
12.2 Growth Trends 15

Section 13. Land Use 16
13.1 Zoning 16
13.2 Land Use Characterization 16
13.3 Site Soils and Geology 16
13.4 Waterways, Wetland, and Floodplain Use and Characterization 17
13.5 Groundwater and Water Wells 18
13.6 Other Wells 18
13.7 Structures and Site Proximity 19
13.8 Texas Historical Commission Review 19
13.9 Compatibility 19

Section 14. Water Quality 19
14.1 Construction Storm Water Discharge Permit 19
14.2 Multi Sector Storm Water Discharge Permit 19

Section 15. Air Quality 20
15.1 Control of Airborne Emissions 20
15.2 Minimizing Odors 20
15.3 Control of Windblown Material 20
15.4 Authorizations and Permits 20

Section 16. Access Roads 21
16.1 Roadway Data 21
16.2 Vehicular Traffic Volume 22
16.3 Facility Access Road Design Data 23
16.4 Facility Impact on Roadway System 23

References 23

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

Requested Variances and Waivers

Part II

None

List of Tables

Part II

Table 2. Final Product Analytical Requirements and Standards 12

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations 14

Table 4. Service Area and Population 15

Table 5. Roadway Data 22

Table 6. Vehicular Traffic Volume 23

List of Figures

Part II

Figure 5 Wind Rose Map

Figure 6 Wetland Map

Figure 7 Flood Plain Map

Figure 8 Access Road Map

List of Appendices

Part II

Appendix D Historical Aerial Photographs

Appendix E NRCS Custom Soil Resource Report

Appendix F Biological Assessment

Appendix G EDR TX Water Well Report & Oil and Gas Report

Appendix H Texas Historical Commission Review

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Acronyms

ADT	average daily traffic
BMPs	best management practices
CGP	Construction General Permit
EDR	Environmental Data Resources
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
GSS	grease trap waste/septic/sewage sludge
MSW	municipal solid waste
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OIC	Operator in Charge
OSSF	on-site sewage facility
PBR	Permit by Rule
PCB	polychlorinated biphenyls
PBR	Permit by Rule
SSO	sanitary sewer overflows
SWPPP	Storm Water Pollution Prevention Plan
TDWR	Texas Department of Water Resources
THC	Texas Historical Commission
TWBD	Texas Water Development Board
TXDOT	Texas Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tanks
WOTUS	Waters of the U.S.
yd	yard(s)

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

Section 8. Existing Conditions Summary

8.1 Historical Land Use

Daniel B. Stephens & Associates, Inc. (DBS&A) performed a Phase I Environmental Site Assessment (ESA) for the property in June 2015. According to the previous property owner, the property was never developed or used to store materials. The property was owned by Sea Corps prior to 1995 and was undeveloped during Sea Corps ownership. Based on a review of aerial photography ranging in dates from 1953 through 2012, the property appears to still be undeveloped.

8.2 Site Specific Conditions

The following property information was observed by DBS&A personnel during the June 2015 Phase I ESA site visit. The property, an approximately 32.209 acre tract of undeveloped land, is covered primarily with vegetation and native soil and does not contain any paved areas. A gravel road is located at the northern portion of the property. A man-made pond was observed in the eastern portion of the property on the day of the site visit. According to the property owner, the pond area was excavated and utilized as a stock pond. No structures, other than an unused wooden shed at the northwestern portion of the property, were observed during the Phase I ESA site visit. No evidence of underground storage tanks (USTs) or hydraulic/stationary lifts was observed. There were no signs of distressed vegetation or standing water observed during the site visit. DBS&A personnel did not observe any areas of staining on soil throughout the undeveloped property, and no unusual odors or stressed vegetation were noted. No storage tanks, drums, or other containers were observed at the property. No fill dirt or evidence of fill activities was observed at the property on the day of inspection. No hazardous materials, petroleum products, or waste storage areas were observed at the property.

Section 9. Climate

The average climate of Austin County is humid subtropical with hot summers. Evaporation and precipitation rates are provided on the Texas Water Development Board (TWDB) web site (http://www.twdb.texas.gov/surfacewater/conditions) for 1-degree quadrangular areas across the state. Austin County falls within quadrangle numbers 711 and 811. The data provided are based on sites operated by the National Weather Service and the Texas Department of Water Resources (TDWR). The average annual evaporation, based on data collected from 1954 through 2014, is 51.6 inches, and average annual precipitation, from 1940 through 2014, is 40.46 inches.

Prevailing winds are southerly March through November and northerly December through February. The Wind Rose, included as Figure 5, illustrates the predominant winds of Houston, Texas, which most accurately emulate the winds at the property.

Section 10. Waste Acceptance Plan

10.1 Sources and Characteristics

Sheet 3 of the Drawings section shows the facility plan and layout, including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that drawing, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, all structures, and other improvements to the property.

An estimated 270,000 tons of feedstock will be composted annually. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this facility. Expected to account for 10 percent or less of the incoming feedstock, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped at the Facility. An estimated 111 tons of chipped bulking material may be placed on the processing area daily.

All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials as described in Part III.

10.2 Limiting Parameters

The anticipated final product grade of compost will be Grade 1. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

In order to confirm compost grade classification, two types of sampling and analysis will be performed at the Facility: sampling and analysis for maturity and sampling and analysis for final product grading.

A Maturity Protocol (maturity testing presented in Part III) has been developed to measure the potential for biological activity in the composted materials at the completion of the composting process.

In addition to maturity testing, all batches of final product will be analyzed for the parameters using the methods listed in Table 2, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury and will meet the other applicable standards presented in Table 2. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

Table 2. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total metals			
As	SW-846, Method 6020	≤10 mg/kg	≤41 mg/kg [a]
Cd	SW-846, Method 6020	≤16 mg/kg	≤39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤180 mg/kg	≤1200 mg/kg [a]
Cu	SW-846, Method 6020	≤1020 mg/kg	≤1500 mg/kg [a]
Pb	SW-846, Method 6020	≤300 mg/kg	≤300 mg/kg [a]
Hg	SW-846, Method 7470	≤11 mg/kg	≤17 mg/kg [a]
Mo	SW-846, Method 6020	≤75 mg/kg	≤75 mg/kg [a]
Ni	SW-846, Method 6020	≤160 mg/kg	≤420 mg/kg [a]
Se	SW-846, Method 6020	≤36 mg/kg	≤36 mg/kg [a]
Zn	SW-846, Method 6020	≤2190 mg/kg	≤2800 mg/kg [a]
Maturity / Stability	Maturity Protocol	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis	≤1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media (SW 9045D)	5.0 to 8.5 [b]	5.0 to 8.5 [b]
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/com	10 mmhos/com
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost that is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.
[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

Both maturity testing and final product testing are further discussed in Part III and IV.

10.3 Prohibited Wastes and Materials

This facility does not accept:

- Regulated hazardous waste,
- Used or scrap tires,
- Lead acid storage batteries,
- Polychlorinated biphenyls (PCB) wastes,
- Used motor vehicle oil,
- Items containing chlorinated fluorocarbon,
- Used oil filters; and
- Radioactive materials.

No special authorization is requested to accept Conditionally Exempt Small Quantity Generator Waste not listed as feedstock or for the disposal of Special Wastes or Industrial Wastes.

10.4 Un-compostable Materials

Only the designated feedstocks will be accepted at the Facility. Delivery trucks entering the property are inspected by the Operator in Charge (OIC) for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are either refused, or the drivers are directed to remove the unacceptable material from the load and then remove it from the property. In the event that unprocessable, prohibited, or unauthorized materials are discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized MSW facility.

Section 11. Feedstocks and Sources

The liquid feedstock will be pumped into either one of eight 31,500-gallon aboveground storage tanks for temporary storage or to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall when feedstock application is limited. No feedstock will be accepted in excess of the available capacity of the storage tanks.

The Facility may generate approximately 5,200 cubic yards of finished compost per month. Some chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. Chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and mass balance calculations for the GSS and non-GSS waste composting process are presented in Part III, Section 18.3.

11.1 Grease Trap Waste

Approximately 90 percent of the incoming feedstock accepted at the Facility will be grease trap waste. Grease traps are used by food service and processing establishments to separate out fats, oils, and greases in wastewater from dishwashers, sinks, floor drains, and dumpster pads. If grease and solids accumulations are not routinely pumped out of the trap, the grease overflows the trap, settles in the sewer collection system, and plugs up the sewer, thereby contributing to sanitary sewer overflows (SSO). Increasing public and regulatory concern over the potential public health and environmental impacts of SSO has increased maintenance of grease traps.

Grease trap wastes are siphoned out of traps as a liquid with about 5 to 6 percent total solids content. The waste contains grease, water, and sediment (food particles) that are washed down the drain. The grease is essentially comprised of fats and oils (triglycerides), which are comprised of one unit of a sugar alcohol (glycerol $C_3H_8O_3$) and three units of fatty acids. Fats and oils contain twice the energy of other organic materials.

The high energy content of the grease trap waste is advantageous to composting when high temperatures are needed to ensure pathogen reduction. The grease coats the bulking agent, which offers large surface areas for microbial decomposition in a compost pile. The high energy content encourages a more rapid rise in composting temperatures, which kills the pathogens that make humans ill (BioCycle, 2006). The large surface area accelerates the decomposition of the raw materials.

11.2 OSSF Wastes

On-site sewage facility (OSSF) septage is a slurry (solids content of only 3 to 10 percent) of organic and inorganic material. Septage includes pumpings from septic systems, aerobic treatment unit tanks, holding tanks, composting toilets, chemical or vault toilets, and other systems that receive domestic wastewaters. The exact composition of septage from a particular treatment system is highly dependent upon the activities and habits of its users. Table 3 lists the average metal concentration of septage (U.S. EPA, 1993).

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations

Parameter	Concentration (mg/L)			
	Septage	Biosolids	Part 503 Limits	Grade 1 Compost
Arsenic	4	10	41	10
Cadmium	3	7	39	16
Chromium	14	120	1,200	180
Copper	140	740	1,500	1,020
Mercury	0.15	5	17	11
Nickel	1.5	43	420	160
Lead	35	130	300	300
Selenium	2	5	100	36
Zinc	290	1,200	2,800	2,190

mg/L = Milligrams per liter

Section 12. Generation Areas

12.1 Service Population

The Facility will serve at least the counties listed in Table 4. The total potential population serviced is 6,412,450 persons (U.S. Census, 2014).

Table 4. Service Area and Population

County	Population 2014	County	Population 2014
Austin	29,114	Grimes	27,172
Bastrop	78,069	Harris	4,441,370
Burleson	17,253	Lee	16,742
Chambers	38,145	Liberty	78,117
Colorado	20,719	Montgomery	518,947
Fayette	24,833	Waller	46,820
Fort Bend	685,345	Washington	34,438
Galveston	314,198	Wharton	41,168
		Total Serviced	6,412,450

12.2 Growth Trends

The U.S. Census Bureau estimates a rural population of 44 persons per square mile. The Austin County population in 2014 was 29,114 (34 percent urban and 66 percent rural); it was 23,590 in 2000 (City-Data 2015), indicating that the county's population has increased at an average rate of 23.4 percent per year from 2000 to 2014. Bellville is the county seat, and other municipalities in the county are Sealy, Wallis, Brazos Country, Industry, and San Felipe. The total area of Austin County is 663 square miles. Austin County is rural in nature, but is networked by two main thoroughfares: U.S. Interstate 10 (I-10) and State Highway 36. The manufacturing, trade, service, agriculture, and local government sectors fuel the county's employment. According to the Texas Labor Market Review for August 2015, Austin County has experienced a 2.0 percent to 3.2 percent job growth rate since 2014 compared to the 2.5 percent Texas average.

A series of aerial photographs (scale of 1 inch equals 2,000 feet) showing the property and areas within a 1-mile radius of the site boundaries are included in Appendix D. The quality of evaluation of aerial photographs is controlled by the photograph's scale and quality. The aerial photographs show the development of the area within 1 mile of the property during the years 1977 to 2014. These photographs indicate a slow growth of the agriculture, commercial, and manufacturing industries with minimal increase to residential development. The Facility is bordered to the north by Brazos 10 Lane and residential properties. A sewage chemical treatment production company (Pencco Sealy) is located northeast of the Facility. The Facility is bordered to the west by undeveloped land and wooded areas. The Facility is bordered to the south by Union Pacific Railroad, wooded areas, and I-10. The Facility is bordered to the east by a custom metal fabrication and manufacturing company (Ram Industries) and wooded areas.

Section 13. Land Use

13.1 Zoning

The Facility is located in an unincorporated area of Austin County, Texas; east of San Felipe, Texas. Neither the City of San Felipe nor Austin County has any zoning restrictions; therefore, there are no zoning restrictions within 1 mile of the Facility. However, the Austin County Planning and Development Department requires a permit application to be submitted for any development that occurs within the county. The permit application and guidelines for obtaining the development permit can be accessed at http://austincounty.com/default.aspx?Austin_County/Permits.

13.2 Land Use Characterization

Land use in the vicinity of the Facility was determined based on a review of U.S. Geological Survey (USGS) topographic maps, aerial photographs, Austin County tax records, and visual observations made from public roads. Land use within a 1-mile radius of the Facility is predominantly agricultural, with some commercial and light industrial sites located adjacent to the property and scattered residential sites (Figure 3).

The following summarizes the quantities of various land use types within 1 mile of the Facility:

- 86 agricultural properties;
- 38 residential properties;
- 11 commercial businesses;
- 3 commercial / industrial businesses; and
- 2 commercial / agricultural businesses.

There are no licensed day cares, cemeteries, schools, recreational sites, recreational facilities, or sites having exceptional aesthetic quality within 1 mile of the Facility. In summary, the area surrounding the Facility and property has a relatively low population density and is used primarily for agricultural purposes. According to the Texas Department of Transportation (TXDOT) Texas Airport Directory Map, the Facility is located approximately 14.87 miles southeast of Grawunder field (code: 06R). The presence and operation of a composting facility is fully compatible with this setting and land use.

A 30-foot easement for Brazos 10 Lane, located at the northern property line, is shown on the survey included in Appendix A. No other easements have been found on the property.

13.3 Site Soils and Geology

The U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey (http://websoilssurvey.nrcs.usda.gov) for Austin County, Texas, was used to identify surface soils in the area of the proposed Facility. The predominant soil map units at the site are Lake Charles Clay, with 3 to 8 percent slopes, and Verland clay loam, with 0 to 3 percent slopes. Styx loamy fine sand is mapped outside the northeast boundary of the Site with a slight incursion across the north boundary following a topographic contour. An NRCS Custom Soil Resource Report for Austin County, Texas, which presents site soil information, is included in Appendix E.

The Lake Charles series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey sediments. These soils are on broad, coastal prairies and are mainly in cultivated and native pasture. Common crops on these soils are corn, cotton, rice, and grain sorghum. Native grasses include little bluestem, Indiangrass, eastern gamagrass, switchgrass, big bluestem, and brownseed Paspalum. Most areas have scattered live oak, water oak, elm, hackberry, and huisache trees.

The Verland series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level to very gently sloping soils formed in clayey and loamy sediments of the Beaumont Formation of Pleistocene age. Most of the soil is used for pasture or for growing rice and soybeans. Native vegetation is tall prairie grasses consisting primarily of Andropogons, Paspalums, switchgrass, and Indiangrass. Various species of trees have encroached on some areas.

The Styx series consists of very deep, well drained, moderately permeable soils that formed in sandy and loamy sediments. These nearly level to gently sloping soils are on high stream terraces. Most areas are used for pasture. A few areas are used for growing small grains for cool season grazing and truck crop production. Native vegetation is mainly post and blackjack oak and greenbrier, with an understory of mid and tall grasses.

The Site is located within a stratified sequence of the Cenozoic Era, Quaternary System, and Holocene Group. Based on review of the Bureau of Economic Geology Geologic Atlas of Texas (Fisher, 1974), Seguin 1974 Sheet, the property is located on the Beaumont Formation outcrop. The lithology is dominantly clay and mud of low permeability. The clay has a high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, and high plasticity. The formation thickness ranges up to 100 feet. Geologic and hydrogeologic information is further discussed in Part III of this application.

13.4 Waterways, Wetland, and Floodplain Use and Characterization

DBS&A personnel reviewed available USGS 7.5-minute topographic quadrangle maps for the site and vicinity, which indicates that the site is located on terrain sloping down to the north-northeast. Based on site observations, the general flow direction of stormwater run-off across the site appears to be in an east and northeast direction. Surface water drains as sheet flow to a man-made stock pond located at the eastern portion of the property. The property is located at the edge of a plateau with elevation of approximately 140 feet National Geodetic Vertical Datum. The Site is relatively level with some relief developing near the west, north, and east boundaries. The area north of the property descends to the Brazos River valley, with the Brazos River located approximately 2 miles east of the Site at its closest point. The nearest watercourse represented on the topographic map is an intermittent stream within the Brazos River valley approximately 0.3 mile north of the property that drains to an unnamed freshwater pond and a tributary to the Brazos River.

A Waters of the U.S. (WOTUS) and wetland determination was conducted at the Facility by W&M Environmental Group, LLC (W&M) in support of a biological assessment. The biological assessment report prepared by W&M and dated October 30, 2015 is included in Appendix F**.** As part of the WOTUS and wetlands determination, W&M reviewed several of the standard record sources for indications of streams and wetlands in the study area. Wetlands features are shown in a U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map in Figure 6. W&M reviewed the NWI for indications of wetlands on or adjacent to the study areas. The NWI map does not indicate the presence of wetlands on or adjacent to the property. The nearest mapped wetlands are represented within the Brazos River valley north of the property. Based on field observations conducted by W&M, one wetland was identified on the property within a swale in the eastern portion of the property and appears to be created by an excavation and impoundment (man-made pond) at the property. According to W&M, hydrology to the wetland appears to be provided by surface drainage from the property aided by a drainage swale through the cropland. The extent of the wetland as estimated by field observation and records review is 0.4 acre. The swales draining to the impoundment and on the downslope side of the impoundment do not have indications of ordinary high water marks or wetlands beyond the impoundment. The swales and wetland do not have a surface hydrologic connection or significant nexus to a downstream navigable water; therefore, they do not constitute jurisdictional WOTUS.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

13.5 Groundwater and Water Wells

A Water Well Report prepared by Environmental Data Resources (EDR) (EDR, 2015a), included as Appendix G**,** reported two public drinking water supply wells, associated with one non-transient, non-community public water system, that exist in the investigative area (Figure 3) but are greater than 500 feet from the site. Additionally, both public supply wells are screened below 350 feet and pressure cemented to surface in accordance with TCEQ requirements.

The Water Well Report further identified 34 domestic, irrigation, and industrial use wells within the investigative area, ranging in depth from 50 feet to 300 feet (EDR, 2015a). None of these wells are within 500 feet of the site. The composting pad will not be located within a 250-foot buffer of private wells or 500 feet of public wells. Wells are documented on Figure 3.

A review of plugged well reports on the TWDB Groundwater Data Viewer revealed no plugged wells within 0.5 mile of the site and only one within the investigative area (TWDB, 2015).

13.6 Other Wells

An Oil & Gas report by prepared by EDR (EDR, 2015b), included as Appendix G, identified four locations in the investigative area and greater than 0.5 mile from the site associated with oil and gas activity (EDR, 2015b). Three of these wells were dry holes and one is listed as a canceled location. There are no American Petroleum Institute numbers registered to the records searched. These wells are plotted on Figure 3.

13.7 Structures and Site Proximity

The nearest occupied structures are residential buildings, owned by the property owner, located approximately 480 feet north of the Facility. The nearest business is Ram Industries, located adjacent to the eastern end of the eastern property line of the Facility. Recreational, community, daycare centers, hospitals, or school sites do not exist within 1 mile of the Facility. Chain link fencing with mesh weave roll or slats will screen the Facility from public view on the east property boundary, and perimeter berms and the southern raised railroad will screen the Facility from public view on the north, west, and south sides of the property.

13.8 Texas Historical Commission Review

A Texas Historical Commission (THC) review has been completed. According to the Texas Historic Sites Atlas published by the Texas Historical Commission, there are no documented historic properties such as cemeteries, museums, historical markers within 1 mile of the Facility. Mitigation for discovered significant sites includes facility set back and road design to eliminate surface disturbance in the significant site. This mitigation has been approved by the THC State Historic Preservation Officer, and a stamped approval form is including in Appendix H.

13.9 Compatibility

The surrounding land uses are agricultural, which will benefit from the Facility's composting operations. Storage and land application of animal waste is common in the surrounding agriculture operations. The residential population is sparse, on farming and ranching operations. The Facility is compatible with the surrounding land uses. The Facility will not impact wetlands, flood plains, or waterways.

Section 14. Water Quality

14.1 Construction Storm Water Discharge Permit

The Facility is required to submit a Notice of Intent (NOI) for the Construction Activity Storm Water Discharge Permit and obtain coverage under the TCEQ Construction General Permit (CGP) TXR150000 since the construction of the Facility will disturb more than 5 acres of ground surface. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to comply with the conditions of the CGP prior to submitting the NOI. Notice of Construction will also be posted.

14.2 Multi Sector Storm Water Discharge Permit

The Facility is required to submit an NOI for the Multi Sector Storm Water Discharge Permit. The NOI will be submitted electronically 24 hours prior to beginning operations. A SWPPP will be developed to comply with the conditions of the General Permit prior to submitting the NOI.

Section 15. Air Quality

15.1 Control of Airborne Emissions

Air emissions from MSW facilities will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. No specifically regulated airborne emissions are anticipated to be generated.

15.2 Minimizing Odors

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned or tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to ensure that odors are minimized, as described in the Sampling and Monitoring section of Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

15.3 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material to be used at the Facility consists of chipped and shredded wood and vegetative matter that is not very susceptible to being windblown. The Facility will not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows will not be performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and will be well-tuned and serviced at manufacturers' recommended service schedules.

15.4 Authorizations and Permits

Construction will not begin until Air Quality authorizations to operate, listed below, are complete. Air Quality authorizations do not require registration or notification to TCEQ. This Facility is not a major facility or subject to prevention of significant deterioration review.

Permit by Rule (PBR) will be claimed by the Facility, and documentation will be maintained in the Facility records. The composting operation of the Facility meets all of the applicable PBR requirements and is entitled to this air quality standard permit authorization in lieu of obtaining an air quality permit under Chapter 116. The Facility will operate under the Composting

Standard permit 332.8 and will not hold concurrent Air Quality Permits under Chapter 116 for the composting operation.

The composting operation will comply with the general requirements in §332.4 and 332.8(e). The following authorizations, which meet the requirements of the Air Quality Standard Permit for composting, will be implemented.

A. All permanent in-plant roads and vehicle work areas will be watered or treated with dust-suppressant chemicals for maximum control of dust emissions. Vehicular speeds on non-paved roads shall not exceed 10 miles per hour.

B. An adequate volume of bulking material to blend with or cover the material will be on hand prior to receiving material with a high odor potential and will be processed within 72 hours to prevent nuisances.

C. All activities, such as turning of compost, that could result in increased odor emissions will be conducted in a manner that does not create nuisance conditions. SouthWaste will employ the following:

   - *On-site buffer zones for odor control:* The processing area will be set back from the road with at least a 50-foot buffer from the property lines.
   - Additional waste handling procedures, storage procedures, and cleanup procedures for odor control when accepting putrescible waste: Liquid waste will be stored in storage tanks and transported through pipes. Any spilled feedstock will be cleaned up within 48 hours.

The Facility has been designed to minimize exposure of putrescible waste to the air. Liquid feedstock transfer operations will be controlled to prevent release of nuisance odors to the atmosphere. Putrescible waste holding time will be limited to three days. Putrescible waste will be covered with a layer of wood chips to contain odor.

Section 16. Access Roads

The Facility will use the roads listed in Table 5 for access. Access roadways within 1 mile of the Facility are shown on Figure 8.

16.1 Roadway Data

The access roads to the Facility are I-10, Bartlett Road, and Brazos 10 Lane. Vehicles accessing the Facility are anticipated to arrive via Interstate Highway 10, exit onto and turn north on Bartlett Road, then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located on the south side of Brazos 10 Lane.

The conditions of the access roads are described in Table 5. DBS&A personnel an evaluated Bartlett Road and Brazos 10 Lane and reviewed the Austin County Road and Bridge Report for Precinct #4 (dated June 22, 2015) and information provided by the property owner. According to TXDOT (Yoakum District), no load limits are designated for I-10 and Bartlett Road.

Additionally, there are no proposed public roadway improvements or location restrictions for I-10 and Bartlett Road; therefore, coordination with TXDOT is not required. Brazos 10 Lane is a private road used by the property owner and tenants, including commercial/industrial facilities (Pencco Sealy and Ram Industries).

Table 5. Roadway Data

Roadway	Dimensions	Type of Road	Condition Score	Load Limits	Capacity [a]	Repairs	Source [b]
I-10	2 lanes (each direction) 14-foot lanes Center median Access roads	Asphalt pavement	Good	None	3,580 pch each direction	None	1
Bartlett Road	1 lane (each direction) 12-foot lanes No shoulders (2.83 miles)	Asphalt (blade mix overlay)	Fair / In need of repair	None	2,600 pch	Filled potholes in 2015 with cold mix asphalt	2
Brazos 10 Lane	Private road 14 feet wide (0.35 miles)	Gravel	Good	None	None (private road)	None	3

[a] Capacity calculated by U.S. Department of Transportation methods   pch = Passenger cars per hour
[b] 1 = TXDOT Yoakum District
2 = Austin County Precinct 4
3 = DBS&A

16.2 Vehicular Traffic Volume

The initial volume of additional traffic generated by the Facility on the access roads to the Facility is estimated to be 10 vehicles per day. The maximum additional traffic projected at peak operation is estimated to be 50 vehicles per day.

The average daily traffic (ADT) on Bartlett road is based on the number of households and businesses that access the road. Bartlett Road traverses in a "horseshoe" like direction from two entry/exit routes on the I-10 frontage road; therefore, the ADT assumes that half the surrounding residences and businesses use the eastern entry/exit route, which is located near the Facility. Each household is expected to have an average trip of 3 trips per adult per day with an average adult population of 2 per household. Business traffic is approximately twice per day assuming 25 vehicles per business. Residential traffic access is approximated at 30 households, which is equivalent to 180 vehicles per day. Business traffic accounts for approximately 4 businesses, which is equivalent to 200 vehicles per day.

The population of Austin County is expected to grow at an average 7.24 percent annual rate to 2030 (Texas State Data Center, 2014). The projected traffic volumes presented in Table 6 were calculated assuming that traffic volumes would increase at this same rate over 20 years.

The projected traffic (10 vehicles per day) generated by the Facility represents approximately 2.76 percent of the current traffic on Bartlett Road and approximately 0.01 percent of the current traffic on I-10.

Given the limited traffic per day estimated to be generated by the Facility, no significant impact to the roadway system from traffic accessing the Facility is expected at either the existing or the future traffic loads. No measures, such as the construction of turn lanes or other road improvements, are predicted as part of this project.

Table 6. Vehicular Traffic Volume

Roadway	Existing Traffic	Projected Traffic in 20 years				Increased Traffic Due to Facility (%)	Source [a]
		Without Facility		With Facility			
	ADT	ADT	Annual Increase (%)	ADT	Annual increase (%)		
IH-10	52,805	56,628	7.24 [b]	56,638	7.25	0.01	1, 2
Bartlett Road	380	408	7.24 [b]	418	10	2.76	2
Brazos 10 Lane	Private road	—	—	—	—	—	—

[a] 1 = Texas Department of Transportation
2 = DBS&A
[b] Increase over 20 years

ADT= Average daily traffic

16.3 Facility Access Road Design Data

Brazos 10 Lane is a private gravel road that will provide access to the Facility access road. The Facility unloading areas will be constructed for wet-weather operational use.

The access road is provided with a sufficient turning radius of 300 feet to accommodate single deliveries. Vehicle parking is provided for equipment, employees, and visitors. Dust will be controlled by watering the Facility road when needed. Off-site mud tracking will be controlled by maintaining the entrance and loading areas. The access road has been designed to reduce ponding on the road. An inspection and maintenance program has been developed for the access road that will prevent rutting and potholes.

Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5 miles per hour.

16.4 Facility Impact on Roadway System

The current traffic consists of passenger vehicles, farm tractors, commercial transport trucks and trailers, agriculture transport tractor trailer rigs, and livestock/agriculture trailers. The Facility traffic will add passenger trucks and medium-size liquid and solid transport vehicles with 14.1-ton average and 21-ton maximum loads.

The impact on the roadway system is minimal. Due to the limited production, remoteness of the site, and low traffic volume, roads will not be significantly impacted by the additional traffic.

References

BioCycle. 2006. Composting Grease Trap Wastes. August 2006. BioCycle 47(8):27.

City-Data. 2015 Austin County, Texas. <http://www.city-data.com/county/Austin_County-TX.html> Accessed September 2015.

County of Austin. 2015. Road and Bridge Report Precinct #4. Annual Road Report. June 22, 2015.

Environmental Data Resources (EDR). 2015a. The EDR TX Oil & Gas Report, Proposed Sealy Composting Facility. September 30, 2015.

Environmental Data Resources (EDR). 2015b. The EDR TX Water Well Report, Proposed Sealy Composting Facility. September 30, 2015.

Fisher, W.L. 1974. Geologic Atlas of Texas, Seguin Sheet. University of Texas-Austin, Bureau of Economic Geology.

Natural Resources Conservation Service (NRCS).2015. Austin County, Texas Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov> Accessed September 22, 2015.

National Weather Service and Texas Water Development Board. 2015. Precipitation & Evaporation. <http://www.twdb.texas.gov/surfacewater/conditions/evaporation/index.asp> Accessed August 11, 2015.

Texas Commission on Environmental Quality. 2015. Wind Rose. <http://www.tceq.texas.gov/airquality/monops/windroses.html> Accessed August 11, 2015.

Texas Historical Commission. 2011. Texas Historic Sites Atlas 1995-2011. Austin County. <http://atlas.thc.state.tx.us/County, Texas>. Accessed September 21, 2015.

Texas Department of Transportation (TXDOT). 2013. Yoakum District Traffic Map, Sheet 2.

Texas State Data Center. 2014. Texas Population Projections, Population Projections Data Tool.

Texas Water Development Board (TWDB). 2015. Water Data Interactive Groundwater Data Viewer. <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>. Accessed October 1, 2015.

Texas Workforce Commission. 2015. Texas Labor Market Review Monthly Newsletter. August 2015.

U.S. Census Bureau 2014. Population, Population Change and Estimated Components of Population Change: April 1, 2010 to July 1, 2014.

U.S. Environmental Protection Agency (U.S. EPA). 1993. A Guide to the Federal EPA Rule for Land Application of Domestic Septage to Non-Public Contact Sites. EPA/832-B-92-005, Office of Wastewater, Enforcement and Compliance (WH-547). September 1993.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory Database. <http://www.fws.gov/wetlands/Wetlands-Mapper.html> Accessed September 22, 2015.

W&M Environmental Group, LLC. 2015. Biological Assessment: Proposed Sealy Compost Facility. October 30, 2015.

Wiltsee, G. 1998. Urban Waste Grease Resource Assessment. National Renewable Energy Laboratory, SR-570-26141.

Part III

Site Development Plan for a Composting Facility

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART III

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Table of Contents

Part III Site Development Plan for a Composting Facility.

Section 17. General Facility Design 25
17.1 Facility Plan and Facility Layout 25
17.2 Facility Access 25
17.2.1 Operator in Charge 25
17.2.2 Operating Hours 25
17.2.3 Variance # 1 26
17.2.4 Facility Sign 26
17.2.5 Facility Access Control 26
17.3 Odor Control 27
17.4 Dust Control 27
17.5 Storage Units and Equipment Details 28
17.5.1 Storage Units 28
17.5.2 Compost Pad 28
17.5.3 Feedstock Storage Area 28
17.5.4 Liquid Transfer Equipment 28
17.5.5 Final Product Screening and Stockpile 29
17.6 Containment Dikes or Walls 29

Section 18. Process Description and Controls 29
18.1 Process Diagrams and Drawings 29
18.1.1 Variance #2 29
18.2 Equipment 30
18.3 Feedstock Identification 31
18.4 Receiving/Tipping Process 32
18.4.1 Feedstock 32
18.5 Processing 33
18.5.1 Material Processing 33
18.6 Post-Processing 34
18.7 Product Distribution 34
18.7.1 Compost 34
18.8 Sanitation 35
18.8.1 Run-on and Run-off Control 35
18.8.2 Cleaning Equipment and Connections 35
18.9 Non Hazardous Waste Storage and Disposal 36
18.9.1 Non-Hazardous Waste 36
18.9.2 Hazardous Wastes 36

Section 19. Endangered Species Protection 36

Section 20. Surface Water Protection Plan 37
20.1 Run-On and Run-Off Management System 37
20.2 Drainage Calculations 39
20.3 Erosion Control 39
20.4 Drainage Maps and Plans 39

Section 21. Geological Report 40
21.1 Regional and Local Geology/Hydrogeology 40

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
5/27/16

21.2 Subsurface Soil Investigation 40
21.3 Groundwater Investigation 42
21.4 Surrounding Water Wells 43
21.5 Geotechnical Study 45
21.6 Active Geologic Processes 45

Section 22. Groundwater Protection Plan 46
22.1 Liner and Pad System 46
22.2 Liner Quality Control Plan 46
22.3 Management Practices 47
22.4 Groundwater Monitor System 48

Section 23. Facility Closure Plan and Financial Assurance 48
23.1 Closure Plan Requirements 48
23.2 Operation Termination Requirements 49
23.3 Procedure for Closure of Facility by Operator 50
23.3.1 Removal 50
23.3.2 Decontamination 50
23.4 Closure Sampling and Analysis Plan 51
23.4.1 Sampling 51
23.4.2 Analysis 51
23.5 Reporting 52
23.6 Procedure for Closure of Facility by an Independent Third Party 52
23.7 Financial Assurance 53

References 53

List of Requested Variances

Variance #1: Extended waste acceptance hours 26

Variance #2: Storage of bulk material and finished Grade 1 or Grade 2 compost 29

List of Tables

Table 7. Equipment 30

Table 8. Energy and Mass Balance Calculations 31

Table 9. Surrounding Well Information 42

Table 10. Wells within ½ Mile 43

Table 11. Saturated Hydraulic Conductivities 45

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

List of Figures

Figure 9	Process Diagram
Figure 10	Pre-Construction On-Site Drainage Map
Figure 11	Post-Construction On-Site Drainage Map
Figure 12	Geologic Map
Figure 13	Stratigraphic Column
Figure 14	Hydrogeologic Cross Section
Figure 15	Potentiometric Surface Elevation Map, October 2015
Figure 16	Generalized Cross-Section A-A'

List of Drawings

Sheet 1	Title Sheet
Sheet 2	General Notes and Legend
Sheet 3	Site Plan
Sheet 4	Grading Plan and Profile - 1
Sheet 5	Grading Plan and Profile - 2
Sheet 6	Drainage Plan
Sheet 7	Civil Details
Sheet 8	Drainage Details

List of Appendices

Appendix I	Stormwater Drainage Analysis
Appendix J	Approved Boring Plan
Appendix K	Boring Logs
Appendix L	Geotechnical Laboratory Reports
Appendix M	Liner Construction Quality Assurance Plan
Appendix N	Closure Cost Summary & Estimate

STATE OF TEXAS
THOMAS A. GOLDEN
LICENSED
PROFESSIONAL ENGINEER
5/27/16

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	safety data sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

STATE OF TEXAS
THOMAS A. GOLDEN
10991
LICENSED
PROFESSIONAL ENGINEER
5/27/16

Section 17. General Facility Design

17.1 Facility Plan and Facility Layout

Sheet 3 in the Drawings section shows the facility plan and layout including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that figure, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, structures, and other improvements to the property. In addition, DBS&A has prepared engineering design drawings showing the GSS composting pad layout and cross sections.

The following drawings are located in the Drawings section:

- Drawing 1 Title Sheet;
- Drawing 2 General Notes and Legend;
- Drawing 3 Site Plan;
- Drawing 4 Grading Plan and Profile - 1;
- Drawing 5 Grading Plan and Profile - 2;
- Drawing 6 Drainage Plan;
- Drawing 7 Civil Details; and
- Drawing 8 Drainage Details

17.2 Facility Access

17.2.1 Operator in Charge

The operator in charge (OIC) will be responsible for monitoring access to the Facility. The OIC will schedule deliveries to ensure staff supervises all unloading operations. Public Access will be prohibited and enforced by the OIC.

17.2.2 Operating Hours

The proposed operating hours are subject to approval by TCEQ for extended waste acceptance hours.

The waste acceptance hours will be between Monday through Saturday, 7:30 a.m. to 5:30 p.m. during the months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday through Saturday from 7:00 a.m. to 7:00 p.m. When any alternative operating hours are employed, Facility personnel will record the dates, times, and duration in the site operating record.

17.2.3 Variance # 1

Variance #1: Extended waste acceptance hours.

Since daylight hours (Monday through Saturday, 7:30 a.m. to 5:30 p.m. during the months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September) would ensure a safe operation, this Facility requires a waste acceptance variance for extended hours.

This variance would be appropriate due to the remoteness of the Facility. Consolidated feedstock from several sources is gathered in bulk and transported in liquid tankers. The extended hours would permit waste haulers to optimize their service routes and accommodate their customers by servicing their grease traps during non-peak hours between 3:00 and 5:00 p.m. Additionally, composting operations are sometimes performed outside standard operating hours, as required by weather or other factors.

Since the Facility is located in a sparsely populated area with 24-hour agribusiness operations, the additional hours will not impact area residents or businesses.

17.2.4 Facility Sign

A sign will be conspicuously display at the entrance to the Facility, measuring at least 4-feet by 4-feet with letters at least 3 inches in height, stating the Facility name, type of facility, standard hours of operation, the permit number, and Facility rules. The posting of erroneous or misleading information will be prohibited. The potential sign will contain at least the following:

- SouthWaste Sealy Composting Facility;
- Telephone number;
- Permit number;
- Check in at office; and
- No public access allowed.

17.2.5 Facility Access Control

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials and scavenging. The following measures will be implemented:

- At least one OIC will be present at the Facility during operations to monitor visitors or transporters.
- The Facility will be completely enclosed with a perimeter fence, consisting of a 4-foot barbed wire fence with lockable gates.
- The entrance and exit gates will be secured when the Facility is not operational.
- No Trespassing signs will be placed around the perimeter of the Facility.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and noted in the Facility weekly log.

- A sign located at the entrance of the Facility will state that all visitors must check in at the office.
- Deliveries are scheduled by the OIC to facilitate orderly unloading.
- Unauthorized access will be prohibited. No public access is allowed.
- All truck traffic will be supervised by on-site personnel and must proceed directly to the loading and unloading areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance.
- All inbound and outbound traffic is closely monitored.
- Off-loading, loading, and processing preparation are limited to daylight hours.
- The Facility is located in a remote area. It is set back from Brazos 10 Lane with a landscape barrier that obscures the Facility from normal observation from the road, but maintains inspection capabilities by personnel from the road.
- At the Facility, transport units will be stored within the perimeter fencing and locked gate. The OIC will monitor the units. The cab will be locked. All valves will be locked to prevent discharge of liquids. Solid material will be covered.

17.3 Odor Control

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned and tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to that ensure odors are minimized as described Sampling and Monitoring section in Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

The GSS processing area will be located in a remote area with at least a 50-foot set back distance from the Facility boundary to prevent creating odor nuisances.

17.4 Dust Control

No hoppers will be located or used for waste collection.

Dust will be controlled with water application, as needed. Graveled areas will be maintained to prevent rutting and potholes.

17.5 Storage Units and Equipment Details

17.5.1 Storage Units

Storage units will be purchased from a vendor and will be welded steel tanks that meet at least the standards contained in either (1) the American Petroleum Institute (API) Specification 12F - Specification for Shop Welded Steel Tanks for Storage of Production Liquids, or (2) the API Standard 650 - Welded Tanks for Oil Storage.

Tanks will be leak resistant, corrosion resistant, and designed to handle thermal stresses for outdoor storage at the Facility. Tanks are planned to be 750 barrels (or approximately 31,500 gallons).

Storage tanks for untested, reclaimed water and liquid waste will be placed on a composite liner surrounded by clay berms designed to provide sufficient secondary containment for the largest tank volume, precipitation from the 25-year, 24-hour design storm, and an additional 1 foot of freeboard.

17.5.2 Compost Pad

The 11-acre GSS processing area includes an approximately 3.5-acre compost pad retention pond and a 7.5-acre compost pad. The entire area will include a composite liner as described in Section 22.1. The compost pad is designed to provide a footprint for approximately 20 windrows approximately 600 feet in length. Based on typical windrow dimensions, more than 100 tons of wood chips can be processed per operating day.

Pending the results of compost demand and feedstock availability, the liner for the compost pad is expected to be built in two phases. A temporary berm will be constructed between the two construction phases to the same specifications as the GSS processing area berms. The entire compost pad retention pond will be constructed during the first construction phase to handle stormwater run-off within the GSS processing area.

17.5.3 Feedstock Storage Area

The feedstock storage area is the receiving area for liquid waste transporters and the liquid feedstock storage area. The area is comprised of eight 31,500-gallon, welded steel storage tanks as specified in Section 17.5.1. Secondary containment for this area is described in Section 17.6. The feedstock storage area is designed to hold a one day supply of feedstock at the maximum incoming daily rate, but will likely provide up to one week of storage under typical daily operations. Feedstock is transferred using the liquid transfer equipment.

17.5.4 Liquid Transfer Equipment

1. *Receiving Transfer*. The transport truck vacuum pump system or equivalent will be used to transfer liquid feedstock into storage tanks.

2. *Liquid Feedstock Transfer*. The Facility vacuum truck or equivalent will extract liquid feedstock from the on-site storage tanks. The pump system on the vacuum truck will be used to spray liquid feedstock directly onto prepared windrows of bulking material located within the processing areas.

17.5.5 Final Product Screening and Stockpile

Finished compost will be stockpiled in an approximately 3.5-acre area north of the compost pad. Assuming a 30 percent volume reduction for compost maturation and an additional 30 percent reduction for screening, the footprint for final product from the 7.5-acre compost pad will be approximately 3.7 acres. The final product area will hold approximately a 90-day supply of finished compost, pending delivery of final product to end users.

17.6 Containment Dikes or Walls

The secondary containment for the feedstock storage area is designed to hold the volume of the largest tank (31,500 gallons) and a 25-year, 24-hour rain event (8.5 inches); in addition, it provides 12 inches of freeboard. The secondary containment area will include a composite liner (geomembrane on top of a clay liner) and will be surrounded by compacted clay berms designed to minimize leakage in the event of a release of feedstock.

Section 18. Process Description and Controls

18.1 Process Diagrams and Drawings

This section specifically describes the GSS composting process at the GSS processing area. Composting of other approved materials will occur at either the GSS processing area or at other areas to the north and west, so long as it does not interfere with site drainage or wash off-site.

SouthWaste will perform GSS feedstock mixing, composting, and post-processing on the lined processing area (the lined pad used for composting and curing). However, as a part of this permit application, SouthWaste is requesting a variance from the Executive Director with regard to the screening and storage of finished compost and bulking material.

A process diagram that displays graphically the narratives is presented in Figure 9.

18.1.1 Variance #2

Variance #2: Storage of bulk material and finished Grade 1 or Grade 2 compost.

SouthWaste is requesting an approval from the Executive Director to chip/shred bulking material and screen and store finished Grade 1 or Grade 2 compost (not Waste Grade) at unlined portions of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 18.6 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished materials are intended for use in landscaping, vegetable gardens, and similar uses; therefore, storage of these materials on the unlined ground surface should not represent any potential for damage or impact to groundwater resources. Bulk materials and finished compost managed and stored in lined areas would limit the Facility's composting efficiency, resulting in an unnecessary hardship.

18.2 Equipment

Table 7 presents the minimum amount of equipment normally on-site and the provided equipment's operational capacity to adequately conduct the operation in conformance with the engineering design and industry standard operating procedures.

Table 7. Equipment

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Self-Propelled Tiller (a.k.a windrow turner)	1	Up to 800-1000 m^3/hour	Blends, mixes, and turns compost	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for caked on residue. ▪ Repair per manufacturer's recommendations. ▪ Remove residue off blades.
Front-end Loader	2	Up to 15 m^3 bucket capacity	Compost and bulking material handling. Compost pad maintenance and spill and small fire control.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Excavator	1	Up to 190,204 lb operating weight	Compost and bulking material handling. Compost pad maintenance.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Dump Truck	1	Up to 70.5 tons carrying capacity	Compost and bulking material handling.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Chipper / Grinder	1	Up to 100 tons/hour	Chips and Shreds raw bulking material	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Feedstock storage tank	8	31,500 gal	Hold liquid feedstock materials for processing	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.
Vacuum Truck or equivalent	1	Up to 7,000 gal	Unloads liquid feedstock into the storage tanks / distributes feedstock to windrows	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for tank compartment for leaks. ▪ Repair per manufacturer's recommendations. ▪ Remove residue.
Water storage tanks	1	20,000 gal	Water storage	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.
Pumps	1	Up to 300 gpm	Transfer liquid raw materials and products	▪ Inspect piping, gaskets, orifices, and motor. Repair per manufacturer's recommendation.
Water truck	1	3,000 gal	Dust control	▪ Inspect tanks for leaks. ▪ Inspect and Repair working parts per manufacturer's instructions.

18.3 Feedstock Identification

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. Initially, incoming grease trap waste will be brown grease, but yellow grease processing may be included in future operations. Since, the TCEQ does not regulate yellow grease processing, a permit modification will be requested only if the yellow grease operation area is relocated. The Department of State Health and Services will be contacted for authorization to process yellow grease prior to any acceptance of this type of waste. Incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Expected to account for less than 10 percent of the incoming feedstock at this Facility, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped on the property. The Facility may generate approximately 5,200 cubic yards of finished compost per month. Chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. In addition, chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and Mass Balance calculations for the GSS and non-GSS waste composting process are presented in Table 8. These calculations present the amount of product that will be produced based on anticipated amounts of bulking and feedstock materials.

Table 8. Energy and Mass Balance Calculations

Input Information	Calculations
Bulking Material Calculations:	
▪ 1,600 cy wood chips in each windrow x 20 windows ▪ Process requires approx. 90 calendar days to mature	▪ 32,000 cy of chips on pad (=1,600 cy chips per windrow * 20 number of windrows) ▪ 356 cy chips used / calendar day (=32,000 cy / 90 calendar days) ▪ 8,000 tons chips / 90 days (=32,000 cy * 0.25 ton / cy) ▪ 111 tons chips / operating day (=8,000 tons / 3 months / 24 operating days per month ▪ 2,667 tons chips / month (=8,000 tons / 3 months)
Feedstock Calculations:	
▪ 250,000 gal of feedstock per operating day applied to windrows	▪ 930 tons per operating day of feedstock coming in (=250,000 gal * 7.44 lb per gal / 2,000 lb per ton) ▪ 22,320 tons per month of feedstock coming in (=930 tons * 24 operating days per month) ▪ 66,960 tons of feedstock coming in / 90 days (=22,320 tons per month * 3 months) ▪ 267,840 tons per year of feedstock coming in (=22,320 tons per month * 12 months) ▪ 6,000,000 gal / month of feedstock (=250,000 gal * 24 operating days per month)

Table 8. Energy and Mass Balance Calculations (continued)

Input Information	Calculations
Product Calculations:	
▪ 30% volume reduction during composting for maturation ▪ ▪30% further volume reduction when screened	▪ 32,000 cy of chips on pad in 90 days ▪ 22,400 cy of compost / 90 days (after 30% reduction for maturation) ▪ 15,680 cy of finished compost / 90 days (after additional 30% reduction for screening of mature compost) ▪ 5,227 cy finished compost / month ▪ 62,720 cy finished compost / year ▪ 29,792 tons of finished compost / year (assuming a finished compost unit weight of 950 lb / cy) ▪ 2,483 tons of finished compost / month ▪ 83 tons of finished compost / calendar day

Assumptions: 7.44 lb / gallon feedstock
950 lb / cy compost
0.25 ton / cy chips
24 operating days / month
12 months / year

Conversion Factors: 2,000 lb / ton
7.48 gal / cf

The operator will visually examine the feedstock during transfer and processing to remove visual un-compostable material (unauthorized materials). Coarse straining may be used to remove non compostable materials in liquid raw material.

The Facility will not accept household wastes, source-separated recycling, or related materials.

18.4 Receiving/Tipping Process

18.4.1 Feedstock

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Sheet 3). The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load’s source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event that liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front end-loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, it will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

18.5 Processing

18.5.1 Material Processing

Feedstocks will be applied to the windrows using a vacuum truck or equivalent equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Once tilled, the windrows will be monitored to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting. Measurements of nitrogen and carbon ratios will be monitored daily.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content will be evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

18.6 Post-Processing

After the monitoring period, the final GSS product will be placed in a stockpile on the lined processing area for a curing period of at least 60 days. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches. Each batch will be tested for maturity and final product parameters as described in Section 35.4 in Part IV of this application and will then be assigned a final product grade as described in Section 35.4.2 in Part IV of this application.

Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (Waste Grade compost) will be disposed off-site at an authorized municipal solid waste facility.

Cured compost meeting either Grade 1 or Grade 2 maturity parameters will be processed through a ½-inch screen to remove over-sized material in the post-processing area outside the lined composting pad. Over-sized material separated during screening will be returned to the windrows to be re-composted.

18.7 Product Distribution

18.7.1 Compost

Compost will be sold only in bulk form. At some point in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a front-end loader. The Facility anticipates producing approximately 62,700 cubic yards annually of Grade 1 compost material at peak production (produced from 2,700 tons per month of wood chips and 22,300 tons per month of incoming liquid feedstock). The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and the disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site). The product parameters for each grade of compost are described in Part IV of this application.

The OIC will supervise the delivery of bulking material, directing them to the appropriate storage area. The bulking material will be inventoried daily to ensure that the amount needed to cover or process feedstock is on hand. Record inspections and volume of bulking material will be recorded on the weekly log.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of vouchers. A voucher will be provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

1. *For Grade I Compost*: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

   For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

2. *Feedstocks from which the compost was derived (grease trap waste, etc.).* Feedstocks will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.)

18.8 Sanitation

18.8.1 Run-on and Run-off Control

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the site. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward a stormwater retention pond on the west side of the bermed area to collect run-off from the composting area, designated the compost pad retention pond. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office). This centralized location will aid stormwater monitoring without increasing run-off north of the site. This will also improve stormwater management as pre-construction run-off from this property was routed through the residential property to the north.

Secondary containment surrounding the liquid feedstock tanks will allow stormwater to be monitored prior to being repurposed. Accumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the compost pad retention pond.

18.8.2 Cleaning Equipment and Connections

SouthWaste intends to install at least one potable, non-public supply water well to supply water to the office and maintenance building. The water well plumbing will be equipped with multiple connections to distribute water to support the composting process. These water connections will be equipped with a back flow check valve to prevent cross contamination. One connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will be used periodically to remove residuals not removed with the more conservative cleaning methods. The operator may hire a contracting company to perform the pressure washing, as needed.

18.9 Non Hazardous Waste Storage and Disposal

18.9.1 Non-Hazardous Waste

Solid waste will be stored in a dumpster. Non-hazardous wastes will be transported and disposed of at a permitted landfill on an as needed basis.

18.9.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system, but in the unlikely event that hazardous wastes are generated, the OIC will apply for a "One-Time Waste Shipment" registration. Hazardous waste will be transported and disposed of at a permitted hazardous waste facility.

Section 19. Endangered Species Protection

DBS&A contracted W&M Environmental Group, LLC (W&M) to conduct a biological assessment (BA) for the Facility. The BA was prepared by a qualified biologist in accordance with standard procedures of the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department (TPWD). W&M's qualifications are presented in Section 8.0 of the BA and a letter dated May 20, 2016 affirming W&M's qualification is included in Appendix F. The BA included review of multiple records, site reconnaissance, and interviews with agency representatives to identify whether the proposed activity associated with the composting permit/operations would have an effect on state or federally listed threatened, endangered, or candidate species or critical habitat. The BA evaluated the potential effects of the proposed action (i.e., construction and operation of the Sealy Composting Facility) on listed and candidate species and listed and proposed critical habitats to determine whether any such species or habitat are likely to be adversely affected by the action, in accordance with the requirements of the Endangered Species Act (ESA) and Title 30 of Texas Administrative Code TAC §330 (municipal solid waste [MSW] permits). The BA was used to determine whether formal consultation (with state and federal wildlife agencies) or conference is necessary. The BA is to be reviewed by state agencies and does not require a full National Environmental Policy Act (NEPA)-compliant review. The BA reported that none of the listed or candidate species with current or historical ranges near the Facility would be negatively affected by the proposed project and no critical habitat for listed or candidate species would be impacted by the proposed development. The BA report is included as Appendix F.

The BA was submitted to the TPWD Wildlife Habitat Assessment Program for their review and approval. The results of the BA are summarized on the TPWD Review Request Form in Appendix A of the BA report (Appendix F). The TPWD received the BA on November 2, 2015. On December 11, 2015, the TPWD Wildlife Habitat Assessment Program indicated that based on the project description, they do not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources. The cover page of the BA (Appendix F) includes the TPWD-signed acknowledgement stamp.

The Facility is designed to limit the alteration or modification of a potential habitat. To prevent alteration or adverse modifications of a potential habitat and/or endangering an encountered endangered species, the following precautions will be applied during construction:

- Trees and natural vegetation will be maintained as practical.
- Construction workers will be trained to identify endangered species.
- If an endangered species is encountered during a construction activity, and the construction activity endangers it, that construction activity will cease, the owner will be notified, and mitigation will be developed.
- If trees and vegetation must be removed for fire protection and/or safety, the removal will avoid the migration or nesting times of known species.
- During Facility operations, trees and vegetation will only be removed if they pose a fire, vector, or safety concern. The Facility will manage trees and vegetation to prevent potential fires and control vectors in a manner that will not alter or adversely modify any potential habitat.

Section 20. Surface Water Protection Plan

20.1 Run-On and Run-Off Management System

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the Facility. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward the compost pad retention pond on the west side of the bermed area to collect run-off from the composting area. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office).

The composting process is performed and managed so that leachate should not be produced by the application of feedstocks. However, in the event that leachate is produced by direct rainfall, it will be contained within the processing area by the engineered composite liner system and compost pad retention pond. Details of the berms, composite liner system, and retention pond that provide run-on and run-off control for the processing area are included in the Drawings section.

The compost pad retention pond was sized to contain a 25-year, 24-hour rainfall event on the composting pad. In addition to the minimum capacity needed to contain this design storm (approximately 2.5 million gallons), the 3-acre compost pad retention pond has more than 5 million gallons of additional surplus capacity. Given the nature of the Facility's setting (i.e., net evaporative based on mean precipitation and evaporation data), the pond is not anticipated to accumulate significant volumes of water. However, the pond has been designed to maintain sufficient capacity to handle a series of larger rainfall events. Pond liquids will also be used as needed to adjust the moisture content of composting materials. Evaporation and the use of pond liquids in the composting process are the primary means of maintaining adequate capacity in the pond. If this approach is inadequate to maintain capacity, then water will be pumped from the pond and trucked to a permitted off-site treatment facility.

Currently on-site drainage includes three primary drainage reaches (Figure 10). On the west side of the site, stormwater flow is directed off-site to the northwest to natural drainage features located on adjacent properties and then to an unnamed tributary to the Brazos River. Run-off from the central portion of the property travels to the north through existing residential property prior to discharging to the same unnamed tributary to the Brazos River. The eastern portion of the property drains to an on-site, man-made stormwater pond along the eastern property boundary.

Following construction of the Facility, stormwater outside of the GSS processing area will either be collected in a single ditch along the north property boundary or allowed to drain to the existing stormwater pond (Figure 11). The northern portion of the site will be regraded to direct all stormwater from west to east to a single discharge point located near the Facility access gate. This centralized location will aid stormwater monitoring without increasing run-off north of the site (due to a reduction in contributing acreage, the peak flow decreased by nearly 18 percent). This will also improve stormwater management by re-routing run-off around the existing residential property to the north. Run-off from the eastern portion of the property will continue to be directed to the on-site stormwater pond. An overflow culvert will be added under the Facility access road to direct stormwater into the ditch along the north property line.

Run-off from the ditch will be directed through a 12-inch-diameter corrugated high density polyethylene (CHDPE) culvert system and riprap outfall structure to existing drainage ways. The proposed locations of the stormwater collection ditch and outfall structures are shown on the drainage plan drawing (Sheet 6). Cross sections of the ditches and details of the riprap outfall structures are also provided in the Drawings section. Stormwater calculations are provided in Appendix I. The riprap outfall structures will separate and trap suspended material while allowing controlled discharge of stormwater.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Riprap outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed before the material accumulates to a depth equal to one-fourth the outlet height.

Chipped and shredded wood materials are used for temporary erosion control as needed outside the lined and bermed GSS processing area. In addition, the elevated railway and roadway upgradient from the site will minimize run-on, reducing potential erosion of on-site surfaces. Within the GSS processing area, the composite liner system includes base coarse and filter fabric designed to reduce erosion of materials above the geomembrane.

20.2 Drainage Calculations

The compost pad retention pond sizing calculations are presented in Appendix I. The required minimum volume of the pond was determined using the Natural Resources Conservation Service Curve Number method and the 25-year, 24-hour design storm. This precipitation amount was determined based on the United States Geological Survey (USGS) Depth-Duration Frequency Atlas for Texas published in 2004 in cooperation with Texas Department of Transportation (TxDOT) (USGS, 2004). The retention pond volume was then increased to handle a series of larger rainfall events.

As specified in the TxDOT Bridge Division Hydraulic Manual (TxDOT, 2011), drainage calculations for determination of peak run-off using the Rational Method are also presented in Appendix I for both pre-construction and post-construction conditions. The 25-year design storm most similar to the time of concentration was used to determine peak flow. The self-contained GSS processing area reduced the area contributing run-off to the point of concentration; therefore, construction of the Facility is not expected to impact downgradient properties.

20.3 Erosion Control

Erosion and stormwater controls consist of earthen berms constructed around the perimeter of the processing area and along the western and northern Facility boundaries. In addition, one primary stormwater collection ditch will be used in conjunction with existing drainage features to collect and control run-off from the areas of the Facility lying outside the lined and bermed GSS processing area. These features have been designed to reduce stormwater flow velocities to minimize erosion and scour.

Given the physical and chemical nature of the materials stored in these areas (i.e., wood chips, brush, and mature compost), these materials are not anticipated to be capable of generating leachate that contains dissolved chemicals of concern. However, there is some potential that stormwater run-off may suspend particles of mature compost or wood chips. The stormwater collection features outside the processing area are designed to collect and control both stormwater and any entrained and suspended particulates, and to control the migration of suspended particulates beyond the Facility boundaries.

20.4 Drainage Maps and Plans

Pre- and post-construction on-site drainage maps are provided as Figures 10 and 11. Plan and profile drawings of the Facility GSS processing area and compost pad retention pond are included as Sheets 4 and 5 in the Drawings section. Cross sections of proposed stormwater collection ditches and rock outfall structures are also provided in the Drawings. There are no areas of the property that lie within the 100-year flood plain or contain wetlands. Wetlands features are shown in a U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) map in Figure 6. According to the NWI map, the site is not located in a NWI area.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

Section 21. Geological Report

The geologic/hydrogeologic report was prepared by Beronica Lee-Brand, a State of Texas Licensed Professional Geoscientist (TX PG #10465). The following sections discuss the general geologic and hydrogeologic conditions in the vicinity/region of the property and also site-specific conditions beneath the proposed Facility from data collected during the subsurface investigation.

21.1 Regional and Local Geology/Hydrogeology

According to the Bureau of Economic Geology, Geologic Atlas of Texas, Seguin Sheet (1974), the property is located within the Beaumont Clay Formation (Pleistocene) and is surrounded by Quaternary-age lithology. A portion of that sheet, showing the location of the property, is provided as the geologic map for this application (Figure 12). The Oligocene-aged sediments make up the base of the Gulf Coast Aquifer in Texas and include the Tertiary rocks into the Frio Formation, the Anahuac Formation, and the Catahoula Tuff or Sandstone (early Miocene); the Oakville Sandstone and the Fleming formation (mid- to late-Miocene); the Goliad Sand (Pliocene); the Willis Sand, Lissie Formation, and the Beaumont Clay (Pleistocene); and the alluvium (Holocene) (Baker, 1979). A regional stratigraphic column showing hydrostratigraphic divisions for corresponding stratigraphic units is provided on Figure 13 (Baker, 1979).

The Gulf Coast Aquifer is a major aquifer that underlies the Facility; no minor aquifer underlies the Facility. The Chicot Aquifer is the shallowest unit of the Gulf Coast Aquifer. The Gulf Coast Aquifer forms an irregularly shaped belt that parallels the Texas coastline and extends northeastward to the Louisiana border. Groundwater quality in the Gulf Coast Aquifer is generally good northeast of the San Antonio River but declines to the southwest. There are multiple water wells within a half mile of the Facility completed in the Gulf Coast Aquifer, as discussed in Section 21.4. The well reports and boring logs presented in the Environmental Data Resources (EDR) half mile and mile radius water well report indicate alternating clay and sands down to over 200 feet (Appendix G).

Locally and regionally, the Beaumont Formation sand bodies are isolated in floodplain muds and lack the interconnected sand bodies that exist in the Lissie Formation; because of this, the Beaumont Formation provides a measurable amount of protection to water level change by hydraulically isolating shallow wells completed within the Beaumont Formation [e.g., wells screened less than 200 feet below ground surface (ft bgs)] from the underlying Lissie Formation (Young, 2015).

21.2 Subsurface Soil Investigation

As described in Section 21.1, the Beaumont Formation is found at the surface at the Facility. The Beaumont is composed of clay-rich sediments transected by sandy fluvial and deltaic-distributary channels (Young, 2012). The Geologic Atlas of Texas (GAT sheet) (Fisher, 1974) described the Beaumont Formation as clay, silt, and sand with concretions of calcium carbonate, iron oxide, and iron-manganese oxides common in zones of weathering with a thickness of about 100 feet. Two subunits are distinguished in the Seguin Sheet: (1) dominantly clay and mud of low permeability; and (2) dominantly clayey sand and silt of low to moderate permeability.

As part of this permit application, a boring plan was prepared by DBS&A on July 22, 2015 and revised on October 14, 2015 in accordance with Title 30 of the TAC, Chapter 332.47 (30 TAC 332.47), specifically, Part (6)(B)(iv) of 30 TAC 332.47 (DBS&A, 2015). On October 26, 2015, the boring plan was approved by the TCEQ (Tracking Number 19844155). The approved boring plan is included as Appendix J.

The data acquired from the subsurface investigation were used to support the completion of this Geologic/Hydrogeologic evaluation, including design and installation of required piezometers [proposed Part (6)(B)(v)], completion of a groundwater investigation report [proposed Part (6)(B)(v)], and development of a groundwater monitor system [proposed Part (6)(C)(ii)].

The subsurface investigation was conducted on two occasions during September and October 2015. As part of the investigation, five soil borings were installed at the Facility using hollow-stem auger drilling methods. Each boring was logged in order to characterize soils, collect geotechnical samples, and characterize the shallow groundwater-bearing unit encountered below the property.

Currently, the western portion of the property contains thick grasses and large pecan trees, and the east side of the Facility contains plowed fields. Soil borings SB-1 and SB-4 were installed in the western portion of the Facility and SB-2, SB-3, and SB-5 were installed on the eastern portion of the Facility. The borings were located at the boundaries of the proposed composting pad and were converted to 2-inch-diameter monitoring wells for future groundwater monitoring locations. Sheet 3 illustrates the surveyed locations of the monitoring wells.

The borings were advanced using 8¼-inch-outer diameter hollow stem augers. A 5-foot, 3-inch-diameter core barrel was advanced inside of the augers to allow for continuous sampling, and a 2.5-foot, 3-inch-diameter Shelby tube was advanced in front of the augers to allow the collection of geotechnical samples. Soil cores were inspected by the DBS&A geologist and screened for the presence of hydrocarbons using a photoionization detector (PID) with an 11.2-electron volt lamp. There were no elevated PID responses for any interval of any boring. During the field exploration activities, the DBS&A geologist recorded detailed soil descriptions using the Unified Soil Classification System, including the symbol, soil type, color, texture, grain size, sorting, plasticity, and moisture content. Soil borings SB-1 and SB-5 were continuously logged using the core barrel sampler. SB-2 was continuously logged down to 10 feet and then logged by observing the soil cuttings at surface as the augers were advanced to desired depth. SB-3 and SB-4 were logged using soil cuttings only.

Organic soil with sand was encountered at each boring ranging from 1 to 1.5 ft bgs. Below the organic soils, silty and lean clays of low to moderate permeability were logged to a depth of 6 feet at SB-1, 9 feet at SB-2, 15 feet at SB-3, 15 feet at SB-4, and 12 feet at SB-5. Silty and poorly graded sands with silt and gravel were encountered at each boring below the silty and lean clays. At each boring, sands extended down to 85 feet in SB-1, 82 feet in SB-2, 81 feet in SB-3, 83 feet in SB-4, and 82 feet in SB-5. Below the sands, a clay with gravel layer was encountered followed by a stiff, waxy clay at each boring. A claystone was encountered at 87.5 feet in SB-5. Cross sections using the information from each boring and depicting the generalized strata are presented on Figure 14. Boring logs are provided in Appendix K. Based on the information obtained from the soil borings, DBS&A confirms that the Facility overlies the Beaumont Formation as shown by the alternating fine grained clays, silts, sands, and some gravel. The evaluation of the five soil borings indicated no underlying hydraulically interconnected aquifers below the Facility. A discussion of the confining unit identified at the Facility is provided in the Section 21.3 and 21.5.

21.3 Groundwater Investigation

Following soil boring installation and sampling, each boring was completed as a permanent above-grade monitoring well (SB-1/MW-1 through SB-5/MW-5). MW-1, MW-2, MW-3, and MW-4 were screened from 45 to 65 ft bgs. MW-5 was screened from 49 to 69 ft bgs. Well completion diagrams are included on the boring logs provided in Appendix K. The wells were completed with 20 feet of 2-inch-diameter, 0.010-inch slotted polyvinyl chloride (PVC) screen, and sufficient 2-inch-diameter PVC riser pipe to extend from the top of the well screen to approximately 3 feet above the ground surface. The well screen was set to straddle the top of the saturated zone, extending at least 15 feet below the observed saturated zone. A graded clean silica sand filter pack was emplaced in the annulus of the screened interval from the total depth of the soil boring to approximately 2 feet above the top of the screened interval. A hydrated bentonite seal was placed above the sand filter pack.

On October 16, 2015, static water levels from ground surface were measured at 48.00 ft bgs at MW-1, 51.48 ft bgs at MW-2, 58.17 ft bgs at MW-3, 49.83 ft bgs at MW-4, and 56.75 ft bgs at MW-5. The average groundwater gradient at the Facility is 0.00086 feet per foot and flow is to the south (Figure 15). In preparing the boring plan for this Facility, surrounding water well reports were reviewed and a generalized cross section was prepared (Figure 16). Based on the generalized cross section A to A', it appears that there are multiple confining clay units below the shallow groundwater bearing unit at the Facility. As shown in Table 9, the surrounding wells are screened at much deeper depths than the on-site monitoring wells, but static water levels range from 30 to 95 ft bgs, indicating a shallow confined groundwater bearing unit. This is consistent with the Beaumont Formation description in Section 21.1 having isolated sand bodies in flood plain muds. The geotechnical sample results are discussed in Section 21.5.

The groundwater data collected from the Facility to date and in the future will be used to establish and present the groundwater flow characteristics at the site, including groundwater elevation, groundwater gradient, direction, flow characteristics, and most likely pathway(s) for potential pollutant migration.

Table 9. Surrounding Well Information

Well ID	Distance to Site Boundary (mile)	Well Depth (ft bgs)	Static Water Level (ft bgs)	Confining Clay Interval (ft bgs)	Screen Interval (ft bgs)
228635	0.49	200	66	101-163	166-186
113203	0.22	307	95	98-120	287-307
8(5)	0.06	160	60	80-110	140-160
53981	0.04	368	70	92-150	379-389
82106	0.16	271	55	105-125	217-267
284690	0.4	216	30	80-100	205-215
66168AA	0.61	143	55	83-134	135-143

21.4 Surrounding Water Wells

Well data for wells within one mile of the site were aggregated from various sources by EDR and presented in the Texas Water Well Report (2015a) and the Texas Oil & Gas Report (2015b). Additional research was conducted by DBS&A personnel using the TWDB's Water Data Interactive viewer to expand the search radius slightly to encompass an area one mile from the site boundary, rather than the site center. Some older wells found in the TWDB groundwater database are identified by an eight-digit well identification (ID) that corresponds to the specific State Well Grid number in which the well is located and the order in which the well was cataloged. Other wells are identified by a five- or six-digit State of Texas Well Report Tracking Number. All other wells have either incomplete well IDs or no ID associated with them and were assigned map IDs by EDR. The present use of groundwater withdrawn from aquifers in the vicinity of the Facility is domestic, irrigation, industrial, and public supply.

There are no active oil or gas wells within the investigative area, although three dry holes and one canceled location were identified by EDR during their records search (EDR, 2015b). These four locations are greater than 0.5 mile from the site.

There are 38 water wells identified by EDR and DBS&A personnel within the investigative area; 22 of the wells are within 0.5 mile of the site, but all are more than 500 feet from the site (EDR, 2015a; TWDB, 2015). Table 10 presents the wells within 1 mile of the site found during the records search.

Geographic coordinates for Map ID 53981 indicate that the well is less than 500 feet from the site. However, these coordinates lack precision, and site visits have not revealed the presence of a well indicated on the map. It is likely that this well is located closer to the building owned by Vital Link.

Geographic coordinates for Map ID 8(5) are not recorded on the well log. The location by street address, as plotted by EDR, is in the middle of I-10. It is highly unlikely that there is a domestic well at that location, and it is safe to assume that the well, if it exists, is greater than 500 feet from the site.

Field observations have not observed any wells within 500 feet of the site.

Table 10. Wells within 1 Mile

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
1	82106[1]	Pencco	0.16	29.776667	–96.072222	135	271	55	I
2	8(1)[1]	David & Terri Windsor	0.13	NR	NR	NR	194	30	D
3	37049[1]	Vital Link	0.25	29.774242	–96.070847	NR	389	70	P
4	53981[1]	Vital Link	0.04	29.774167	–96.074722	NR	368	70	I
5	8(3)[1]	Vital Link	0.18	29.775425	–96.071541	NR	401	81	P
6	6616807[1]	Rendrag, Inc.	0.13	29.774443	–96.072777	150	248	54	I
7	8(5)[1]	Bob Young	0.06	NR	NR	NR	160	60	D

Table 10. Wells within 1 Mile

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
8	6616808[1]	Steve Silva	0.23	29.771943	–96.073054	150	78	46	D
9	6616809[1]	Frank Lezak	0.26	29.771943	–96.072221	151	86	35	D
10	U1[1]	I. Zapolac	0.28	NR	NR	NR	80	53	D
11	8(4)[1]	James Ford	0.23	NR	NR	NR	274	NR	D
12	24756[1]	AEM	0.12	29.773056	–96.08	NR	163	52	D
13	6616806[1]	Frank Kucera	0.13	29.773054	–96.081110	150	50	NR	D
14	113203[1]	Adan Chavez	0.22	29.771944	–96.080833	NR	307	95	D
15	38315[1]	Al Konvicka	0.29	29.770556	–96.079444	NR	143	67	D
16	6616804[1]	NR	0.75	29.788055	–96.076110	126	NR	26.55	S
17	396529[1]	Frank Ehon	0.73	29.787222	–96.074167	132	180	35	D
18	175239[1]	Val Eschenberg	0.7	29.786944	–96.074167	NR	167	34	D
19	8(6)[1]	Cliff Jones	0.76	NR	NR	NR	216	27	D
20	66168AA[1]	John Scheffer	0.61	NR	NR	NR	143	55	D
21	284690[1]	Brian Bro	0.4	29.779444	–96.068887	NR	216	30	Ir
22	274817[1]	Brian Bro	0.39	29.774167	–96.068333	NR	218	80	Ir
23	6616811[1]	Vick Boyd	0.49	29.773888	–96.066943	140	300	NR	D
24	6616801[3]	V. L. Boyd	0.84	29.772777	–96.061111	142	100	46.3	U
25	6616802[3]	V. L. Boyd	0.93	29.776388	–96.059444	130	300	38.15	D
26	6616810[1]	Johnny Wells	0.40	29.771666	–96.069443	150	257	52.2	D
27	8(7)[1]	Joseph Manak	0.57	NR	NR	NR	92	50	D
28	66168A[1]	Donald Hamil	0.66	NR	NR	NR	88	48	D
29	8(2)[1]	Adela Hundl	0.82	NR	NR	NR	96	52	D
30	175236[1]	Larry and Cindy Siska	0.65	29.765278	–96.079722	NR	200	64	D
31	66168CC[1]	Charles Mlcak	0.41	NR	NR	NR	86	48	D
32	228635[1]	Larry Siska	0.49	29.767778	–96.081667	NR	200	66	D
33	96325[1]	Apex Stone LLC	0.33	29.773889	–96.085833	NR	240	60	I
34	6616702[1]	Ronnie Ross	0.83	29.774721	–96.094166	150	98	48	D
35	66168K[1]	George Smith	0.65	NR	NR	NR	78	50	D
36	209680[1]	Jose Benitez	0.77	29.782222	–96.091111	NR	220	83	D
37	322099[1]	Jose Arriaga	0.83	29.783056	–96.091111	167	228	91	D
38	10070[1]	Debbie Thomas	0.78	29.785278	–96.088611	NR	140	55	D
39	1[2]	NA - dry hole	0.73	29.7853	–96.0680	—	—	—	—
40	2[2]	NA - dry hole	0.6	29.7737	–96.0650	—	—	—	—
41	3[2]	NA - dry hole	0.77	29.7729	–96.0622	—	—	—	—
42	4[2]	NA - canceled	0.55	29.7712	–96.0667	—	—	—	—

[a] D = Domestic
I = Industrial
P = Public Supply
Ir = Irrigation
S = Stock
U = Unused

Sources: [1] EDR Texas Water Well Report, 2015
[2] EDR Texas Oil & Gas Report, 2015
[3] TWDB Water Data Interactive, 2015

NR = Not reported
NA = Not applicable
— = No well

21.5 Geotechnical Study

During the subsurface investigation, DBS&A personnel advanced Shelby tubes for the collection of geotechnical samples at six intervals. The samples were submitted to the DBS&A Soil Testing and Research Laboratory in Albuquerque, New Mexico and were analyzed for dry bulk density (ASTM D7263), moisture content (ASTM D7263, ASTM D2216), calculated porosity (ASTM D7263), saturated hydraulic conductivity (ASTM D 2434), falling head rising tail (ASTM D5084), particle size analysis, USCS (ASTM) Classification (ASTM D422, ASTM D2487), USDA Classification (ASTM D422, USDA Soil Textural Triangle), Atterberg Limits (ASTM D4318), and visual-manual description (ASTM D2488). Geotechnical reports for samples obtained during the subsurface investigation include tabulated results and are provided in Appendix L.

Undisturbed geotechnical samples could not be collected from the base of soil borings SB-1 and SB-5 due to the center drill rod locking up from flowing sands at SB-1 and the extremely hard nature of the claystone encountered at 87.5 ft bgs at SB-5. However, clay was observed as it adhered to the last hollow stem auger advanced at both locations. At each boring, the clay was described as dry to moist clay with gravel with medium plasticity. The clay and claystone encountered at the terminal depth of the borings are consistent with the information presented in the generalized cross section (Figure 16); this observation confirms the clay confining unit of the uppermost aquifer. In addition, two disturbed bottom samples were collected at soil boring SB-5 from the 84-85 feet and 85-87.5 feet depth intervals. These samples were submitted to the laboratory and analyzed for the geotechnical parameters listed above. Based on the geotechnical laboratory report, the two SB-5 bottom samples indicate very low saturated hydraulic conductivities, which further confirms the aquiclude encountered within the uppermost aquifer. Results of the saturated hydraulic conductivities are summarized in Table 11.

Table 11. Saturated Hydraulic Conductivities

		Method of Analysis	
Sample Identification	K_{sat} (cm/s)	Constant Head Flexible Wall	Falling Head Flexible Wall
SB-1 (6'-8.5') Horizontal	7.3×10^{-3}	X	
SB-1 (12'-14.5') Vertical	1.8×10^{-2}	X	
SB-2 (6'-8.5') Horizontal	1.1×10^{-5}		X
SB-4 (3'-5.5') Horizontal	3.3×10^{-7}		X
SB-5 (6'-8.5') Horizontal	3.37×10^{-7}		X
SB-5 (12'-14.5') Vertical	3.68×10^{-6}		X
SB-5 (84'-85') Disturbed	6.42×10^{-9}		X
SB-5 (85'-87.5') Disturbed	4.08×10^{-9}		X

21.6 Active Geologic Processes

There are no differential subsidence or active geologic processes within ½ mile of the site including faults and/or subsidence in the area of the Facility. The nearest fault is approximately 15 miles northeast of the Facility. Faults are noted on the geologic map (Figure 12), as presented in the GAT sheet prepared by the Bureau of Economic Geology digital data set. Active faults are not known to exist within ½ mile of the property; therefore, the Facility is not required to investigate for unknown faults. There are no areas experiencing withdrawal of crude oil, natural gas, sulfur, etc., or significant amounts of groundwater; therefore, the possibility of differential subsidence or faulting investigation is not required.

Section 22. Groundwater Protection Plan

The Facility has been designed and will be constructed and operated to protect groundwater from impact from the Facility operations. The groundwater protection measures in place include a composite geomembrane liner system underlying the GSS processing area, management practices used in the composting process, and a groundwater monitoring system. Protection of the groundwater includes perched water or shallow surface infiltration.

22.1 Liner and Pad System

Composting and processing operations will be performed within an area constructed specifically for this purpose. To reduce the potential for run-off from the lined area, he composting area will be surrounded on all sides by earthen berms. These berms will also reduce the potential for run-on to the composting pad, minimizing the potential presence of liquids above the liner. Three ramps will be constructed to allow access to the processing pad by vehicles and equipment. The ramps will be elevated above the surrounding ground surface, further preventing run-on to the pad. The composting pad has been designed to slope away from the ramps and toward the stormwater retention pond, preventing run-off from the pad.

A composite liner system will be constructed under the compost pad retention pond to provide an equivalent hydraulic conductivity of 1 x 10^{-7} centimeters per second (cm/s) or less. The subgrade will be excavated at least 6 inches below the liner and re-compacted to provide a uniformly compacted finished surface. The liner will include 2 feet of compacted, on-site clay soils, placed in 6-inch lifts, under a 40-mil double-textured HDPE liner. Protective soil over the liner will include 1 foot of on-site sandy soils and a minimum 6-inch layer of base-coarse. A 10-ounce nonwoven geotextile will be installed between the sand and base-coarse to provide soil stability and filtration capacity between the two materials. The fabric will also be a visual warning to scour and will help preserve the life of the underlying geomembrane.

Based on the DBS&A soils testing laboratory report (Appendix L), soil samples representative of on-site clay soils consist of more than 30 percent passing a number 200 sieve and have a liquid limit greater than 30 and a plasticity index greater than 15 as required in TAC 330.339.

22.2 Liner Quality Control Plan

In order to document the construction of the composite liner and subgrade, a Liner Quality Control Plan has been developed as the basis for the type and rate of quality control testing performance for the Liner Evaluation Report (LER) as required in 30 TAC §330.341of this title. This report will include an evaluation of both the soil and geomembrane components of the liner system and will be prepared in accordance with the approved Liner Quality Control Plan. The Liner Quality Control Plan is provided in Appendix M.

All field sampling and testing, both during construction and after completion of the lining, will be performed by, or under the direct supervision of, a qualified professional experienced in geotechnical engineering and/or engineering geology. All liners will have continuous on-site inspection during construction by the professional of record, or his designated representative.

All quality control testing of soil liners will be performed during the construction of the liner. Under no circumstance will any quality control field or laboratory testing be undertaken after completion of liner construction, except for that testing which is required of the final constructed lift, confirmation of liner thickness, or cover material thickness.

All soil testing and evaluation of either in situ soil or constructed soil liners will be complete prior to installing the leachate collection system or, if a leachate collection system is not required, prior to adding the 1 foot of protective cover on the evaluation area.

Soil and liner density will be expressed as a percentage of the maximum dry density and at the corresponding optimum moisture content specified as appropriate by a licensed professional engineer experienced in geotechnical engineering. Upon testing in either the laboratory or at a test pad in the field, the compacted soils must demonstrate a coefficient of permeability no greater than 1×10^{-7} cm/s.

Unless alternative construction procedures have prior written approval by the executive director, all constructed soil liners will be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining.

22.3 Management Practices

Composting operations will be performed to minimize the potential for uncontained free liquids on or off the pad. In the absence of free liquids, the potential for contaminant transport from the composting operations is minimized. Management practices that either contain or minimize free liquids include:

- Containment of all liquid feedstocks in steel, aboveground storage tanks, placed within a bermed spill control area.
- Limitation of feedstock application rates to avoid free liquid formation on the GSS composting pad or approved non-GSS waste composting areas.
- Use of highly sorptive bulking material (i.e., shredded wood and brush).
- The prompt mixing of windrows after feedstock application to maximize absorption of the feedstock liquids.
- Containment of rain falling directly on the GSS composting pad within a lined retention pond.

22.4 Groundwater Monitor System

The groundwater monitoring system is designed to reasonably assure detection of any contamination of the groundwater before it migrates beyond the boundaries of the site. The groundwater monitoring system consists of the five monitoring wells that were installed during the subsurface/groundwater investigation described in Section 21. The groundwater monitoring wells were installed around the perimeter of the processing area (Sheet 3), providing up-, cross-, and downgradient locations, and are screened within the uppermost water-bearing zone observed during drilling and logging activities. Given the construction and placement of the monitoring wells, if groundwater impact were to occur from composting operations, the well system will reasonably assure its detection.

A groundwater sampling program has been developed and is discussed in the Sampling and Monitoring section in Part IV of this application.

Section 23. Facility Closure Plan and Financial Assurance

23.1 Closure Plan Requirements

The following timeline will be used to implement the final closure plan:

1. 90 days prior to the initiation of closure activities, the Operator will:
   a. Submit written notification to TCEQ of the intent to close the Facility and place this notice of intent in the operating record.
   b. Provide a public notice for final closure in the newspaper(s) of largest circulation in the vicinity of the Facility. This notice will provide the name, address, and physical location of the Facility, the permit number, and the last date of intended receipt of waste.
2. 10 days prior to final closure, the Operator will:
   a. Submit a certification of final closure to the TCEQ for approval.
3. Upon TCEQ approval of closure plan certification and date, the Operator will:
   a. Make available an adequate number of copies of the approved final closure plan for public access and review.
   b. Post a minimum of one sign at the main entrance and all other frequently used points of access for the Facility notifying all persons who may use the Facility or site of the date of closing for the Facility and the prohibition against further receipt of waste materials after the stated date.
4. Date of closure, the Operator will:
   a. Terminate operations.

b. Install suitable barriers at all gates to adequately prevent the unauthorized dumping of solid waste at the closed Facility.

5. 180 from date of closure the, Operator will

   a. Complete final closure activities for the Facility in accordance with the approved final closure plan unless additional time is approved in writing by TCEQ.

   b. Submit, if required, a request to the Executive Director for an extension for the completion of final closure activities. The request will include all applicable documentation necessary to demonstrate that final closure will take longer than 180 days, and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the site.

6. 9 days after completion of all final closure activities the Owner will submit to the TCEQ, for review and approval:

   a. A closure report and certification, signed and sealed by an independent Texas Licensed Professional Engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submission will include all applicable documentation necessary for certification of final closure.

   b. Certification and request for post closure maintenance variance.

   c. Request a voluntary revocation of the Facility permit.

7. Upon TCEQ approval of the final closure certification, the approved certification will be placed in the operating record.

23.2 Operation Termination Requirements

The following steps will be taken to terminate operations.

1. Place barriers to prevent access for disposal of solid wastes at the Facility;
2. Cease accepting all solid waste deliveries;
3. Process materials on hand;
4. Deliver products on hand to vendors or customers;
5. Terminate all operations; and
6. Engage the services of a qualified Texas Licensed Professional Engineer, who will:

   a. Inspect the site for signs of possible releases and review past release records;

   b. Implement a sampling and analysis plan;

   c. Implement a site cleanup or mitigation plan;

d. Certify removal and disposal of residual materials, decontamination of equipment and processing/storage areas, and mitigation results;

e. Prepare or review and seal the closure report; and

f. Submit a signed and sealed certification verifying that final closure has been completed in accordance with the approved final closure plan.

23.3 Procedure for Closure of Facility by Operator

After operation termination, the closure of the Facility would be conducted by the Operator in the following sequence.

23.3.1 Removal

The Operator will process material on hand and mitigate residual materials with the following protocol:

1. Empty liquid feedstock storage tanks;
2. Remove sludge from storage/tanks;
3. Remove materials and equipment from GSS processing and bulk material storage areas;
4. Sample and analyze soil and groundwater in accordance with the closure sampling and analysis plan (CSAP) presented in Section 23.4;
5. Transport liquid and/or sludge to a TCEQ-approved disposal or recycling facility; and
6. Dispose or recycle chemicals in storage based on manufacturers' recommendations or results of analytical characterization in accordance with the CSAP.

23.3.2 Decontamination

1. Power wash tanks, hard plumbed pipes, and exposed equipment with a surfactant/water solution;
2. Circulate the surfactant/water solution through piping and ancillary equipment;
3. Rinse decontaminated units and areas, as necessary, with a power wash unit containing water until all surfactant/water solution and residuals are removed;
4. Collect wash waters and any remaining materials and place in appropriate transport containers;
5. Sample and analyze wash down waters and any remaining materials in accordance with the CSAP; and
6. Transport material(s) to an authorized disposal or re-use facility.

23.4 Closure Sampling and Analysis Plan

The following is a preliminary CSAP based on proposed operations and chemical use.

23.4.1 Sampling

23.4.1.1 Residual Materials

Representative composite grab samples will be collected for wash water and residual materials.

Eight to ten individual grab samples will be collected from each matrix to prepare a composite sample of each matrix.

Each matrix composite sample will be analyzed as describe in the CSAP, as appropriate.

23.4.1.2 Chemicals in Storage

Safety Data Sheets (SDS) will be used to characterize chemicals in storage at the time of closure. To characterize chemicals lacking SDS sheets, samples will be collected and analyzed.

23.4.1.3 Soil and Groundwater

Soil and groundwater will be sampled based on evidence of releases and/or visual impacts to soil and groundwater using the following scenarios:

No release evident scenario. If no releases are evident, the following sampling protocol will be implemented:

1. Collect a minimum of four surface soil samples from native material at a minimum depth of 1 foot bgs from the GSS processing area;
2. Check for visual impacts at minimum depth; and
3. If visual impacts are absent, then sampling is concluded.

Release evident or visual impact scenario. If a release is evident or visual impacts are present, the following sampling protocol will be implemented:

1. Collect samples based on evidence of past releases or visual impact observations;
2. Collect subsurface and groundwater samples based on the presence of visual impacts;
3. Sample at 1 foot intervals until visual impact is no longer evident;
4. Conduct analyses described in the CSAP; and
5. Conduct additional analyses based on the nature of chemicals stored in the vicinity of the release.

23.4.2 Analysis

Wash water and residual materials samples, at a minimum, will be analyzed for pH, hazardous metals as defined by the Resource Conservation and Recovery Act (RCRA), and total petroleum hydrocarbons using methods approved by TCEQ or U.S. Environmental Protection Agency. A Laboratory certified to analyze RCRA metals and total petroleum will be used to analyze samples off-site.

23.5 Reporting

The following will be submitted to TCEQ within 10 days of final closure activities:

- Closure report;
- Certification verifying that final closure has been completed in accordance with the approved final closure plan;
- Certification that the Facility is not subject to post-closure care maintenance requirements for MSW management units and request for variance; and
- Request for voluntary revocation of the Facility permit

A qualified Texas Professional Engineer will prepare or review and sign and seal the closure report and certifications. The closure report and certification will include all applicable documentation necessary to demonstrate that closure of the Facility, with no post-closure maintenance, is sufficient to protect human health and the environment and complies with the approved closure plan.

23.6 Procedure for Closure of Facility by an Independent Third Party

The closure of the Facility would be conducted by an independent third party in the following sequence, if required:

1. Characterize contents in the liquid feedstock s tanks, processing equipment, and processing areas.
2. Remove and transport liquid and solids to an appropriate disposal or recycling facility.
3. Characterize sludge from tank bottoms and equipment and transport to an authorized off-site waste disposal facility.
4. Pressure wash empty tanks, hard plumbed pipes, and other equipment with a surfactant/water solution.
5. Decontaminate piping and equipment by circulating the surfactant/water solution through the piping and ancillary equipment.
6. Rinse the tanks and equipment, as necessary, using a pressure washer until all surfactant and residuals are removed.
7. Characterize wash water and transfer to an appropriate transport container for disposal or recycling at an off-site facility.

8. Characterize and dispose or recycle remaining chemicals and equipment at the Facility.
9. Observe the site for signs of possible releases.
10. Sample and analyze soil and groundwater as described in the CSAP.
11. Prepare closure report for submission to TCEQ. The closure report must be prepared or reviewed and sealed by a qualified professional engineer.

The development of an independent third party closure plan should not be construed as the Operator's authorization for voluntary third party closure.

23.7 Financial Assurance

The closure cost estimate included as Appendix N was prepared under the direction of a qualified professional engineer licensed in the State of Texas who has affixed the Professional Engineer's Seal to the cost estimate. The current cost of the anticipated closure is estimated to be $393,981.

In accordance with 30 TAC §37.31, financial assurance documentation will be submitted to the TCEQ at least 60 days after the permit is signed by the executive director or commission.

The operator will review and adjust the Facility's closure cost annually to compensate for inflation. The closure cost will be verified that the current active areas match the areas on which the closure cost estimates are based. If for some reason, the closure cost estimate changes (either increases or decreases) at any time during the life of the Facility, changes to the final closure plan and financial assurance will be made and detailed justification will be provided to the TCEQ. Changes to the closure cost estimate and the financial assurance may be made under a permit modification. Within 10 days prior to final closure, the Operator will submit a certification of final closure to the TCEQ for approval.

References

Ashworth, J.B. and J. Hopkins. 1995. *Aquifers of Texas*. Texas Water Development Board Report 345, November 1995.

Baker, E.T., Jr. 1979. *Stratigraphic and hydrogeologic framework of part of the coastal plain of Texas.* Texas Department of Water Resources Report 236, July 1979.

Daniel B. Stephens & Associates, Inc. 2015. *Revised boring plan for proposed permit application for SouthWaste Disposal, LLC., Sealy Facility; Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas*. Prepared for Texas Commission on Environmental Quality. October 14, 2015.

Environmental Data Resources (EDR). 2015a. *The EDR TX water well report: Proposed Sealy Composting Facility*. September 30, 2015.

EDR. 2015b. *The EDR TX oil & gas report: Proposed Sealy Composting Facility*. September 30, 2015.

Fisher, W.L. 1974. Geologic Atlas of Texas, Seguin Sheet. University of Texas-Austin, Bureau of Economic Geology.

Texas Department of Transportation (TxDOT). 2011. *Hydraulic design manual, rainfall intensity-duration-frequency coefficients for Texas counties*. October 2011.

Texas Water Development Board (TWDB). 2006. *Report 365: Aquifers of the Gulf Coast of Texas*. February 2006.

TWDB. 2015. Water data interactive groundwater data viewer. <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer> Accessed October 2015.

U.S. Geological Survey. 2004. *Atlas of depth-duration frequency of precipitation annual maxima for Texas*. June 2004.

W&M Environmental Group, LLC. 2015. *Biological assessment: Proposed Sealy Compost Facility*. October 30, 2015.

Wurbs, R.A. and W.P. James. 2002. *Water resources engineering.* Prentice-Hall. 2002. 838 p.

Young, S.C. 2015. *Investigation of declining water levels in shallow wells located near Lissie, Texas*. Prepared for Coastal Bend Groundwater Conservation District. Intera Geoscience & Engineering Solutions, Austin, Texas. February 2015.

Young, S.C., Ewing, T. Hamlin, S., Baker, E., and D. Lupton. 2012. *Updating the hydrogeologic framework for the northern portion of the Gulf Coast Aquifer.* Texas Water Development Board Unnumbered Report. June 2012.

Part IV

Site Operating Plan,
Sampling and Monitoring Plan, and
Quality Assurance and Quality Control for a
Composting Facility

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART IV

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas. Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Table of Contents

Part IV *Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a composting facility. This document provides guidance from the design engineer to site management and operating personnel in sufficient detail to enable day-to-day operations in a manner consistent with the engineer's design.*

Section 24. Personnel 55
24.1 Operator in Charge 55
24.1.1 Training 55
24.1.2 Duties 55
24.2 Laborers 55

Section 25. Equipment 56
25.1 Equipment Type, Function, Inspection, and Maintenance 56

Section 26. Production Processes 56
26.1 Control of Unloading for Unauthorized Materials 56
26.2 Material Processing 57
26.2.1 Liquids 57
26.2.2 Solids 58
26.2.3 Composting 58
26.3 Waste Storage and Disposal 59
26.3.1 Non-Hazardous Waste 59
26.3.2 Hazardous Wastes 59
26.4 Product Distribution 60

Section 27. Alternate Disposal 60
27.1 Non Standard Products 60

Section 28. Pollution Prevention Plan 60
28.1 Unauthorized Material 60
28.2 Sanitation and Litter 61
28.2.1 Facility Generated Wastes 61
28.2.2 Storage Requirements 62
28.2.3 Materials along the Route to the Facility 62
28.2.4 Work Area Sanitation 62
28.2.5 Employee Sanitation Facilities 62
28.2.6 Control of Windblown Material 62
28.2.7 Road Maintenance 63
28.3 Ventilation and Odor Control 63
28.4 Overloading and Breakdown 63
28.4.1 Design Capacity 63
28.4.2 Equipment Failures 64
28.4.3 Back Up Processing or Disposal 64
28.5 Final Product Use 64

Section 29. Vector Control Plan 65
29.1 Inspection and Monitoring 65
29.2 Facility Program Evaluation 66

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

29.3 Records and Documents 66

Section 30. Security 67
30.1 Facility Access 67

Section 31. Emergency Action Plan 68
31.1 Spills 68
31.2 Fire 68
31.3 Medical 68
31.4 Adverse Weather 68
31.5 Health and Safety Training 69

Section 32. Fire Prevention and Control Plan 69
32.1 Fire Response 69
32.2 Fire Prevention 70
32.3 Fire Control 71
32.4 Staff Training 71

Section 33. Spill Containment and Contingency Plan 72
33.1 Leak Detection 72
33.1.1 Storage Tanks 72
33.1.2 Liner 72
33.2 Spill Prevention and Control 72
33.2.1 Receiving and Liquid Feedstock Transfers 72
33.2.2 Sanitation 72
33.3 Spill Emergency Actions 73

Section 34. Recordkeeping and Reporting Requirements 73
34.1 Recordkeeping 73
34.2 Signatory 74
34.3 Reporting Requirements 75
34.3.1 Documentation and Reporting of Final Product Testing 75
34.3.2 Annual Reporting 75

Section 35. Sampling and Monitoring 76
35.1 Facility Inspections 76
35.1.1 Inspection Locations and Procedures 76
35.1.2 Reporting Requirements 76
35.2 Odor Audit/Investigation 77
35.3 Compost 78
35.3.1 Sampling and Analysis for Maturity 78
35.3.2 Sampling and Analysis of Final Product 79
35.4 Groundwater 80
35.4.1 Background Samples 80
35.4.2 Annual Samples 81
35.4.3 Analytical Methods 82
35.5 Data Precision and Accuracy 82
35.6 Documentation 82
35.7 Reporting Requirements 82

Section 36. Quality Assurance and Quality Control 83
36.1 Sampling, Monitoring, and Inspection 83

STATE OF TEXAS
THOMAS A. GOLDEN
109916
LICENSED
PROFESSIONAL ENGINEER
5/27/16

36.1.1 Records Control ... 83
36.1.2 Matrix Spikes and Matrix Spike Duplicates ... 84
36.1.3 Method Blanks ... 84
36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates ... 85
36.1.5 Surrogates ... 85
36.1.6 Data Reduction, Evaluation, and Review ... 85
36.1.7 Matrix Interferences and Sample Dilutions ... 85
36.1.8 Chain of Custody ... 86
36.1.9 Sample Collection and Preparation ... 87
36.1.10 Analytical Method Detection Limits and Method Performance ... 87
36.1.11 Instrument and Equipment Calibration and Frequency ... 88
36.1.12 Laboratory Case Narrative ... 89
36.2 Final Product Compost QA/QC ... 90

References ... 90

List of Tables

Table 12. MSW Disposal Limits ... 61

Table 14. Facility Inspections ... 76

Table 15. Final Product Analytical Requirements and Standards ... 79

Table 16. Groundwater Sampling Parameters ... 81

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality

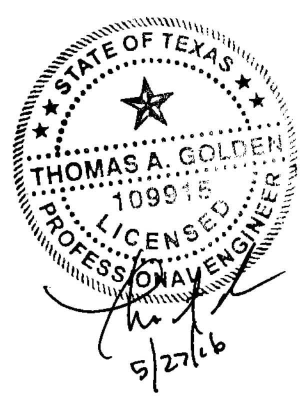
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

°F	Fahrenheit degrees
FM	Farm to Market Road
FOG	fats, oil, and grease
ft	feet
gpm	gallons per minute
GTW	grease trap wastes
hp	horse power
in	inch(es)
kips	kilo pounds per inch
LCN	laboratory case narrative
MCL	maximum contaminate level
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OIC	Operator In Charge
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance and Quality Control Plan
RCRA	Resource Conservation and Recovery Act
ROM	reduction in organic matter
SDS	safety data sheet
SC-SM	silty, clayey sand
SIC	Standard Classification

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
TCLP	toxic characteristic leaching procedure
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TWDB	Texas Water Development Board
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)



Section 24. Personnel

24.1 Operator in Charge

The operator in charge (OIC) will be present at the Facility when visitors or transporters are present. Deliveries will be scheduled by the OIC.

24.1.1 Training

The following training program will be developed for each OIC at the Facility:

- Identification of material sources and characteristics and manifests;
- Composting operations management of the windrows and feedstock;
- Sampling, inspection, and monitoring;
- Heavy equipment operation;
- Emergency response actions of this plan; and
- Waste acceptance and handling.

24.1.2 Duties

The OIC will be responsible for, at least, the following (new responsibilities will be added to this list as needed):

- Perform day to day operations;
- Schedule waste acceptance and processing;
- Train and supervise staff;
- Implement and supervise emergency response actions and spill clean-up;
- Implement safety and security;
- Complete manifests and return the generator copy, as required, within the stipulated time frame; and
- Sample and monitor feedstocks and products.

24.2 Laborers

Laborers will work under the supervision of the OIC. Laborers will perform day-to-day operations under the supervision of the OIC. A training program for laborers will be developed to include the following:

- Day to day operations;
- Composting operations, including operating equipment, mixing, and tilling;
- Spill reporting;
- Security and safety procedures;
- Pollution prevention;
- Emergency response actions;
- Proper use of chemicals;
- Personal protection equipment; and
- Heavy equipment operation.

Section 25. Equipment

25.1 Equipment Type, Function, Inspection, and Maintenance

The primary pieces of equipment used in the composting process are front-end loader(s), a self-propelled tiller, vacuum truck(s), aboveground storage tanks, a mobile chipper/grinder, and a mechanical screen. At least one of each piece of equipment is required to perform the composting process.

The aboveground storage tanks will be used to store liquid feedstocks until needed in the composting process. Bulking material will either delivered to the Facility already chipped and shredded from off-property sources, or it may be brought to the Facility in raw form and chipped and shredded on the property. A chipper/grinder will be present at the Facility to produce bulking material before it is placed on the processing areas. The front-end loader will be used to build and maintain the stockpiles and windrows and to move compost materials within the processing area. Vacuum trucks, or equivalent, will be used to apply feedstock to the windrows. The self-propelled tiller will be used to mix the bulking material and feedstocks within the windrows. The mechanical screen will be brought to the Facility on an as-needed basis to remove undesirable and oversized material from the mature compost.

Equipment will be inspected according to the standards outlined in Table 7, included in Part III, Section 18.2 of this application. Additional inspection and maintenance will be added to Table 7 as equipment is added.

Inspection, repairs, and maintenance records will be maintained in a weekly log.

Section 26. Production Processes

26.1 Control of Unloading for Unauthorized Materials

Only the designated feedstocks will be accepted at the Facility. The following will be implemented to control the unloading of un-compostable material (unauthorized materials):

- Feedstock will be received by authorized transport vehicles only.
- A sign will be placed at the property entrance that indicates the type of facility, permit number, standard hours of operation, and allowable feedstocks.
- Delivery trucks entering the property are inspected by the OIC for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are refused. In the event that unprocessable, prohibited, or unauthorized materials is discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized municipal solid waste facility.
- Coarse straining may be used to remove non compostable materials in liquid feed stock.
- Manifests or Bill of Lading are examined for each load to ensure that they describe the load's waste source, contents, and volumes.
- The OIC will confirm that all haulers have the appropriate licenses or registrations.

26.2 Material Processing

26.2.1 Liquids

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). The estimated quantities of grease trap, septage, and dairy/food (including meat and fish) wastes to be received are 225,000, 12,500, and 12,500 gallons per operating day, respectively.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. The maximum amount of feedstock stored on-site at any one time will not exceed 252,000 gallons (the combined capacity of the storage tanks). No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front-end loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

26.2.2 Solids

The OIC will supervise the delivery of bulking material and chemicals and will direct deliveries to the appropriate storage area. Bulking material will be inventoried daily to ensure an adequate amount is on-site to cover or process the feedstock. Record inspections and volume of bulking material will be recorded on the weekly log.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the property. An estimated 111 tons of chipped bulking material will be received daily. The maximum amount of bulking material stored on-site at any one time will not exceed 8,000 tons. Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Figure 2). A chipper/grinder will be present at the property to chip and grind raw bulk material. The grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

- Bulking materials
  - Remove solids from the dewaterer onto the intermediate transfer station where it is inspected for un-compostable material.
  - Divert un-compostable material to the waste storage area.
  - Load compostable material with bulking material in composter or moved to the Feed stock storage area for accumulation.
  - Cover solids with bulking material if there is a potential for odor production.
- Receiving solids
  - Receiving solids are materials with less than 50 percent moisture and bulking materials. Receiving solids will be stored in the feedstock holding area.
  - Cover solids that may attract vectors or produce orders with bulking material and process within 72 hours.
  - Limit materials that have a potential for spontaneous combustion to storage depth of 4 feet.
  - Load solids and bulking material into the in-vessel composter at 40 percent moisture.

26.2.3 Composting

Feedstocks will be applied to the windrows using a vacuum truck, or equivalent, equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Feedstock and bulking material will not exceed the capacities described above. The maximum and average time the feedstock and bulking material will remain on the composting pad is 90 days. The maximum and average processing time will be 90 days, the time required for a compost windrow to reach maturity.

Once tilled, the windrows will be monitored and measurements will be taken daily to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content is evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the compost pad retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

26.3 Waste Storage and Disposal

26.3.1 Non-Hazardous Waste

Non-hazardous solid wastes will be stored in a dumpster near the maintenance shop area. Non-hazardous wastes will be transported and disposed of at a permitted landfill on a minimally weekly basis, more often to prevent nuisance conditions.

26.3.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system. In the unlikely event that hazardous material does accumulate at the Facility, a "One-Time Waste

Shipment" registration will be applied for. Hazardous waste will be segregated from non-hazardous waste and transported and disposed at a permitted hazardous waste facility.

26.4 Product Distribution

Under the proposed variance, storage of finished Grade 1 or Grade 2 compost (not Waste Grade) will be placed on an unlined portion of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 35.3.1 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished material is intended for use in landscaping, vegetable gardens, and similar uses; therefore storage on the unlined ground should not present any potential for damage or impact to groundwater resources.

Currently, compost will be sold only in bulk form. At some time in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a font-end loader. The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted MSW facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site).

Section 27. Alternate Disposal

27.1 Non Standard Products

Compost that does not meet the compost Grade 1 or Grade 2 standards will be transported to and disposed of at a permitted landfill.

Compost characterized as hazardous waste will be transported to and disposed of at a permitted hazardous waste facility.

Non-compostable material will be transported to a permitted landfill.

Section 28. Pollution Prevention Plan

28.1 Unauthorized Material

The control of unauthorized material entering the Facility will be enforced by implementing the following:

- At least one employee will be on-site during receiving hours to inspect each delivery of feedstock or bulking agents to ensure that no unauthorized or prohibited material is incorporated into the feedstock.

- Waste unloading will be confined to designated areas, and signs will be maintained that indicate where vehicles unload.
- Traffic will be directed to use only gravel roads. Gates will be locked when not accepting waste. Transporters' licenses will be checked at the Facility entrance.
- Solid waste that will cause or may cause problems in maintaining full and continuous compliance will not be accepted.
- Unloading of waste in unauthorized areas will be prohibited.
- Waste deposited in an unauthorized area will immediately be removed and disposed of properly. Prohibited waste will immediately be returned to the transporter or generator of the waste.

28.2 Sanitation and Litter

28.2.1 Facility Generated Wastes

Non-compostable material, plastics, and metal aggregate found in the feedstock will be transferred to the waste holding area and transferred to a permitted municipal solid waste (MSW) landfill. Wastes will be limited to 1.5 percent of dry weight of solids.

The dumpster will be emptied at an interval that would prevent nuisance conditions but at least weekly. Septage generated by the Facility's septic tank during routine septic maintenance and cleaning will be processed as feedstock.

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade.

The Facility's septic sludge will be recycled and processed as feedstock. Septic sludge passing the Paint Filter Liquids Test, (United States Environmental Protection Agency (EPA) method 9095) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846, September 1986) is acceptable at MSW landfills. If for some reason septic sludge cannot be processed as feedstock, the sludge will be screened using a Paint Filter Liquids Test prior to disposal at an off-site permitted landfill. In addition to the Paint Filter Liquids Test, sludge disposed at an off-site MSW facility will not exceed the standards presented in Table 12.

Table 12. MSW Disposal Limits

Contaminant	Total Limit (mg/Kg)	TCLP Limit (mg/L)
Benzene	10	0.5
Lead	30	1.5
Total petroleum hydrocarbons (TPH)	1,500	NA

mg/Kg = Milligrams per kilogram
TCLP = Toxicity characteristics leaching procedure'
mg/L = Milligrams per liter

Septic sludges exceeding these limits will not be disposed in MSW landfills. Septic sludges and composts that are non-hazardous will be disposed at a MSW landfill with dedicated Class 1 solid waste cells. Sludges and composts that are characterized as a hazardous waste will be sent to an authorized treatment, storage, or disposal facility for further processing or disposal.

28.2.2 Storage Requirements

Non-hazardous solid waste will be stored in covered dumpsters.

Liquid feedstock will be pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas.

Haulers and generators will be responsible for storage and transportation of waste in a safe manner prior to delivery to the Facility.

28.2.3 Materials along the Route to the Facility

Vehicles hauling liquid feedstock to the Facility will consist of an enclosed tank hold to effectively secure the load to prevent the escape of any part of the load by blowing or spilling. Vehicles hauling bulking material will be equipped with a tarpaulin, net, or other means to effectively secure the load.

Signs will be posted to direct materials to proper storage areas and to prohibit unauthorized materials or disposal.

Offenders will be reported to proper law enforcement officers or the TCEQ. Surcharges will be charged for unauthorized dumping.

28.2.4 Work Area Sanitation

Potable water will be provided to the Facility. Water connections will be provided with a back flow check valve to prevent cross contamination. This connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will periodically be used to remove residuals not removed with the more conservative cleaning methods. The owner/operator may hire a contracting company to perform the pressure washing, as needed.

28.2.5 Employee Sanitation Facilities

Potable water and sanitary facilities will be supplied for employees and visitors.

28.2.6 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material used at the Facility consists of chipped and shredded wood and vegetative matter that is not susceptible to being windblown. The Facility does not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows is not performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and well-tuned and serviced at manufacturers' recommended service schedules.

Windblown material and litter will be collected and placed in a waste container as necessary, and at least once per day on days that the Facility is in operation.

28.2.7 Road Maintenance

If applicable, the county road servicing the Facility will be swept as needed.

On-site roads and paved areas will be repaired and graded to minimize depressions, ruts, and potholes. On-site roads and paved areas will be watered to control dust.

28.3 Ventilation and Odor Control

An odor audit will be completed daily. If detected odors are creating a nuisance, then an odor investigation will be conducted. The protocol for the audit and investigation is detailed in Section 35.2.

Odors will be minimized through the use of best management practices (BMPs), including:

- Storing liquid feedstocks in enclosed aboveground storage tanks;
- Suspending application of feedstocks during high winds;
- Using adequate bulking material, and
- Turning or tilling bulking material immediately after feedstocks are applied.

If the odor investigation indicates that the compost is the source of the odor, turning rates for the compost will be increased and, if needed, production method modifications will be made, such as adding a layer of bulking material on top of the composted material.

Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the Facility OIC will suspend odor-producing operations until the nuisance is abated.

28.4 Overloading and Breakdown

28.4.1 Design Capacity

The design capacity of a processing will not be exceeded during operation. The Facility will not accumulate waste in quantities that cannot be processed within a time frame that will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional waste will not be received until the adverse conditions are abated.

28.4.2 Equipment Failures

Equipment that has failed will be promptly repaired to minimize disruption of normal operations. The necessary equipment to perform normal operations is commonly available for rent. In the event that any piece of equipment cannot be repaired in a timely fashion, the necessary equipment will be rented from a local supplier. In addition, the surplus tankage volume on-site would typically allow the continued acceptance and storage of feedstocks during equipment down time.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the Facility will restrict the receiving of waste. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated waste from the Facility and transport it to an approved backup processing or disposal facility.

The OIC will refuse wastes or divert wastes to a permitted landfill or processing/disposal facility if processing or disposal procedures for the waste becomes inoperable for periods exceeding 24 hours or if the volume of feedstock within the storage tanks approaches maximum capacity.

28.4.3 Back Up Processing or Disposal

Backup processing facilities include landfills permitted to take liquid wastes and wastewater treatment systems that accept the typical wastes accepted at the Facility. A list of wastewater treatment plants (Wets), MSW processing facilities, and landfills that will accept wastes will be maintained at the Facility.

28.5 Final Product Use

The anticipated final product grade of all compost is Grade 1. The intended final use of the Grade I composted materials is as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed at a permitted MSW facility, or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of a voucher provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

- For Grade I Compost: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

- For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

- Feedstocks from which the compost was derived (grease trap waste, etc.) will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.) The label will identify one or more of the following general descriptions of feedstock:
  - Source-separated organic materials;
  - Source-separated meat, fish, or greases;
  - Municipal sewage sludge; or
  - Grease trap waste.

Section 29. Vector Control Plan

This Facility controls vectors that include rodents, insects, birds, scavenging animals, bacteria, and viruses through the following vector control (VC) program.

The locations in or around the Facility where vectors maybe problematic are feedstock storage, processed material storage, final product storage, and surrounding landscapes.

29.1 Inspection and Monitoring

Weekly inspections: The OIC or designee will perform an inspection weekly to identify problems and corrective actions needed to prevent and/or manage vector infestations. The OIC will plan and schedule corrective actions.

For current, recent, or likely vector infestations, a weekly monitoring program to detect vector infestations may be implemented as follows:

- Rodents: Baited rodent traps will be placed at the maintenance shop and office and will be checked and emptied as needed.
- Insects: Sticky cardboard monitors will be used to monitor for ants and cockroaches at the maintenance shop and office, as needed.
- All other vectors: Weekly monitoring by visual inspection will be performed by designated staff indoors and outdoors.
- Vector identification: When vectors are detected, the specific identification of the vector will be obtained using professional resources, as needed. The OIC will consult with professional resources to determine methods that will control vectors without impacting the quality of the final products.

Vectors will be controlled through the use of BMPs, including:

- No storage or acceptance of unapproved wastes;

- The immediate incorporation of feedstocks into the bulking material or their storage in steel storage tanks until they are used;
- The use of a selected group of microbes, fungi, yeast, molds, and enzymes in the composting process that accelerate decomposition rate of the feedstocks and that also deter the reproduction of flies and fly larvae;
- A 25-foot vegetative buffer surrounding the processing area will be mowed to reduce habitat of vectors.
- Along with sanitation and maintenance actions to eliminate food, water, shelter, and entryways for vectors, traps will be used to reduce vectors when practicable and effective.
- The maintenance of a temperature of at least 55 degrees centigrade in composting materials which discourages pathogen growth; and
- The immediate cleanup of spills.

29.2 Facility Program Evaluation

The Facility VC plan will be evaluated every at least once a year. The OIC will consult with professional resources to evaluate the effectiveness of the VC program and to develop improvements as needed.

The Facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the Facility or contract with a professional service provider. The Facility will not apply fungicides, herbicides, insecticides, or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents, or on the Hazardous Substance List as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Facility will also not incorporate pesticides into feedstocks, in-process materials, or processed materials. Authorized fungicides, herbicides, insecticides, or other pesticides would be applied in accordance with manufacturers' instructions and in conformance with applicable federal, state, and local regulations.

29.3 Records and Documents

A weekly log will be kept on file by the OIC, or designee, and will include:

- Vector inspection results;
- Applications of pesticides, including type, brand, and purposes; and
- Vector activity sightings, including identification of the vector (if known), number seen, other evidence (such as animal droppings), date, time, and location.

Section 30. Security

30.1 Facility Access

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials, and scavenging. The following measures will be implemented:

- Unauthorized access will be prohibited.
- The Facility will be enclosed with fencing and vehicle access will be controlled through a locked entry gate.
- No trespassing and notification signs will be maintained around the perimeter of the Facility.
- All truck traffic must proceed directly to the material unloading area and supervised by the on-site staff.
- The facility will have a sign at the entrance indicating the type of facility, the permit number, hours of operation, and the allowable feedstocks.
- Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5-miles per hour. Parking will be allowed only in designated areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance, and all vehicles will be closely monitored.
- The Facility business hours are Monday through Saturday, 7:00 a.m. to 6:00 p.m. During these times, the Facility is open to sell compost. Feedstock receiving, off-loading, loading, and processing preparation will be limited to 7:30 a.m. to 5:30 p.m. during the months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September.. Composting operations will sometimes be performed outside those hours as required by weather or other factors.
- Security lighting will be provided in the vicinity of the Facility entrance and office trailers.
- The entrance/exit gates will be secured when the Facility is not operational. After-hours access will be allowed only with prior arrangement with the Facility manager.
- Security personnel will be present on-site outside of operating hours. Security personnel will be made aware of the site hazards and will be provided the list of emergency contact information.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and will be noted in the Facility weekly log.

- Facility personnel will coordinate with local law enforcement officials (i.e., police/sheriff, highway patrol, emergency medical corps units, fire department, and utility emergency teams) in the event of any emergency situation.

Section 31. Emergency Action Plan

The following plans will be implemented in each emergency.

31.1 Spills

Spills at the Facility will follow steps outlined in the Spill Containment and Contingency Plan described in Section 33.

31.2 Fire

The OIC or designee will perform the following:

- Attend to the immediate safety of personnel and visitors.
- Call 911 and report any fires. All staff will carry cellular phones which will be used to contact emergency assistance.
- If the fire is small and localized, control the spread of the fire.
- If needed, use a loader, bull dozer, or other earth moving equipment to create a fire break or extinguish small fires with dirt.
- The local fire response has equipment and experience to fight rural fires.

31.3 Medical

The OIC or designee will perform the following:

- See to the immediate safety of the injured person(s), personnel, and visitors.
- If the injury is not critical and only requires first aid, first aid will be applied.
- Call 911 and report the medical emergency, if needed. All staff will carry cellular phones which will be used to contact emergency assistance.
- MSDS sheets will be provided in the event of a chemical exposure.

31.4 Adverse Weather

Adverse weather includes tornados, lightening, and high wind conditions. In the event of adverse weather conditions, the OIC will perform the following:

- Receive advance notification from the local weather station as to the extent and nature of the impending weather emergency.
- Relay emergency actions required to staff and visitors.

31.5 Health and Safety Training

Facility personnel will be trained in the Facility's health and safety plan to include required OSHA training. The OIC will assess training needs and develop a training program to meet regulatory requirements.

Section 32. Fire Prevention and Control Plan

32.1 Fire Response

The Sealy Fire Department and San Felipe- Frydek Volunteer Fire Department will receive Tier I reports that list the amount and types of stored materials on a facility map, annually. Additionally, SouthWaste will provide these departments with a description of the nature of the Facility and its location, as well as a copy of this Fire Prevention and Control Plan.

Staff will attempt to control small fires using rural firefighting techniques. Staff will call 911 if the fire is too large to control.

Staff may install fire breaks during fires to reduce off-site migration of the fire. Fire breaks generally consist of plowed areas around fire perimeter or perimeter fencing.

Equipment for staff response to fires consists of fire extinguishers, area soil, and front-end loader.

In the event of a fire with visible flames, SouthWaste will immediately notify the local fire department. Emergency contact information is provided in Table 13.

Table 13. Emergency Contact Information

Agency	Emergency Phone Number	Non-Emergency Phone Number
Sealy Fire Department 1207 Highway 90 W Sealy, TX 77474	911	(979) 885-2222
San Felipe- Frydek Vol. Fire Department 15023 Fm 1458 Rd Sealy, TX 77474	911	(979) 885-7081
Austin County Sherriff 417 N. Chesley St. Bellville, TX 77418	911	979-865-3111

32.2 Fire Prevention

The Facility is not located within a city limit; therefore, local city fire codes do not apply. Austin County follows the guidelines set forth by the State Fire Marshal's Office. The National Fire Protection Association Life Safety Code (NFPA 101) is the adopted inspection standard of the State Fire Marshal's Office. The State Fire Marshal utilizes other NFPA fire codes for guidance in assessing and directing remediation of fire hazards in other than occupied buildings. This Fire Prevention and Control Plan is intended to comply with the requirements of the NFPA fire code.

Non-hazardous materials handled by the Facility do not typically pose fire hazards but staff must stay alert for signs of fire such as smoke, steam, or excessive heat. As a cooperative rural community, adjacent agricultural operations will stay alert to signs of fire to assist neighboring operations in the control of fires.

Fire prevention techniques include:

- Equipment will be regularly cleaned to remove combustible waste and caked material which can cause overheating and increase fire potential.
- Smoking will not be permitted near material management areas. Designated smoking areas at the office will be equipped with proper disposal containers.
- No smoking signs will be placed near material management areas.
- The presence of the earthen berms surrounding the processing area will inhibit the spread of fire to or from the composting material.
- Fire lanes will be maintained around the Facility, including feedstock storage tanks and processing areas.
- The potential for fires within the composting material will be limited by the maintenance of a moisture content near 60 percent.
- Vegetation within 25 feet of the processing and storage areas will be watered and mowed as much as practicable.
- As required by the 2003 International Fire Code, bulking material storage piles and compost material piles will not exceed 25 feet in height, 150 feet in width, or 250 feet in length.
- All storage piles will be accessible by fire-fighting equipment via access roads.
- Sufficient ABC type fire extinguishers are located on-site.
- Staff will be alert to signs of fire such as smoke, heat, or odors.
- Fire extinguishers are visually inspected monthly by staff with an annual inspection/maintenance completed by a State licensed fire protection contractor.

- Compost materials that may generate heat will be turned periodically to reduce internal temperature.

32.3 Fire Control

Water will be available for firefighting from a potable well water source. Additionally, water for firefighting will be obtained from the Facility's compost pad retention pond.

The local fire department has vehicles specifically outfitted to pump water, including carrying a water reservoir and using drafting and water tenders to obtain further supply typically used in a rural area.

Rural firefighting techniques that include fire breaks and other firefighting techniques will be applied. Equipment available on-site for the use in firefighting will include:

- Fire extinguishers;
- Compost pad retention pond, pump, and hoses;
- Vacuum truck, or equivalent; and
- Front-end loader.

In the event of a smoldering fire (i.e., evidenced by smoke but with no visible flames), the vacuum truck, or equivalent, can be filled using water from either the compost pad retention pond or the municipal water supply, and then can spray the water directly on the fire and surrounding combustible materials. The front-end loader will be used, as necessary, to physically separate any smoldering or burning materials from other combustible materials. After the fire is extinguished, the front-end loader will be used to break apart the burnt material to allow the material in the interior of the pile or windrow to be saturated with water to prevent re-ignition or smoldering.

Firefighting equipment is readily available for small fires. For fires too large for the Facility staff to handle, the county has an emergency response system that responds to fires. The jurisdictional fire department will respond to fires that cannot be controlled by staff.

32.4 Staff Training

All staff will be trained in fire prevention, to recognize signs of fire, and to inspect equipment. Staff will be trained to properly use fire extinguishers and emergency evacuation procedures.

The OIC will have additional training in fire break construction and fire buffer maintenance to prevent off-site fire migration.

The local fire department will be called in the event the fire is too large for staff to control.

Section 33. Spill Containment and Contingency Plan

Storage and processing areas are designed to control and contain spills or contaminated water from leaving the Facility. The design is sufficient to control and contain a worst case spill or release from the largest tank volume within the liquid feedstock storage area and precipitation from a 25-year, 24-hour storm. Secondary containment calculations are provided in Appendix I.

33.1 Leak Detection

33.1.1 Storage Tanks

A daily inspection of liquid feedstock storage tanks for leaks or spills will be performed. Accumulated stormwater within the secondary containment berm surrounding the storage tanks will be pumped out and sprayed onto the composting pad.

33.1.2 Liner

The geomembrane liner will be periodically inspected for cracks to prevent pollutant transport. Repairs will be made within two weeks. Damaged areas identified throughout the synthetic liner will be replaced or repaired in accordance with the Liner Quality Control Plan (Appendix M). Repairs for the clay liner include rewetting and packing the surface layer to a depth of 6 inches.

33.2 Spill Prevention and Control

Spill prevention and control have been developed for receiving and transfer areas. The following discusses each measure for each area. When a spill is discovered, the emergency action plan for spills will be followed.

33.2.1 Receiving and Liquid Feedstock Transfers

Liquid feedstock will be pumped into the liquid feedstock storage tank unless it is being directly sprayed onto the composting pad. Liquid waste haulers are directed to the designated unloading area located near the storage tanks.

Liquid feedstock within the storage tanks will be routinely measured to determine the volume stored within each tank. An attendant monitors transfer hoses for leaks and spills.

The tanks will be contained in the secondary containment system and daily inspection will be performed to check for leaks and spills. Spills will be cleaned up by vacuuming liquids and transferring the material into the liquid feedstock storage tanks. Residual solids will be excavated and disposed off-site to a permitted MSW landfill.

Accumulated stormwater is pumped out and sprayed onto the compost pad for processing.

33.2.2 Sanitation

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Wash-water will be collected and diverted to the liquid feedstock storage tanks for processing. The OIC will monitor the clean-up and collection procedures for leaks and spills. Spills will be cleaned up and liquids will either be applied to the windrows or diverted to the liquid feedstock storage tank.

33.3 Spill Emergency Actions

The emergency action plan procedures in the event of a spill occurrence outside the composting pad are:

- Liquid spills will consist of the following actions:
  - If spill is outside secondary containment, then earthen berms or spill booms will be utilized in order to contain the spill.
  - If feedstock spills, the reclaimed material will be returned to the liquid feedstock storage tanks.
  - If fuel and chemical spills, the material will be remediated and disposed of to provide the most effective mitigation.
- Solid spills, primarily in the form of sludge, will consist of the following actions:
  - Solids will be protected from stormwater incursion
  - Using the front-end loader, solids will be collected, transported, and applied to the composting pad.
- Upon completion of remedial activities, the area of the spill will be assessed for signs of impact.
- Reportable quantities will be reported as required by federal, state, or local rules or regulations.

Section 34. Recordkeeping and Reporting Requirements

34.1 Recordkeeping

A copy of the permit, the approved permit application, and any other required plans or other related document will be maintained at the Facility at all times during construction.

After completion of construction, an as-built set of construction plans and specifications will be maintained at the Facility. The plans will be made available for inspection by agency representatives or other interested parties. These documents will be considered a part of the operating record for the Facility.

The OIC will promptly record and retain, in an operating record, the following information:

- All location-restriction demonstrations;
- Inspection records and training procedures;

- Closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- All cost estimates and financial assurance documentation relating to financial assurance for closure;
- Copies of all correspondence and responses relating to the operation of the Facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- All documents, manifests, shipping documents, trip tickets, involving special waste;
- Any other document(s) as specified by the approved authority or by the executive director; and
- Record retention provisions for trip tickets as required by 30 TAC §312.145.

The following records will be maintained on-site permanently, or until facility closure:

- TCEQ facility operating permit;
- Sampling plan and procedures;
- Staff training and certification records;
- Maturity protocol test results; and
- Annual groundwater sampling results.

Records will be maintained on-site and available for inspection by the executive director for a period consisting of the two most recent calendar years of the following:

- A log of abnormal events at the Facility, including, but not limited to, hazardous constituents uncovered, fires, explosions, process disruptions, extended equipment failures, injuries, and weather damage; and
- Results of monthly final product testing report. Documentation of final product testing will be maintained for a period of three years after the final product is shipped off-site or after facility closure.

Copies of the annual reports will be kept on-site for a period of five years following submittal to the TCEQ.

34.2 Signatory

For signatories to reports, the following conditions apply:

- The owner or operator will sign all reports and other information requested by the executive director as described in §305.44(a) or by a duly authorized representative of the owner or operator.

- If an authorization is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of 30 TAC §330.219(c) must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

- Any person signing a report will make the certification in accordance with 30 TAC §305.44(b).

34.3 Reporting Requirements

All plans described in the site operating plan presented above will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director.

The Facility will retain all information contained within the operating record and the different plans required for the Facility for the life of the Facility.

34.3.1 Documentation and Reporting of Final Product Testing

Final product documentation maintained will include:

- Batch numbers identifying the final product sampling batch;

- Quantities, types, and sources of feedstocks received and the dates received (this information is typically documented on the manifest form that accompanies each delivery of feedstock);

- The quantity of final product and final product standard code assigned;

- The final product grade or permit number of the disposal facility receiving the final product if it is not Grade 1 or Grade 2 compost;

- Date of sampling; and

- Analytical results used to characterize the final product including laboratory quality assurance and quality control (QA/QC) data and chain-of-custody documentation.

A monthly final product testing report will be submitted to the TCEQ within two months after the end of the reporting period. The monthly final product testing report will include the above information for each batch of final product sampled that month.

34.3.2 Annual Reporting

An annual report will be prepared and submitted to the TCEQ. The annual report will provide the following information for the year of the report:

- Documentation of compost input and output quantities;

- Description of the end-product distribution;

- All results of any required compost laboratory testing; and
- Groundwater sampling results.

Annual reports will be prepared and submitted to the TCEQ not later than 45 days following the calendar year.

Section 35. Sampling and Monitoring

35.1 Facility Inspections

35.1.1 Inspection Locations and Procedures

The Facility will be inspected for the items listed in Table 14.

Table 14. Facility Inspections

Item	Task	Frequency
Fence/gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown material or waste	Check working area, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily
Facility access road	Inspect Facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed.	Daily
Facility signs	Inspect all Facility signs for damage, general location, and accuracy of posted information.	Weekly
Run off or pooled water	Inspect all areas that are exposed to stormwater for erosion or pooling. Inspect all areas for liquids pooled on the composting pad and storage areas. Clean up within 2 weeks. Repair or redesign as necessary.	Weekly
Unauthorized entry	Inspect for signs of unauthorized entry of humans and animals. Make repairs or review security plan.	Weekly
Equipment	Inspect loader, excavator, chipper/grinder, and transfer trucks for leaks, and operation efficiency. Repair as needed.	Weekly
Geomembrane liner	Inspect weekly for cracks. Repair as needed. Wet Clay liner periodically to prevent cracking. Re-compact if crack compromises the integrity of the liner. Patch material can be used as specified by the manufacturer for the synthetic liner.	
Seepage in and around the composting facility.	Inspect areas around the liners for seepage. Makes repairs as needed.	Weekly

35.1.2 Reporting Requirements

Inspections logs will be maintained in Facility records. Noncompliance items will be reported if required to TCEQ.

35.2 Odor Audit/Investigation

Matrix and Location. Monitoring will be conducted along the route to and from the Facility, at the gate, and at the Facility. Particular attention should be paid to odors that are detected beyond the 50-foot buffer of the Facility.

Purpose. The purpose of the audit is to determine the cause of the odor and corrective actions and as a preventive measure for nuisance conditions.

Frequencies. A daily audit will be performed during operations hours. A frequency, intensity, duration, and offensiveness (FIDO) (TCEQ, 2007) inspection will be performed if an odor is detected.

Collection Procedures. If an odor is detected, the OIC will perform an odor investigation:

1. Locate and assess the odor
    a. Describe the intensity and offensiveness of any odors observed using the TCEQ Odor Log, which can be downloaded for the TCEQ website at http://www.tceq.texas.gov/assets/public/compliance/odor-log-public.pdf
    b. Describe any physical effects experienced by the investigator which are indicative of adverse effects upon health (burning eyes, nose, throat, headache, vomiting, etc.)
    c. Determine and document the extent of the odor plume. Document on a map of the vicinity the odor survey route, the time the investigator was at each location, and the odor observations at each location. This survey should include upwind and downwind observations at least.
2. Locate the source(s) of the odor.
3. Locate the specific cause of the odor (i.e., the specific compound, equipment, or process emitting the odor, and the reason(s), such as a plant upset).
4. Document estimates of wind speed and direction, temperature, humidity, precipitation, and sky cover.
5. If odors have been detected at the same location at other times, document a comparison of the current observations with the prior observations.
6. Correct or initiate procedures for odor control and eliminate nuisance conditions. Nuisance conditions exist if "an odor has been emitted in such concentration and duration as to be injurious to or adversely affect human health, welfare, animal life, vegetation, or property, or interfere with normal use and enjoyment of animal life, vegetation, or property."

FIDO results will be maintained in Facility records. Corrective actions will be maintained in the Facility records.

35.3 Compost

Compost will have visual inspections and lab analysis as required by TCEQ Compost rules 30 TAC §332.71. Two types of sampling and analysis will be performed; sampling and analysis for maturity and sampling and analysis for final product grading.

35.3.1 Sampling and Analysis for Maturity

At the completion of the composting process, a maturity protocol will be developed by SouthWaste to measure the potential for biological activity in the composted materials. Maturity protocol testing will be performed during the first 18 months after permit issuance.

Development of the maturity protocol will include sampling to measure the reduction of organic matter (ROM) in composting material from the time it is initially mixed until it is mature. The ROM will be calculated using the Loss-on-Ignition Organic Matter (LOI) method. To address seasonal variations in compost feedstock during maturity protocol development, four sets of maturity protocol samples will be collected and analyzed as follows:

1. Sample 1 batch when initially mixed during the <u>first quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
2. Sample 1 batch when initially mixed during the <u>second quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
3. Sample 1 batch when initially mixed during the <u>third quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
4. Sample 1 batch when initially mixed during the <u>fourth quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.

The results of the ROM analysis of the initially mixed samples will be compared to the ROM results of the 60-day, 120-day, and 180-day samples. Compost will be considered "mature," when the reduction of organic matter from the initially mixed material is between 40 and 60 percent. Compost will be considered cured when the reduction of organic matter from the initially mixed material is greater than 60 percent.

The maturity testing sampling results will be evaluated to establish a typical baseline organic matter content for initial mixes, a typical baseline organic matter content for cured compost, and an estimated composting duration necessary to achieve cured compost. This information will be used to develop recommended maturity testing methods and frequencies to allow the classification of compost into maturity grades, and the identification of materials that are stable but not mature. This will constitute the maturity protocol. The maturity protocol will be submitted to the TCEQ for review and approval, as well as for any future revision. Once approved, the maturing protocol will be used to classify all future compost.

Maturity protocol testing and the maturity testing results for final products for classification will be documented and maintained as described in Section 35.3.1.

35.3.2 Sampling and Analysis of Final Product

In addition to maturity testing, all batches of final product will be analyzed for the parameters listed in Table 15. The executive director may at any time request that additional parameters be tested.

Table 15. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total Metals			
As	SW-846, Method 6020	≤ 10 mg/kg	≤ 41 mg/kg [a]
Cd	SW-846, Method 6020	≤ 16 mg/kg	≤ 39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤ 180 mg/kg	≤ 1,200 mg/kg [a]
Cu	SW-846, Method 6020	≤ 1,020 mg/kg	≤ 1,500 mg/kg [a]
Pb	SW-846, Method 6020	≤ 300 mg/kg	≤ 300 mg/kg [a]
Hg	SW-846, Method 7470	≤ 11 mg/kg	≤ 17 mg/kg [a]
Mo	SW-846, Method 6020	≤ 75 mg/kg	≤ 75 mg/kg [a]
Ni	SW-846, Method 6020	≤ 160 mg/kg	≤ 420 mg/kg [a]
Se	SW-846, Method 6020	≤ 36 mg/kg	≤ 36 mg/kg [a]
Zn	SW-846, Method 6020	≤ 2,190 mg/kg	≤ 2,800 mg/kg [a]
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
Other Parameters			
Maturity / Stability	Maturity Protocol (see Section 35.3.1)	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis (Recommended Test Methods for the Examination of Composts and Composting, Composting Council, 1995)	1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media	5.0 to 8.51	5.0 to 8.5 1
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/cm	10 mmhos/cm
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost which is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.

[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

A final product grade will be assigned prior to sale based on the standards listed in Table 15 above. The following paragraphs describe sample collection and analyses requirements for final products.

The following paragraphs describe sample collection and analyses requirements for final products.

Collection. At a minimum, one sample will be collected either for every 3,000 cubic yards of final product, or one sample will be collected monthly, whichever is more frequent. Each sample will consist of nine grab samples which will be collected as follows:

- Three grab samples will be collected from the base of the windrow or stockpile, at least 12 inches into the pile at ground level.
- Three grab samples will be collected from the exposed surface of the windrow or stockpile.
- Three grab samples will be collected from a depth of 2 feet from the exposed surface of the windrow or stockpile.

The nine grab samples will be combined and thoroughly mixed to form a composite. A single sample will be collected and analyzed from the composited sample material.

After one year of final product testing, a request for an alternative testing frequency may be submitted to the TCEQ in accordance with 30 TAC §332.71 (f)(3).

Sample Analysis. Final product samples will be analyzed for the parameters and by the methods listed in Table 15, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury, and will meet the other applicable standards presented in Table 15. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

35.4 Groundwater

After completion of the following analysis, an original and two copies of each analysis will be sent to the executive director and a copy will be maintained on-site.

35.4.1 Background Samples

Four background groundwater samples of the monitor well will be provided to TCEQ within 24 months from the date of the issuance of the permit.

Background levels will be established from samples collected from each well at least once during each of the four calendar quarters: January to March; April to June; July to September; and October to December. Samples from any monitoring well will not be collected for at least 45 days fo11owing the collection of the previous sample from that well, unless that new sample is intended as a replacement. At least one sample per well will be collected and submitted to a laboratory for analysis within 60 days of permit issuance.

Background groundwater samples will be analyzed for the laboratory and field parameters listed in Table 16.

Table 16. Groundwater Sampling Parameters

Sampling Parameter	Background Sampling	Annual Sampling	Method
Heavy metals			
Arsenic	X		EPA 6020
Barium	X		EPA 6020
Cadmium	X		EPA 6020
Chromium	X		EPA 6020
Copper	X		EPA 6020
Iron	X	X	EPA 6020
Lead	X		EPA 6020
Mercury	X		EPA 7470A
Selenium	X		EPA 6020
Zinc	X		EPA 6020
Other parameters			
Calcium	X		EPA 6020
Magnesium	X		EPA 6020
Manganese	X	X	EPA 6020
Sodium	X		EPA 6020
Carbonate	X		SM2320B
Bicarbonate	X		SM2320B
Sulfate	X		EPA 300
Fluoride	X		EPA 300
Nitrate (as N)	X		EPA 300
Total Dissolved Solids	X	X	SM2540C
Phenolphthalein Alkalinity as CaCo3	X		SM2320B
Alkalinity as CaCo3	X		SM2320B
Hardness as CaCo3	X		SM2340B
pH	X	X	In-field measurement
Specific Conductance	X		In-field measurement
Anion-Cation Balance	X		Calculated based on anion/cation lab data
Total Organic Carbon (4 replicates will be collected per sample)	X	X	ASTM D2974/EPA 415.1
Chloride	X	X	EPA 300

Background sampling results will be reported to the TCEQ as discussed in Section 36.1.12.

35.4.2 Annual Samples

Following the completion of background groundwater sampling described in Section 35.4.1, each groundwater monitoring well will be sampled annually. Depth to groundwater and pH will be measured and documented each time a monitoring well is sampled. Annual groundwater samples will be analyzed for total organic carbon (4 replicates per sample), iron, manganese, chloride, and total dissolved solids. Analytical methods for these parameters will be the same as those used for background sampling (Table 16).

35.4.3 Analytical Methods

The analytical methods are noted in Table 16 conform to TCEQ and U. S. Environmental Protection Agency (EPA) approved testing methods. The practical quantitation limits for the constituents of concern will be set by standard methods or detection limits, whichever is lower. The detection limits will be below the maximum contaminant level values or as low as practicably feasible.

The quantitation limits will be set and reviewed with the contract laboratory. The review of limits will take place at least annually or when a new contract laboratory is used.

35.5 Data Precision and Accuracy

Data precision and accuracy will comply with the methods used for each matrix and parameter. The contract laboratory will document the data precision and accuracy requirements and any deviations.

35.6 Documentation

Field conditions and analysis will be documented on the chain of custody for each sampling event. Laboratory analysis procedures, QA/QC, and any deviations will be documented in the Laboratory Case Narrative.

35.7 Reporting Requirements

Sample analytical results will be reported to the TCEQ in a data package that contains, at a minimum, the analytical test reports documenting the analytical results and methods for each sample and analyte. The test reports will include the method-required quality control information needed to evaluate the analytical results of sampling and analysis with comparison to quality control standards and corrective action upon failure.

SouthWaste will ensure that the results of each test analysis carried out by the laboratory will be reported:

- Accurately, clearly, unambiguously, and objectively, and in accordance with any specific instruction in the test method, work plan, permit, or program.
- In a test report and include all the information required for TCEQ submission and necessary for the interpretation of the test results and all information required by the method used, project quality objectives, or permit.
- Unless otherwise specified by project objectives, all analytical results reported for sludge, compost, soil, and sediment samples will be reported on a dry weight basis with the percent solids (or percent moisture) also reported on the test reports, to allow back calculation of the result to a wet weight basis.

- Includes at least the following information, unless the laboratory has valid reasons for not doing so:
  - A title (e.g., "test report");
  - The name and address of the laboratory or facility and the location where the test and calibrations were carried out;
  - Unique identification of the test report, and on each page an identification in order to ensure that the page is recognized as a part of the test report;
  - Name and address of the owner;
  - Identification of the analytical method used;
  - Dates of measurements, as well as the report date;
  - Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;
  - The test results and units of measurement;
  - The names, functions, and signatures or equivalent identification of persons authorizing the test report; and
  - Where necessary for the interpretation of the test results, a laboratory case narrative as described below.

Section 36. Quality Assurance and Quality Control

36.1 Sampling, Monitoring, and Inspection

A sampling QA/QC program has been developed and will be periodically revised to reflect analysis and contract laboratory QA/QC requirements. The contracts laboratory will be periodically reviewed to ensure the standards in this chapter and future standards are met.

The QA/QC program establishes field and laboratory sampling and analysis procedures for all tested analytes to ensure proper collection preparation and analysis of representative samples. The QA/QC program also evaluates completeness, correctness, and conformance or compliance of a specific data set against method, procedural, or contractual requirements.

To achieve accuracy (correctness) and completeness, the owner adopts acceptable data quality standards and ensures that all sample collection, preparation and analyses, and data management activities are conducted in accordance with the standards. These activities will be reviewed regularly to ensure compliance with the standards. QC checks must be performed and corrective action taken when indicated.

36.1.1 Records Control

The OIC will ensure that all QA/QC records are legible and stored and maintained in such a way that they are readily retrievable and stored in an acceptable environment to prevent damage, deterioration, or loss. At a minimum, analytical records retention will meet a five-year record retention schedule.

36.1.2 Matrix Spikes and Matrix Spike Duplicates

The OIC will ensure that:

- The data package will include matrix spikes and matrix spike duplicate sample recovery percentages and relative percent differences for each matrix and analyte.
- The subset will include analytes representative of the chemical properties of the project analytes of concern, if analytes are not specified for a project only a subset of the project analytes are evaluated with matrix spikes and matrix spike duplicates.
- Each matrix spike and matrix spike duplicate test report will include the following:
  - Spike concentration added to the sample;
  - Measured concentration of the analyte in the unspiked sample;
  - Measured concentration of the analyte in both the matrix spike and matrix spike duplicate;
  - Calculated percentage matrix spike/matrix spike duplicate recoveries and relative percent difference; and
  - Laboratory and/or method quality control limits (acceptance criteria) for both matrix spike/matrix spike duplicate recovery and relative percent difference.
- The data set will include the laboratory batch number and the laboratory identification number of the sample spiked.
- The laboratory will perform matrix spikes at a minimum frequency of one out of every 20 samples per matrix type, except for analytes for which spiking solutions are not available (e.g., total dissolved solids, total volatile solids, total solids, pH, color, temperature, or dissolved oxygen).

When results of the matrix spikes and matrix spike duplicate are outside of the acceptable limits, The OIC will arrange for the laboratory to check other quality control results (e.g., laboratory control sample), and, if appropriate, have the laboratory qualify the results or use another analytical method. The results of the matrix spikes and matrix spike duplicate are sample and matrix- specific and may not normally be used to determine the validity of the entire batch of samples.

36.1.3 Method Blanks

The OIC will ensure that the laboratory reprocess any sample associated with the contaminated blank that exceeds a concentration greater than one-tenth of the measured concentration of any sample in the associated batch or exceeds the concentration present in the samples and is greater than one-tenth of a specified regulatory limit for analysis or the results reported with appropriate data-qualifying codes and submitted in the data package. These are minimum criteria to be used in cases where blank acceptance criteria are not defined in the referenced methodology used for analysis.

36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates

The laboratory control sample and laboratory control sample duplicate are composed of a sample matrix that is free from analytes of interest and spiked with known amounts of analytes or material containing known and verified amounts of analyses. The laboratory control sample and laboratory control sample duplicate are used to establish intra-laboratory or analyst-specific precision and accuracy of certain parts of the analytical methodology.

The OIC will ensure that the laboratory:

- Analyzes laboratory control samples at a minimum of 1 each per batch of 20 samples or less, per matrix type, except for analytes for which spiking solutions are not available. A laboratory control sample duplicate will be processed with the batch where needed to demonstrate precision.
- Calculate the results of the laboratory control sample to assess precision based on the recovery percentages of the analytes of interest within the analytical methodology.

36.1.5 Surrogates

The OIC will have the laboratory review the surrogate recoveries used to measure method efficiency. The laboratory can, with qualifications, estimate the overall method efficiency.

36.1.6 Data Reduction, Evaluation, and Review

The OIC will ensure that a data reviewer consider the project data quality objectives to determine if the sample test results meet the project needs with regard to completeness, representativeness, and accuracy (bias and precision).

The OIC will review all data prior to submittal for commission review. The data review will include examination of the quality control results and other supporting data, including any data review by the laboratory, and will identify any potential impacts such as bias on the quality of the data using qualifiers in the test reports tied to explanations in footnotes and in the laboratory case narrative.

The criteria used to evaluate each quality control parameter will be defined in the OIC's sampling and analysis plan, project quality objectives, and/or other reference(s) of documented analytical laboratory or method criteria.

The OIC will ensure that the recordkeeping system allow historical reconstruction of all laboratory activities used in the data reduction, validation, and review of the analytical data.

36.1.7 Matrix Interferences and Sample Dilutions

The OIC will ensure that the laboratory:

- Documents and reports problems and anomalies observed during analysis that might have an impact on the quality of the data. The laboratory must document any evidence of matrix interference or any situation where the analysis is out of control (quality control results outside of laboratory or method limits), as well as the measures taken to eliminate or reduce the interference or corrective action to bring the analysis back into control.
- Uses the smallest dilution factor needed to overcome or minimize a problem of matrix interference or to bring an analysis back into control

36.1.8 Chain of Custody

Chain of custody forms are used to document custody of the samples during collection, transport, and initial receipt of samples at the analytical laboratory. A laboratory may also use chain of custody forms to document the movement and analysis of samples within the laboratory.

The Operator will ensure that the laboratory:

- Submit all data packages with completed field chain of custody forms and other documentation, including the following:
  - Field sample identification;
  - Date and time of sample collection;
  - Preservation type;
  - Analytical methods requested and/or analytes requested;
  - Signatures of all personnel with custody prior to receipt by the laboratory;
  - Signature of laboratory personnel taking custody samples; and
  - Date and time of custody transfers.
- Document if samples are received outside of the recommended holding times for a particular analyte or method.
- Record, upon receipt, the condition of the sample, including any abnormalities or departures from standard conditions as prescribed in the relevant test method.
- Have procedures for checking the chemical preservation using readily available techniques prior to or during sample preparation or analysis.
- Store samples according to the conditions specified by preservation protocols.

All samples that require thermal preservation will be considered acceptable if the arrival temperature is either within 2 degrees Celsius (°C) of the required temperature or the method specified range. For samples requiring thermal preservation to 4°C, a temperature ranging from just above the freezing temperature of water to 6°C will be acceptable.

36.1.9 Sample Collection and Preparation

The OIC will:

- Collect adequate sample volumes for all analytical needs for subsequent testing or analyses, when possible.
- Base sampling plans, whenever reasonable, on appropriate statistical methods. Sampling procedures should describe the selection, sampling plan, collection, and preparation of a sample or samples from a waste or medium.
- Collect representative samples of the waste or medium. The concentration of the analyses of interest, the types of analyses, and the sample media will determine the sample volume requirements.
- Ensure that the method and federal regulatory program requirements for these sample management aspects be followed for all methods of testing and, if violated, have the data flagged and qualified.
- Ensure that field personnel have procedures for recording relevant characteristics and other data relating to the sampling operations that form part of the testing or measurement that is undertaken.
- Ensure that chain of custody records and field notes include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant), diagrams, or other equivalent means to identify the sampling location, and all associated sample identification numbers.

36.1.10 Analytical Method Detection Limits and Method Performance

The OIC will ensure that:

- The laboratory determines detection limits by the protocol in the mandated test method or applicable federal or state regulation.
- The laboratory uses a test method that provides a detection limit that is appropriate and relevant for the intended use of the data and establishes procedures to relate method detection limits with the practical quantitation limits.
- All samples are analyzed according to methods specified by TCEQ or U.S. EPA programs.
- If the protocol for determining detection limits is not specified in the test method, the selection of a procedure must reflect instrument limitations and the intended application of the test method. Whenever possible, analytical methods must have method detection levels that are one-fifth to one-third of the regulatory action level.

- It reviews all quality control data within the data package subject to compliance with the TCEQ and federal programs which will include information regarding precision, bias, and accuracy.
- Data with quality control results outside of the quality control limits should be flagged in the data package with explanation of problems encountered by the laboratory and the corrective action(s) attempted to resolve the analytical problems.
- The laboratory documents all corrective action associated with the analysis and maintains all records.

Failure to meet the quality control goals in accordance with the data quality standards of the study does not necessarily mean the data are unusable.

36.1.11 Instrument and Equipment Calibration and Frequency

The OIC will ensure that:

- The laboratory maintain equipment in proper working order and calibrate equipment and devices that may not be the actual test instrument, but are necessary to support laboratory operations and measurements as often as recommended by the manufacturer, using National Institute of Standards and Technology (NIST) traceable references when available, over the entire range of their use. These include, but are not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, and temperature measuring devices. Calibration results will be within the specifications required for each application or measurement for which this equipment is used.
- The laboratory will maintain records of corrective actions implemented to correct all measurements.
- Standards used for the calibration of field instruments are, when available, traceable to certified standards or reference material.
- The laboratory equipment is calibrated or standardized against NIST traceable reference materials and standards.
- Documentation of the certificate of analysis and traceability of the standards and reagents is maintained by field or laboratory personnel.
- Calibration of field instruments and equipment is performed at approved intervals as specified by the manufacturer or more frequently as conditions dictate. Calibrations may also be performed at the start and completion of each test run.
- Records of calibration, repair, or replacement are filed and maintained by the designated field staff.
- Calibration and standardization of laboratory equipment are based on procedures described in each contract laboratory quality assurance plan or standard operating procedure.

- Records of calibration, repair, or replacement are filed and maintained by the designated laboratory personnel performing quality control activities in accordance with manufacturer requirements.
- Calibration records are filed and maintained at the laboratory location where the work is performed and subject to commission review during a quality assurance audit.

36.1.12 Laboratory Case Narrative

The OIC will ensure that the laboratory case narrative:

- Explains each failed precision and accuracy measurement determined to be outside of the laboratory and/or method control limits, and the effect of the failure on the results (positive or negative bias) when reporting QC results (precision and accuracy).
- States the exact number of samples, identification numbers, testing parameters, and sample matrix, as well as the name(s) of the laboratory(ies) involved in the analysis.
- Includes a statement of the test objective regarding the samples.
- Identifies the applicable QA/QC samples that require special attention by the reviewer, including field, trip, and laboratory blank(s); duplicate(s); field spike(s); QA audit sample(s); and laboratory control samples.
- Includes an acknowledgment and reference to current standards regarding sample holding, extraction, and analytical times along with a statement explaining whether the standards were met.
- Describes the extent of the delay and, if possible, provides an estimate of the bias within the data if samples are not analyzed within the prescribed holding times.
- Includes a statement that the laboratory conducting the analyses for environmental decision making have a QA program run by a QA officer to include the following:
    - System audits of field and/or laboratory operations using field surrogate samples;
    - Instrument calibration check samples used to determine the accuracy of the instrumentation;
    - Blind spikes of blanks, where the concentration of the blind spike is known only to the QA officer;
    - Verification of calibration accuracy via calibration check standard;
    - Internal surrogate spikes for determination of analytical extraction recovery; and
    - Overall assessment of the data quality based upon the reported QC data.
- Includes all QC results included in each data set that affect the quality of the data.

- Describes the bias within each data set as either positive or negative, when QC results are outside the method established and/or data quality objectives of the Facility groundwater sampling and analysis plan.
- Presents clearly the precision and accuracy determinations with all results calculated.
- Explains each failed precision and accuracy measurement determined to be outside of the method control limits and the effect of the failure on the results.
- Includes a review with comments that identify the problems associated with the sample results and explains the limitations on data usability.
- Includes a statement on the estimated uncertainty of analytical results of the samples involved and/or within the QC of the analytical method of the permit, project, and/or program required analytical recoveries information, when appropriate and/or requested.
- Includes all deviations from, additions to, or exclusions from the test method, and information on specific test conditions.
- Includes a statement of compliance/noncompliance with requirements and/or specifications, where relevant (e.g., holding times, dilutions).

36.2 Final Product Compost QA/QC

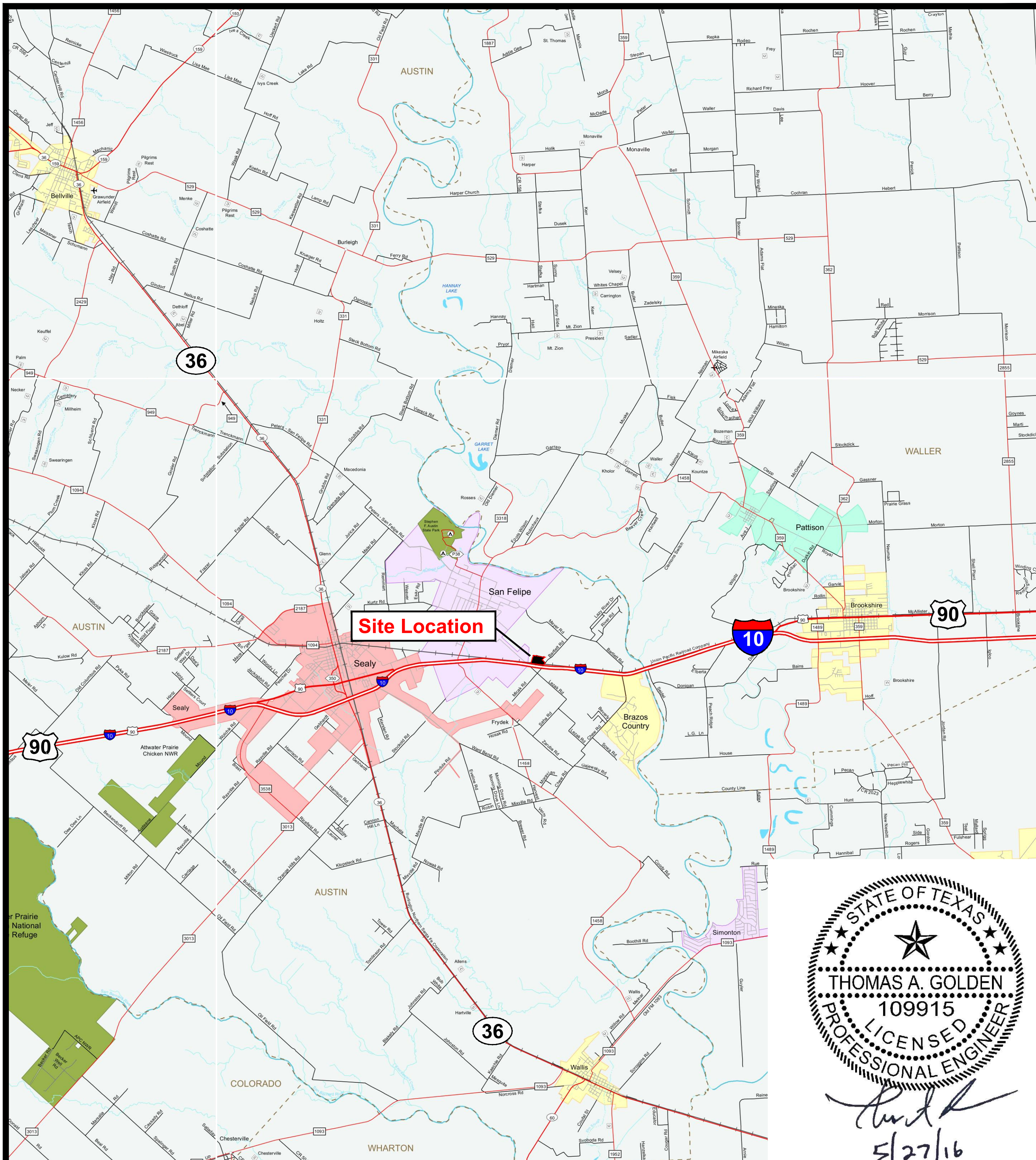
Quality control and assurance procedures will include careful examination of feedstocks. Final compost will be tested and inspected as described in "Test Methods for the Examination of Composting and Compost," US Composting Council [http://compostingcouncil.org].

References

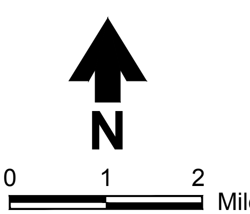
Texas Commission on Environmental Quality (TCEQ). 2007. *Odor complaint investigation procedures*. September 18, 2007.

U. S. Environmental Protection Agency (EPA). *Test methods for evaluating solid wastes, physical/chemical methods.* September 1986. <http://www3.epa.gov/epawaste/hazard/testmethods/index.htm>.

Figures



Source: Texas Department of Transportation, 2014.



THOMAS A. GOLDEN 109915 STATE OF TEXAS LICENSED PROFESSIONAL ENGINEER

5/27/16

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

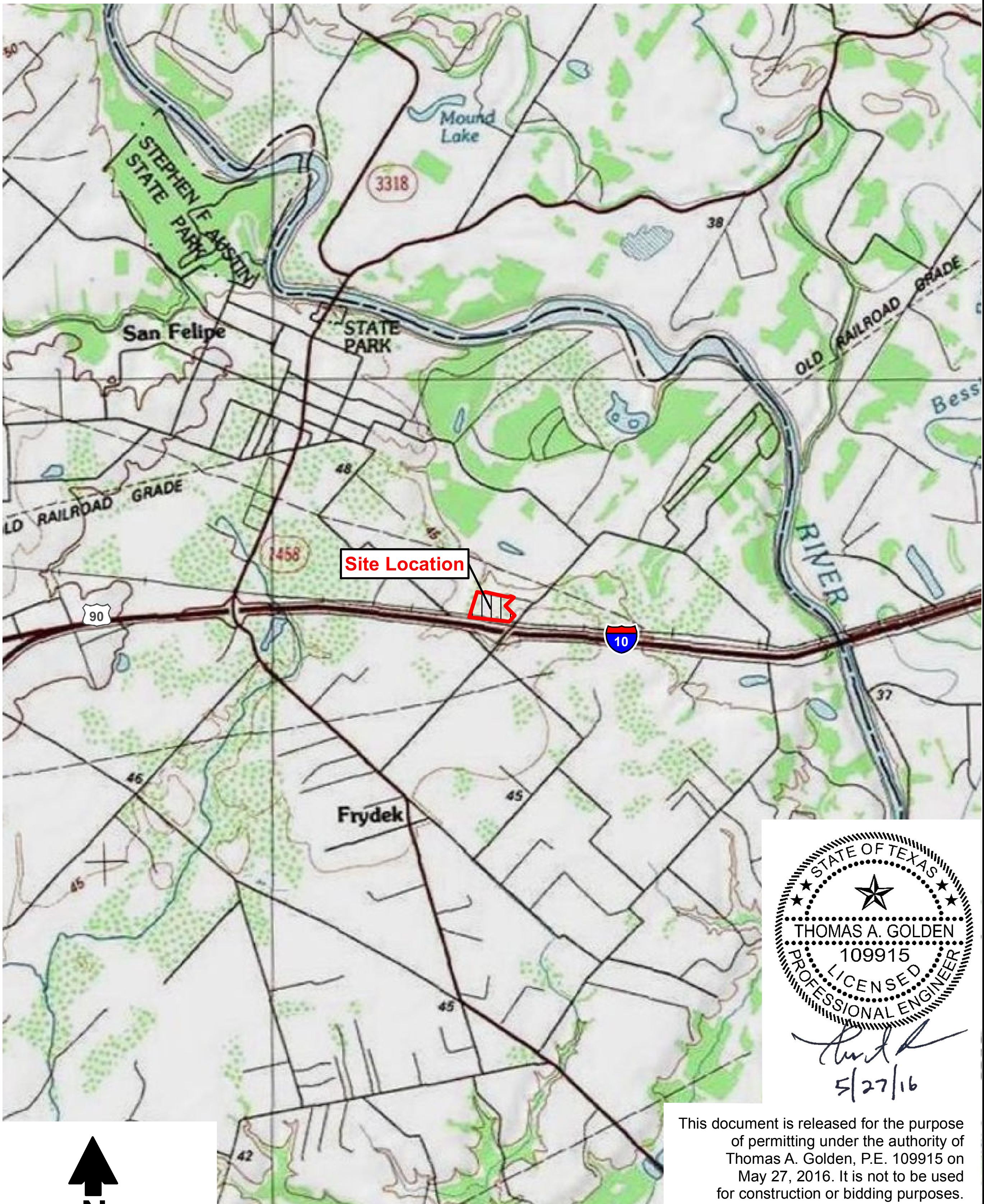
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Facility Location Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045

5/27/2016 JN TX15.0094.00

Figure 1

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\VR_Drawings\Fig01_Fac_loc_map.dwg



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Source: San Felipe, Texas USGS 7.5-minute quadrangle map, 1960. Photorevised 1980.

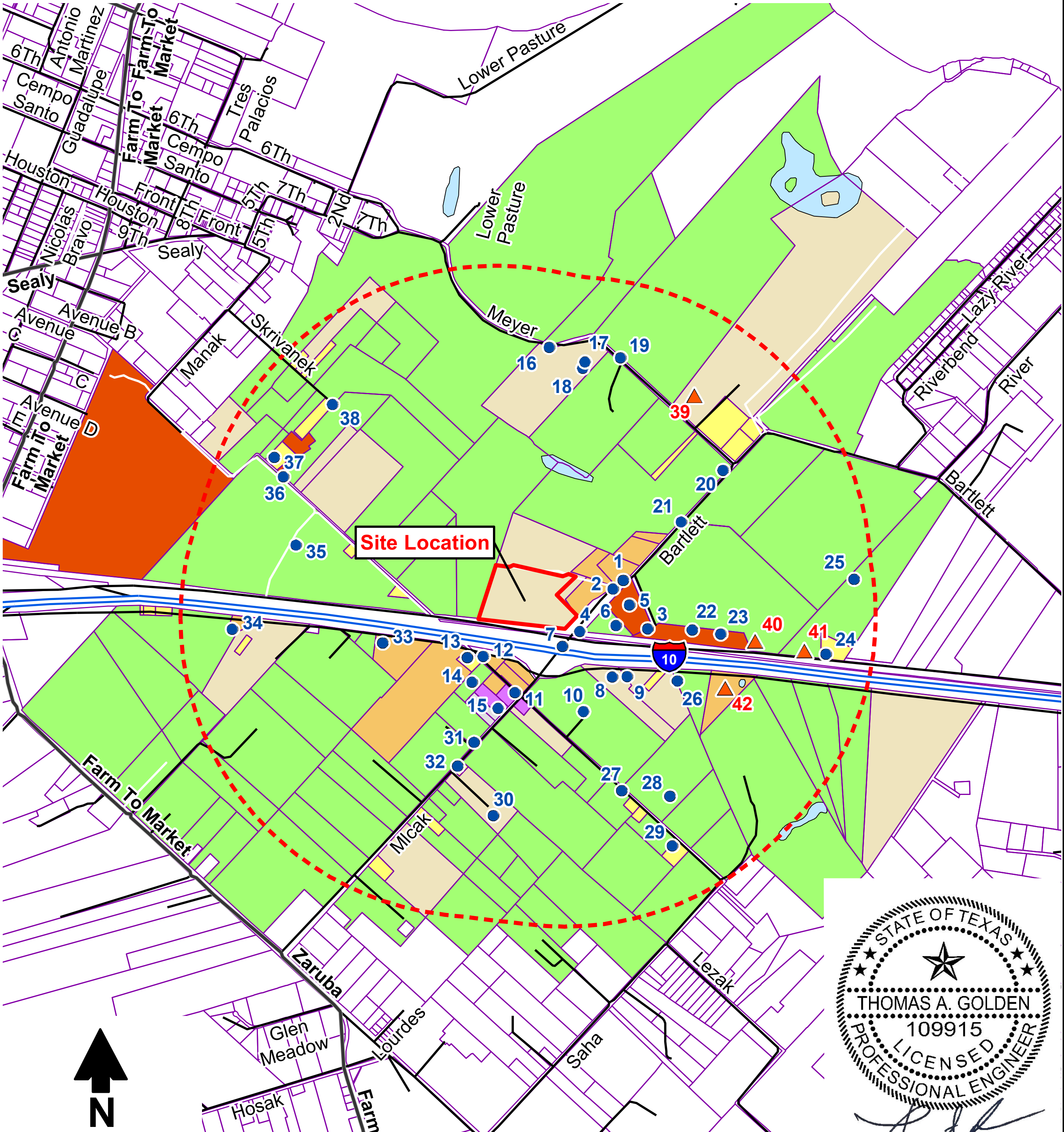
Notes:
1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015. Revised on May 27, 2016.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Topographic Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX15.0094.00

Figure 2

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig02_topo_map.mxd



Source: ESRI online data, Streetmap, USA.

Notes: 1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West

2. Original submittal on November 13, 2015. Revised on May 27, 2016.

Explanation

- One mile radius
- Parcels
- Agricultural
- Commercial
- Residential
- Agricultural/Commercial
- Agricultural/Residential
- Commercial/Industrial
- Vacant
- Pond
- 22 Water well
- 42 Oil and gas well

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

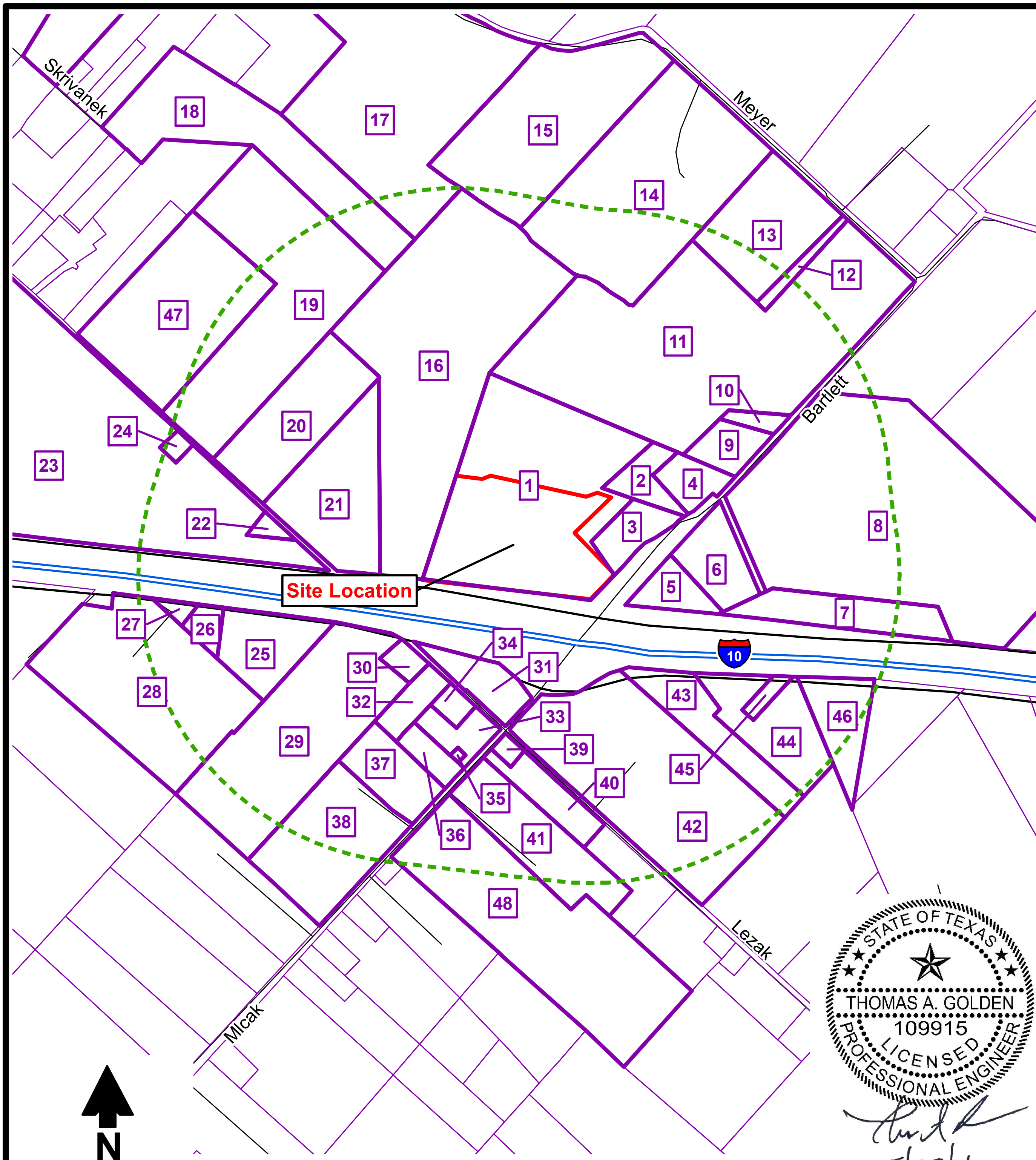
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Land Use Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045

5/27/2016 JN TX15.0094.00

Figure 3

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig03_land_use_map.mxd



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Explanation

- Half mile radius
- Parcel
- Parcels

Source: ESRI online data, Streetmap, USA.

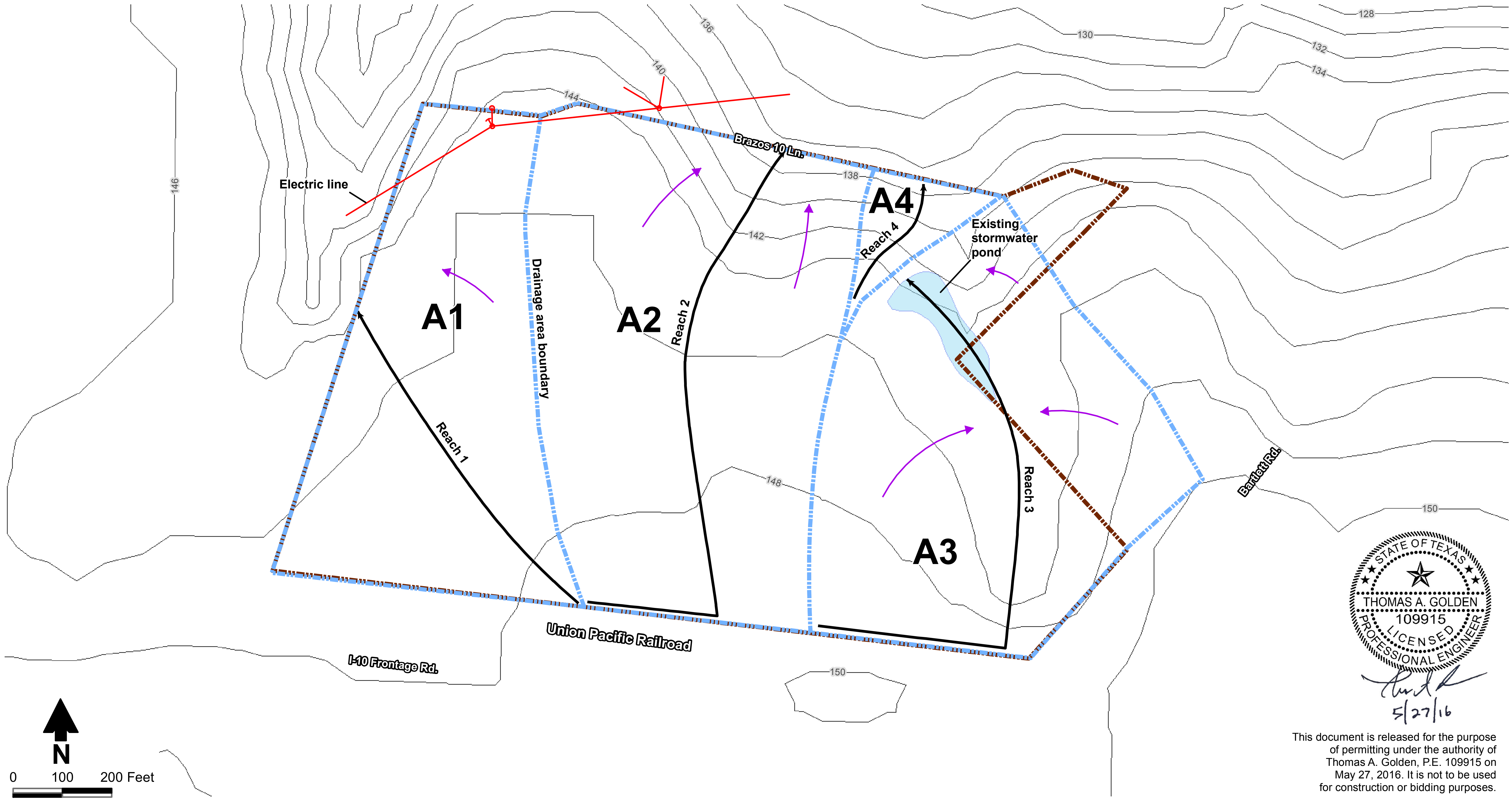
Notes: 1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015.
Revised on May 27, 2016.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Landowner Property Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX15.0094.00

Figure 4

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig04_land_ownership_map.mxd



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Explanation

- Property Boundary
- 530 Contour interval and elevation (ft msl)
- Rainfall runoff flow direction
- Drainage area reach
- Drainage area boundary
- A1 Drainage area number

	Reach 1	Reach 2	Reach 3	Reach 4
Drainage Area (acres)	8.9	13.5	11.3	.9
Time of Concentration (hr)	5.2	7.0	8.7	1.3
Rainfall Intensity (in/hr)	1.1	0.9	0.7	3.1
Runoff Coeficient	0.3	0.3	0.3	0.3
Flow Rate (cf/sec)	3.0	3.5	2.5	0.8

Note: Calculations provided in appendix C2

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

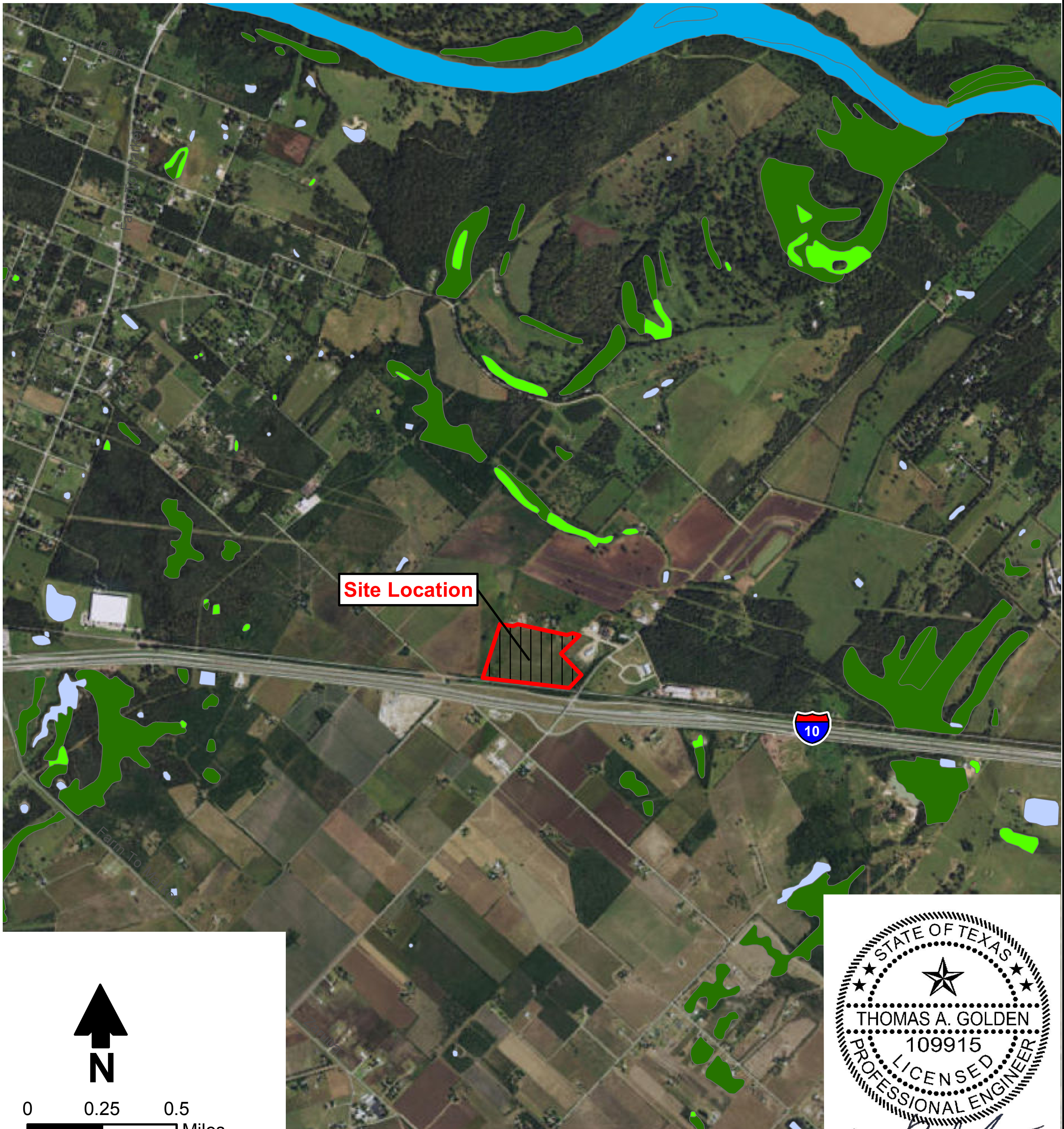
Notes:
1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015.
Revised on May 27, 2016.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Pre-Construction On-Site Drainage Map

Figure 5

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN ES14.0050

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig05_drainage_map.mxd



Explanation

Property Boundary

Wetland Type

Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine
Other

Source: U.S. Fish and Wildlife Service, National Wetlands Inventory, September 22, 2015.

Notes: 1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015. Revised on May 27, 2016.

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

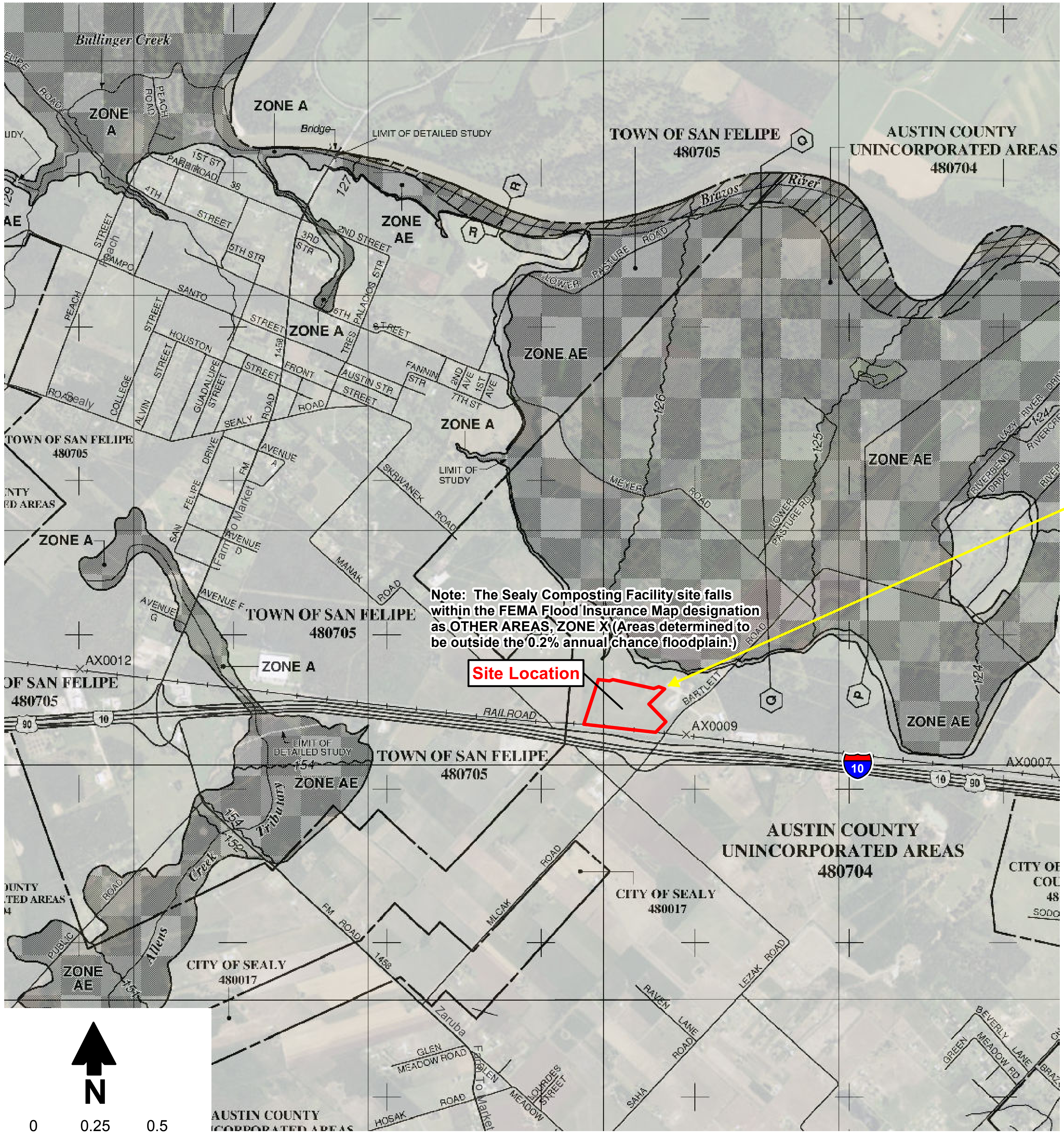
This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Wetland Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX15.0094.00

Figure 6

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig06_wetland_map.mxd



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ 513 ~~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)——(A)	Cross section line
(23)- - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid, zone 14
6000000 FT	5000 foot grid: Texas State Plane coordinate system, south central zone (FIPSZONE 4204), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
January 17, 1990
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
June 16, 1999 – to update corporate limits and to change base flood elevations.
September 3, 2010 – to update corporate limits, to incorporate previously issued Letters of Map Revision, to change Special Flood Hazard Areas, to revise vertical datum, to update map format, to update roads and road names, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350E

FIRM
FLOOD INSURANCE RATE MAP
AUSTIN COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 350 OF 475

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
AUSTIN COUNTY	480704	0350	E
BRAZOS COUNTRY, CITY OF	481693	0350	E
SAN FELIPE, TOWN OF	480705	0350	E
SEALY, CITY OF	480017	0350	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48015C0350E

MAP REVISED
SEPTEMBER 3, 2010

Federal Emergency Management Agency

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Source: FEMA, Flood Insurance Rate Map, Austin County, Texas, Panel 350. Map number 48015C0350E, Revised September 3, 2010.

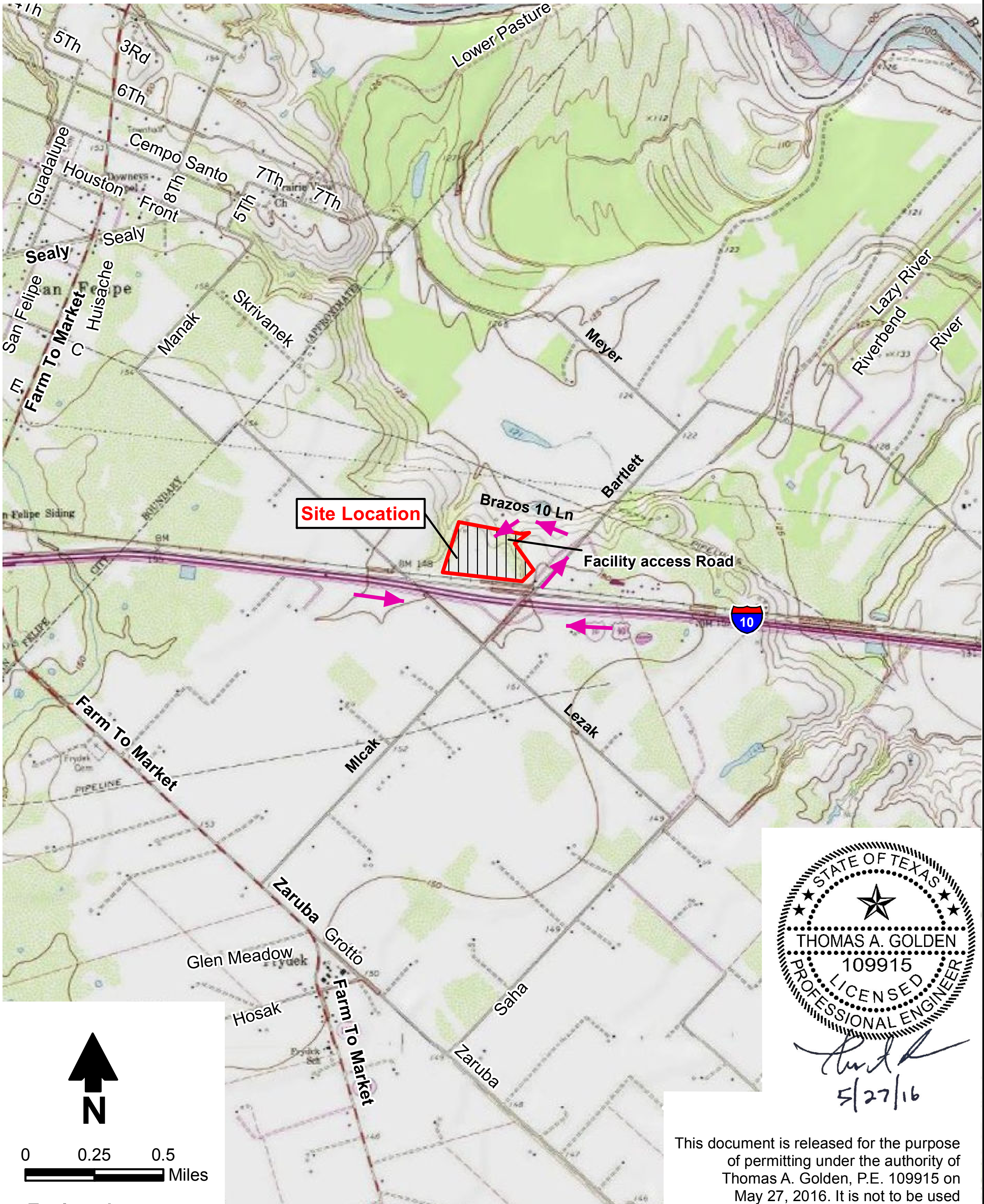
Notes:
1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015. Revised on May 27, 2016.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Flood Plain Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016
JN TX15.0094.00

Figure 7

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig07_fema_map.mxd



0 0.25 0.5 Miles

Explanation

Route

One mile radius

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Source: ESRI online data, Streetmap, USA.

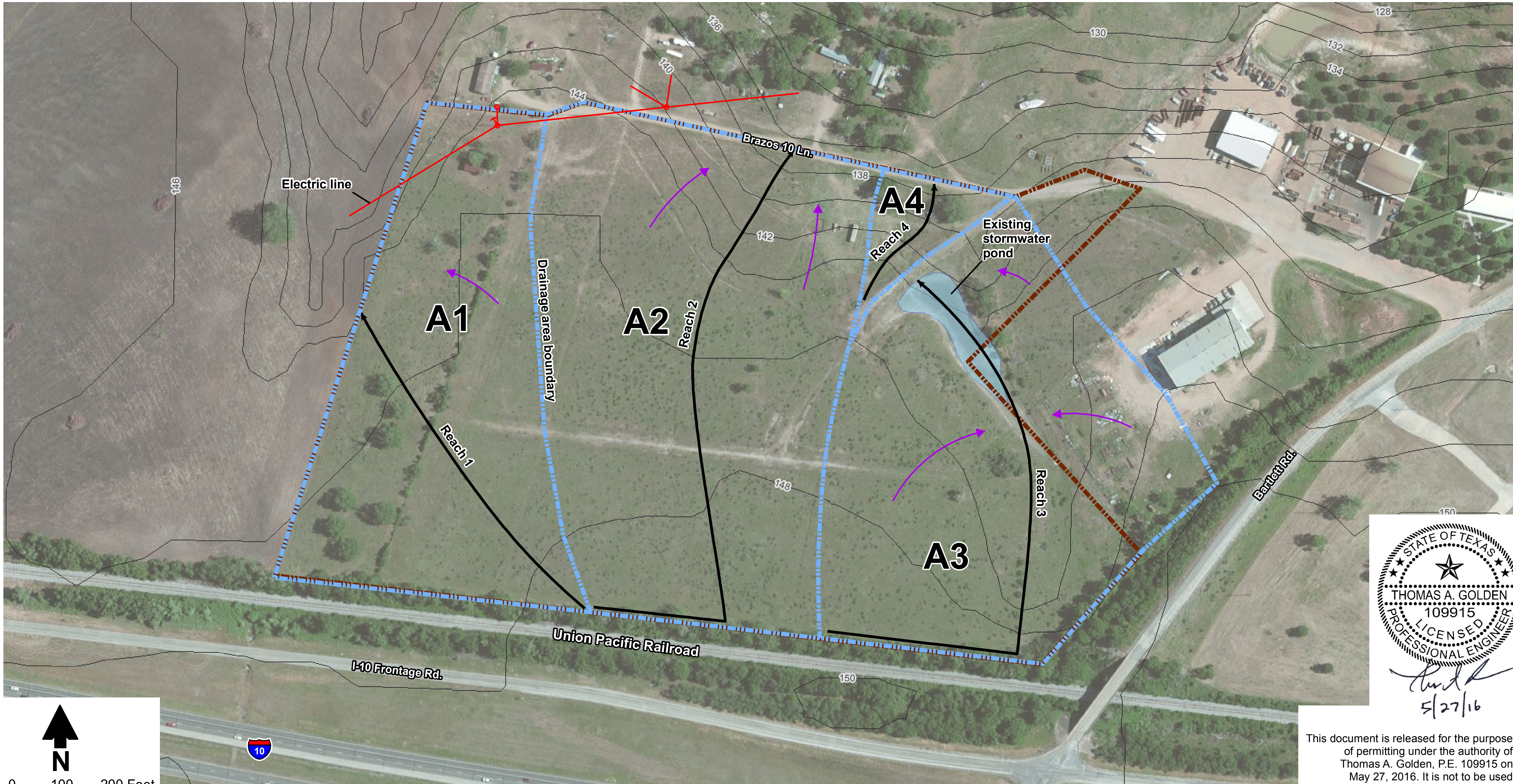
Notes: 1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015.
Revised on May 27, 2016.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Access Road Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX15.0094.00

Figure 8

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig08_access_road_map.mxd



STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
5/27/16

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

Notes:
1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015. Revised on May 27, 2016.

Explanation

- Property Boundary
- 530 Contour interval and elevation (ft msl)
- Rainfall runoff flow direction
- Drainage area reach
- Drainage area boundary
- **A1** Drainage area number

	Reach 1	Reach 2	Reach 3	Reach 4
Drainage Area (acres)	8.9	13.5	11.3	.9
Time of Concentration (hr)	5.2	7.0	8.7	1.3
Rainfall Intensity (in/hr)	1.1	0.9	0.7	3.1
Runoff Coeficient	0.3	0.3	0.3	0.3
Flow Rate (cf/sec)	3.0	3.5	2.5	0.8

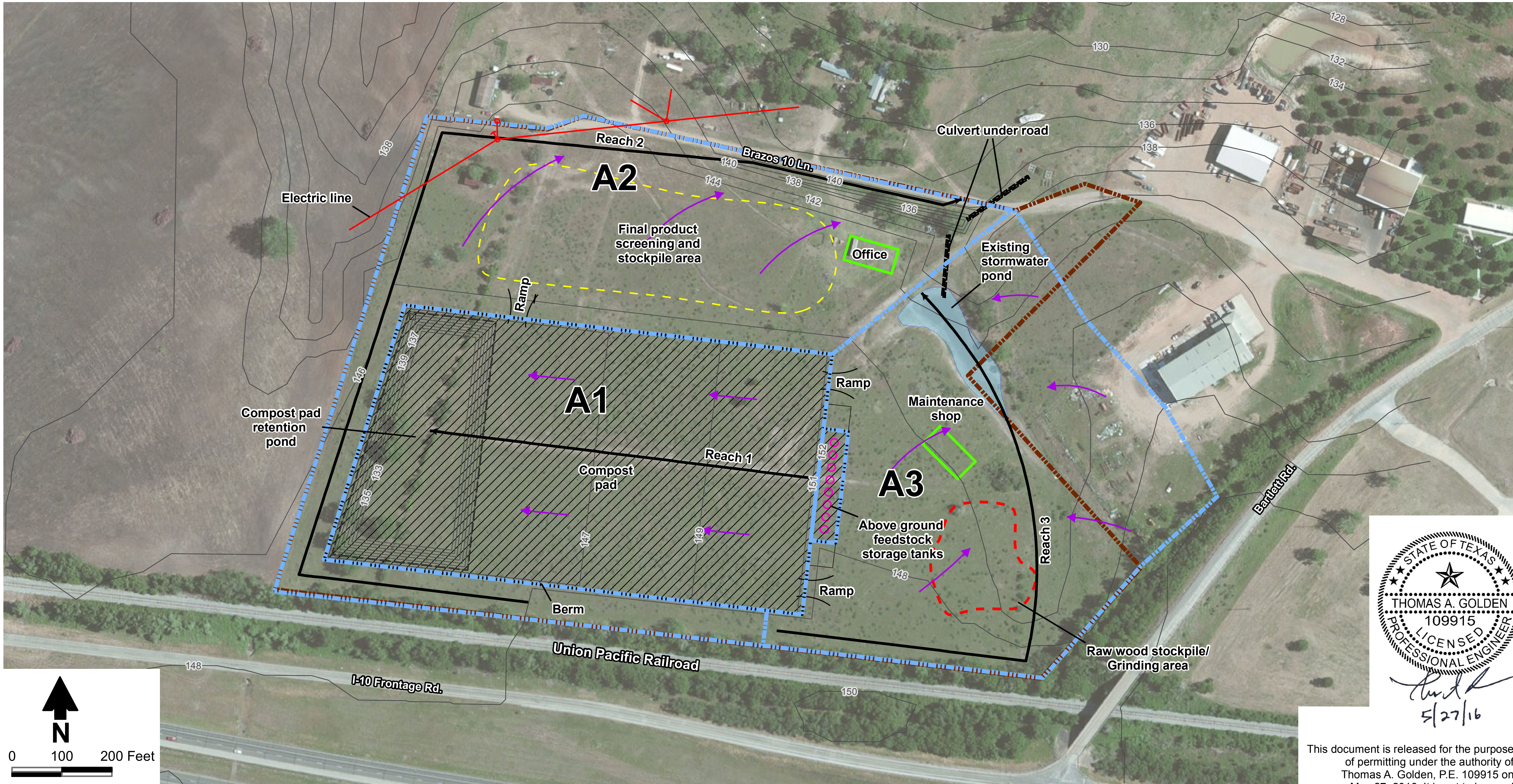
Note: Calculations provided in appendix C2

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Pre-Construction On-Site Drainage Map

Figure 10

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016
JN ES14.0050

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig10_drainage_map.mxd



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Explanation

- Property boundary
- Proposed permit area
- 530 Contour interval and elevation (ft msl)
- Rainfall runoff flow direction
- Drainage area reach
- Drainage area boundary
- **A1** Drainage area number

	Reach 1	Reach 2	Reach 3
Drainage Area (acres)	11.0	11.9	11.3
Time of Concentration (hr)	1.8	9.1	5.5
Rainfall Intensity (in/hr)	2.8	0.7	1.1
Runoff Coeficient	0.35	0.35	0.3
Flow Rate (cf/sec)	10.9	2.9	3.7

Note: Calculations provided in appendix C2

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

Notes:
1. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
2. Original submittal on November 13, 2015.
   Revised on May 27, 2016.

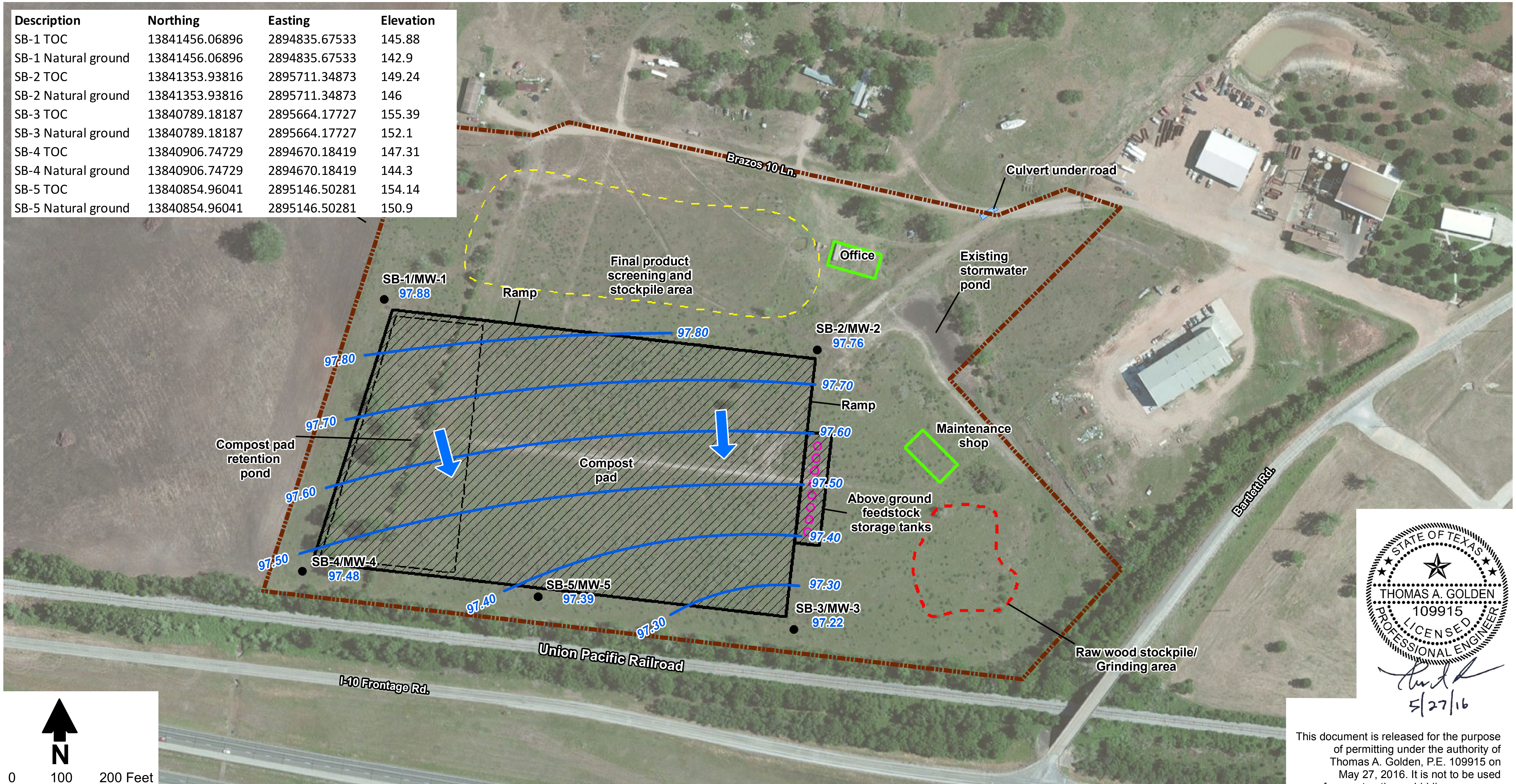
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Post-Construction On-Site Drainage Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN ES14.0050

Figure 11

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig11_post_constr_drainage.mxd

Description	Northing	Easting	Elevation
SB-1 TOC	13841456.06896	2894835.67533	145.88
SB-1 Natural ground	13841456.06896	2894835.67533	142.9
SB-2 TOC	13841353.93816	2895711.34873	149.24
SB-2 Natural ground	13841353.93816	2895711.34873	146
SB-3 TOC	13840789.18187	2895664.17727	155.39
SB-3 Natural ground	13840789.18187	2895664.17727	152.1
SB-4 TOC	13840906.74729	2894670.18419	147.31
SB-4 Natural ground	13840906.74729	2894670.18419	144.3
SB-5 TOC	13840854.96041	2895146.50281	154.14
SB-5 Natural ground	13840854.96041	2895146.50281	150.9



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on May 27, 2016. It is not to be used for construction or bidding purposes.

Explanation

- Property Boundary
- Boring/piezometer location
- Potentiometric surface contour (ft msl)
- SB-1/MW-1 Designation
- 97.88 Groundwater elevation (ft msl)
- Groundwater flow direction

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

Notes:
1. Coordinates are State Plane NAD 83 Texas South Central Zone
2. Facility location = 29° 46' 33.55" North and 96° 04' 41.00" West
3. Original submittal on November 13, 2015. Revised on May 27, 2016.

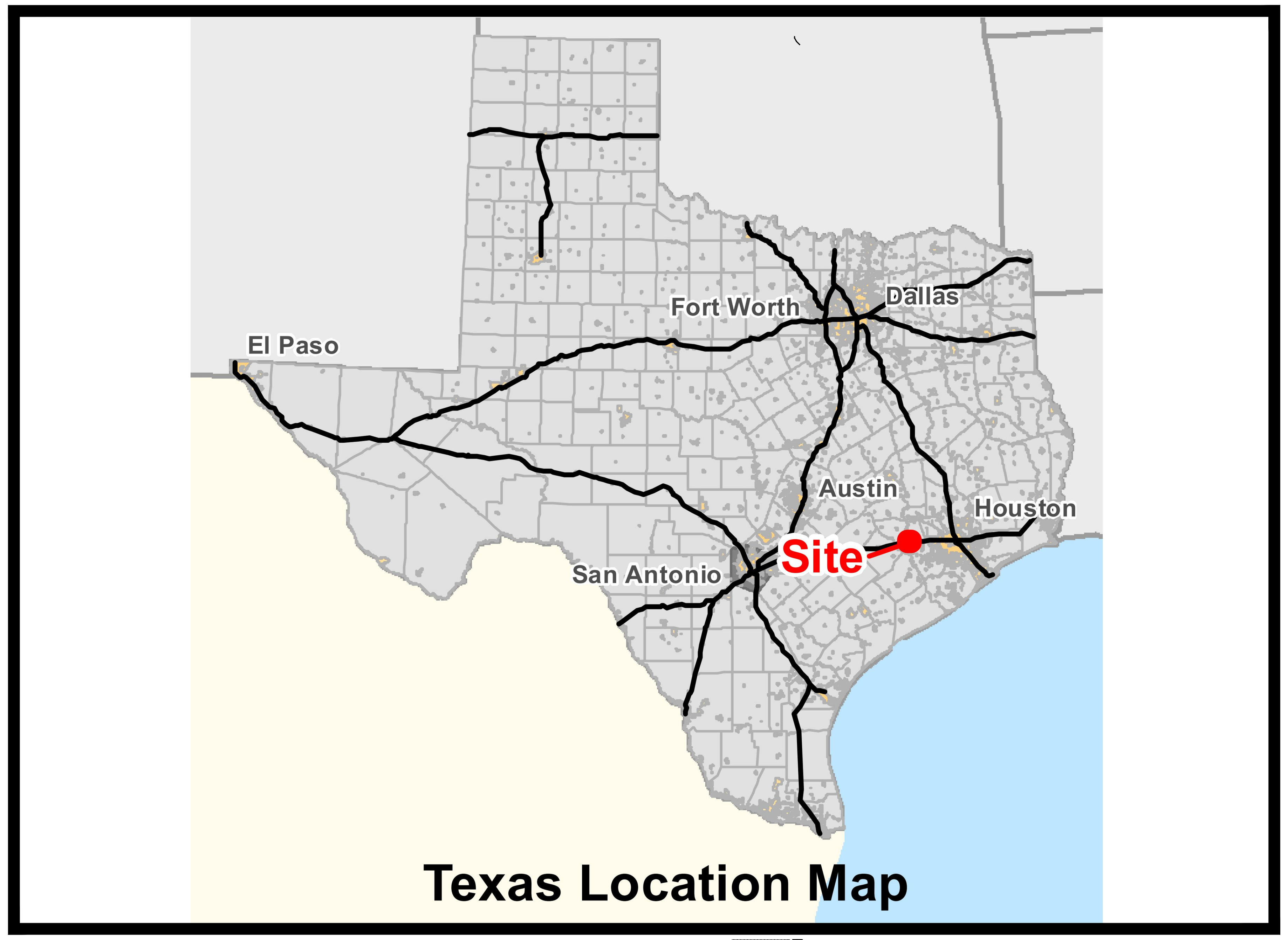
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

Potentiometric Surface Elevation Map
October 2015

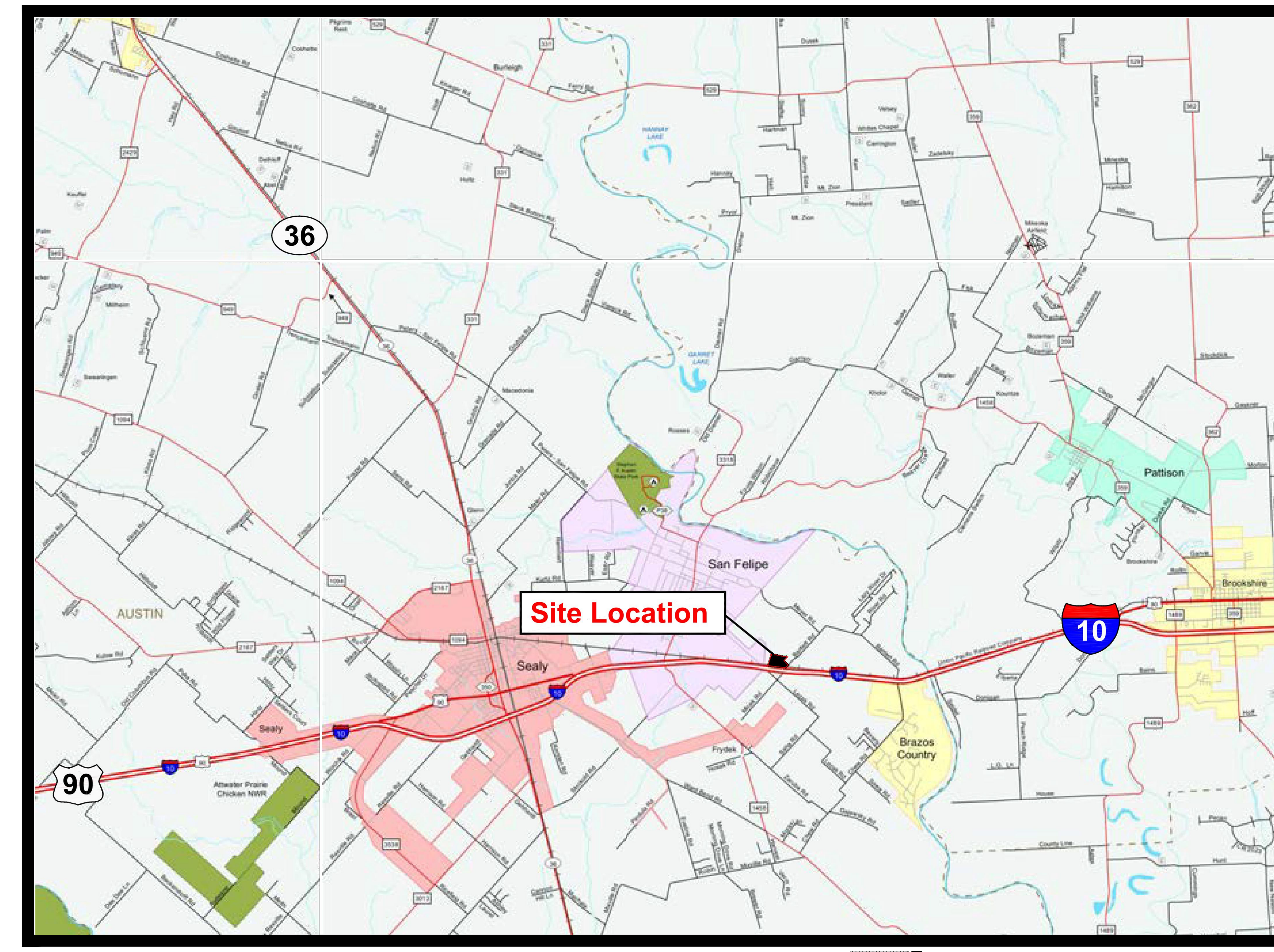
Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016
JN ES14.0050

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig15_20151028_Pot_map.mxd

Drawings



VICINITY MAP
NTS
NORTH



SITE MAP
NTS
NORTH

SEALY COMPOSTING FACILITY

AUSTIN COUNTY, TEXAS

PREPARED FOR
SOUTHWASTE DISPOSAL, LLC
HOUSTON, TEXAS

INDEX OF DRAWINGS

NUMBER		TITLE	REVISION
		GENERAL	
1	G-0	TITLE SHEET	
2	G-1	GENERAL NOTES & LEGEND	
		CIVIL	
3	C-1	SITE PLAN	
4	C-2	GRADING PLAN AND PROFILE - 1	
5	C-3	GRADING PLAN AND PROFILE - 2	
6	C-4	DRAINAGE PLAN	
7	C-5	CIVIL DETAILS	
8	C-6	DRAINAGE DETAILS	

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

TITLE SHEET

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO.
TX15.0094

SHEET 1 of 8
DWG NO. G-0

GENERAL CONSTRUCTION NOTES:

A. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

B. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND APPROVALS OF LIKE KIND PRIOR TO START OF CONSTRUCTION.

C. PROJECT DOCUMENTS CONSIST OF THESE DRAWINGS, PROJECT SPECIFICATIONS, PROJECT CONTRACTS, AND ANY AND ALL SUBSEQUENT EXECUTED PROJECT DOCUMENTATION ISSUED AS, OR WITH, CHANGE ORDERS, AND RFI'S (REQUEST FOR INFORMATION.) THE CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND VERIFY ALL DIMENSIONS, QUANTITIES, AND FIELD CONDITIONS. ANY CONFLICTS OR OMISSIONS WITH THE DOCUMENTS SHALL BE REPORTED TO THE ENGINEER/PROJECT MANAGER FOR CLARIFICATION PRIOR TO PERFORMANCE OF ANY WORK IN QUESTION. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER/PROJECT MANAGER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND ANY AND ALL EXPENSE FOR ANY REVISIONS NECESSARY OR CORRECTIONAL WORK REQUIRED.

D. THE LOCATION OF BURIED UTILITIES ARE BASED UPON INFORMATION PROVIDED TO THE ENGINEER BY OTHERS AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. EXISTING BURIED UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO ANY OTHER UTILITIES AND/OR COLLATERAL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.

E. EXISTING FENCING THAT IS NOT DESIGNATED FOR REMOVAL SHALL NOT BE DISTURBED. ANY FENCING THAT IS DISTURBED OR ALTERED BY THE CONTRACTOR SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. IF THE CONTRACTOR DESIRES TO REMOVE FENCING TO ACCOMMODATE CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL OBTAIN THE OWNER'S WRITTEN PERMISSION BEFORE FENCE IS REMOVED. CONTRACTOR SHALL RESTORE THE FENCE TO ITS ORIGINAL CONDITION AT THE EARLIEST OPPORTUNITY TO THE SATISFACTION OF THE OWNER. WHILE ANY FENCING IS REMOVED, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SECURITY OF THE SITE UNTIL THE FENCE IS RESTORED.

F. AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL CLEAN AND PICK UP THE WORK AREA TO THE SATISFACTION OF THE ENGINEER/PROJECT MANAGER. AT NO TIME SHALL THE WORK BE LEFT IN A MANNER THAT COULD ENDANGER THE WORKERS OR THE PUBLIC.

G. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO PROJECT SPECIFICATIONS AND DRAWINGS, AS AMENDED AND REVISED BY THE ENGINEER. ALL INSTALLATION DETAILS ARE TYPICAL AND MAY BE CHANGED TO BETTER FIT EXISTING LOCAL CONDITIONS UPON APPROVAL BY THE ENGINEER.

H. ONLY THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY OF ALL WORK. ALL WORK, INCLUDING WORK WITHIN TRENCHES, SHALL BE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).

I. THE CONTRACTOR SHALL NOT INSTALL ITEMS AS SHOWN ON THESE DRAWINGS WHEN IT IS OBVIOUS THAT FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER IN A TIMELY MANNER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY REVISIONS NECESSARY, INCLUDING ENGINEERING DESIGN FEES.

J. EXISTING SITE IMPROVEMENTS WHICH ARE DAMAGED OR DISPLACED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. REPAIRS SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION OF THE REPAIRS. REPAIRS SHALL BE ACCEPTED BY THE OWNER PRIOR TO FINAL PAYMENT.

K. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH OTHER CONTRACTORS AND UTILITY COMPANIES WORKING IN THE SAME AREA.

WORK WITHIN ADJACENT RIGHT-OF-WAY

L. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES WITHIN ADJACENT RIGHT-OF-WAYS OR WITHIN PROPERTY NOT OWNED BY THE OWNER OF THE PROJECT SITE, THE CONTRACTOR SHALL ASSURE THAT ALL PERMITS AND PERMISSIONS REQUIRED HAVE BEEN OBTAINED IN WRITING.

SURVEY MONUMENTS, PROPERTY CORNERS, BENCHMARKS

M. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST SEVEN (7) DAYS BEFORE BEGINNING ANY CONSTRUCTION ACTIVITY THAT COULD DAMAGE OR DISPLACE SURVEY MONUMENTS, PROPERTY CORNERS, OR PROJECT BENCHMARKS SO THESE ITEMS MAY BE RELOCATED.

N. ANY SURVEY MONUMENTS, PROPERTY CORNERS, OR BENCHMARKS THAT ARE NOT IDENTIFIED FOR RELOCATION ARE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESERVE AND PROTECT, RELOCATION OR REPLACEMENT OF THESE ITEMS SHALL BE DONE BY THE OWNER'S SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

DESIGN SURVEY

O. THIS DESIGN IS BASED ON SURVEY INFORMATION PROVIDED BY OTHERS. THE ENGINEER CANNOT VALIDATE OR WARRANTY THIS INFORMATION. ANY DISCREPANCIES BETWEEN THE DESIGN AND SITE SURFACE CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.

PAVEMENT

P. WHEN ABUTTING NEW PAVEMENT TO EXISTING PAVEMENT, CUT EXISTING PAVEMENT EDGE TO A NEAT, STRAIGHT LINE AS NECESSARY TO REMOVE ANY BROKEN OR CRACKED PAVEMENT AND MATCH NEW PAVEMENT ELEVATION TO EXISTING.

Q. ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED AND APPROVED PRIOR TO PAVING.

UTILITIES

R. UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES SHOWN ON THESE DRAWINGS ARE SHOWN IN AN APPROXIMATE LOCATION ONLY BASED ON THE INFORMATION PROVIDED TO THE ENGINEER BY OTHERS. THIS INFORMATION MAY BE INACCURATE OR INCOMPLETE. ADDITIONALLY, UNDERGROUND LINES MAY EXIST THAT ARE NOT SHOWN.

S. THE CONTRACTOR SHALL CONTACT THE STATEWIDE UTILITY LOCATOR SERVICE AT 1-800-344-8377 AT LEAST TWO WORKING DAYS BEFORE BEGINNING CONSTRUCTION. AFTER THE UTILITIES ARE SPOTTED, THE CONTRACTOR SHALL EXPOSE ALL PERTINENT UTILITIES TO VERIFY THEIR VERTICAL AND HORIZONTAL LOCATION. IF A CONFLICT EXISTS BETWEEN EXISTING UTILITIES AND PROPOSED CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMAL DELAY.

T. THE CONTRACTOR SHALL EXERCISE DUE CARE TO AVOID DISTURBING ANY EXISTING UTILITIES, ABOVE OR BELOW GROUND. UTILITIES THAT ARE DAMAGED BY CARELESS CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

U. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY INTERRUPTIONS WITH THE OWNER AND AFFECTED UTILITY COMPANY A MINIMUM OF THREE (3) WORKING DAYS BEFORE THE INTERRUPTION.

V. THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF DRAWINGS AND PROMPTLY LOCATE ALL UTILITIES, EXISTING OR NEW, IN THEIR CORRECT LOCATION, HORIZONTAL AND VERTICAL. THIS RECORD SET OF DRAWINGS SHALL BE MAINTAINED ON THE PROJECT SITE AND SHALL BE AVAILABLE TO THE OWNER AND ENGINEER AT ANY TIME DURING CONSTRUCTION. RECORD INFORMATION SHALL INCLUDE HORIZONTAL AND VERTICAL COORDINATE CALLOUTS, LINE SIZES, LINE TYPES, BURIAL DEPTHS, AND ALL OTHER PERTINENT INSTALLATION INFORMATION. IN ADDITION ALL ITEMS THAT ARE INSTALLED EXACTLY DESIGNED SHALL BE NOTED AS SUCH.

EROSION CONTROL, ENVIRONMENTAL PROTECTION, AND SWPPP

W. THE CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE, AND LOCAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY DUST CONTROL OR EROSION CONTROL PERMITS FROM THE APPROPRIATE REGULATORY AGENCIES.

X. THE CONTRACTOR SHALL PROMPTLY REMOVE OR STABILIZE ANY MATERIAL EXCAVATED WITHIN THE RIGHT-OF-WAY OR ADJACENT PROPERTY TO KEEP IT FROM WASHING OFF THE PROJECT SITE.

Y. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY BY CONSTRUCTION OF TEMPORARY EROSION CONTROL BERMS OR INSTALLING WATTLES OR SILT FENCE AT THE PROPERTY LINES (OR LIMITS OF CONSTRUCTION WHERE DESIGNATED) AND WETTING SOIL TO PREVENT IT FROM BECOMING AIRBORNE.

Z. WATERING, AS REQUIRED FOR CONSTRUCTION DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO MEASUREMENT OR PAYMENT SHALL BE MADE. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, COUNTY, AND STATE ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE SYSTEM OPERATOR FOR AVAILABILITY AND USE OF WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL EQUIPMENT AND MATERIALS NECESSARY FOR OBTAINING WATER.

AA. THE CONTRACTOR SHALL PROPERLY HANDLE AND DISPOSE OF ALL ASPHALT REMOVED ON THE PROJECT BY HAULING TO AN APPROVED DISPOSAL SITE IN ACCORDANCE WITH THE REQUIREMENTS OF AUSTIN COUNTY, TEXAS.

AB. ALL WASTE PRODUCTS FROM THE CONSTRUCTION SITE, INCLUDING ITEMS DESIGNED FOR REMOVAL, CONSTRUCTION WASTE, CONSTRUCTION EQUIPMENT WASTE PRODUCTS (OIL, GAS, TIRES, ETC.), GARBAGE, GRUBBING, EXCESS CUT MATERIAL, VEGETATIVE DEBRIS, ETC. SHALL BE APPROPRIATELY DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY PERMITS REQUIRED FOR HAUL OR DISPOSAL OF WASTE PRODUCTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE WASTE DISPOSAL SITE COMPLIES WITH APPROPRIATE REGULATIONS REGARDING THE ENVIRONMENT, ENDANGERED SPECIES, AND ARCHAEOLOGICAL RESOURCES.

AC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP AND REPORTING OF SPILLS OF HAZARDOUS MATERIALS ASSOCIATED WITH THE CONSTRUCTION SITE. HAZARDOUS MATERIALS INCLUDE GASOLINE, DIESEL FUEL, MOTOR OIL, SOLVENTS, CHEMICALS, PAINT, ETC. WHICH MAY BE A THREAT TO THE ENVIRONMENT. THE CONTRACTOR SHALL REPORT THE DISCOVERY OF PAST OR PRESENT SPILLS TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE ENGINEER.

AD. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING SURFACE AND UNDERGROUND WATER. CONTACT WITH SURFACE WATER BY CONSTRUCTION EQUIPMENT AND PERSONNEL SHALL BE MINIMIZED. EQUIPMENT MAINTENANCE AND REFUELING OPERATIONS SHALL BE PERFORMED IN AN ENVIRONMENTALLY SAFE MANNER IN COMPLIANCE WITH CITY, COUNTY, STATE AND EPA REGULATIONS.

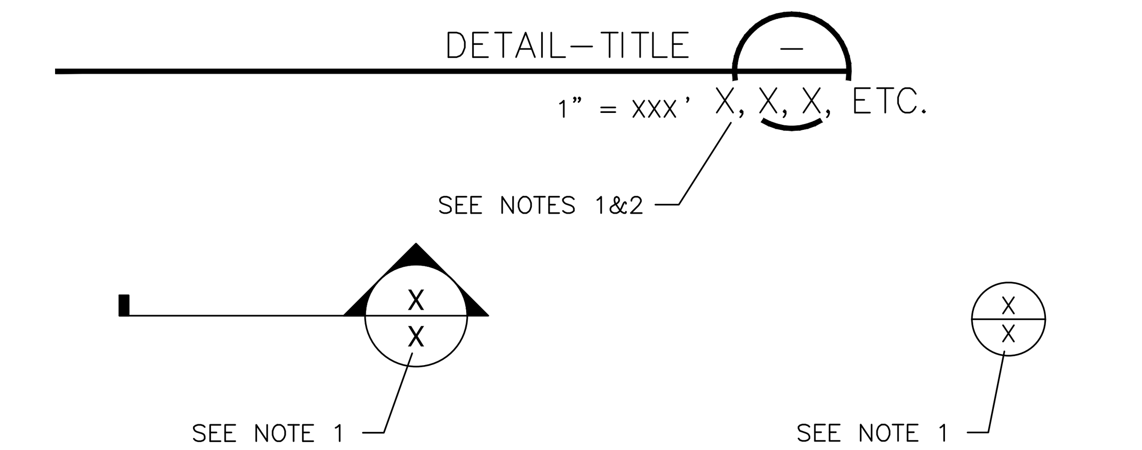
AE. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING CONSTRUCTION NOISE AND HOURS OF OPERATION AS STATES IN THE SPECIFICATIONS OR IMPOSED BY THE OWNER OR CITY AUTHORITIES.

TRAFFIC CONTROL

AF. CONTRACTOR SHALL OBTAIN AN APPROPRIATE PERMIT FROM TXDOT AND/OR AUSTIN COUNTY AT LEAST FIVE (5) WORKING DAYS BEFORE ENGAGING IN ANY CONSTRUCTION, MAINTENANCE, OR REPAIR WORK IN ANY RIGHT-OF-WAY.

AG. CONTRACTOR SHALL PROVIDE ALL REQUIRED TRAFFIC CONTROL PLANS. ALL SIGNS, BARRICADES, CHANNELIZATION DEVICES, SIGN FRAMES AND ERECTION OF SUCH DEVICES SHALL CONFORM TO THE REQUIREMENTS OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST EDITION. TRAFFIC CONTROL PLANS SHALL BE APPROVED BY WARD COUNTY AND/OR TXDOT PRIOR TO CONSTRUCTION.

LEGEND:



NOTES:

1. IF SECTION, DETAIL, SCHEMATIC, OR DIAGRAM IS DRAWN ON THE SAME SHEET THAT IT IS TAKEN FROM, THE SHEET NUMBER SHALL BE REPLACED WITH A HYPHEN.

2. IF THE SECTION, DETAIL, SCHEMATIC, OR DIAGRAM IS REFERENCED ON MULTIPLE SHEETS, ALL SHEETS SHOULD BE LISTED TO THE OUTSIDE RIGHT OF THE DETAIL–TITLE BUBBLE, AND SEPARATED WITH A COMMA.

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

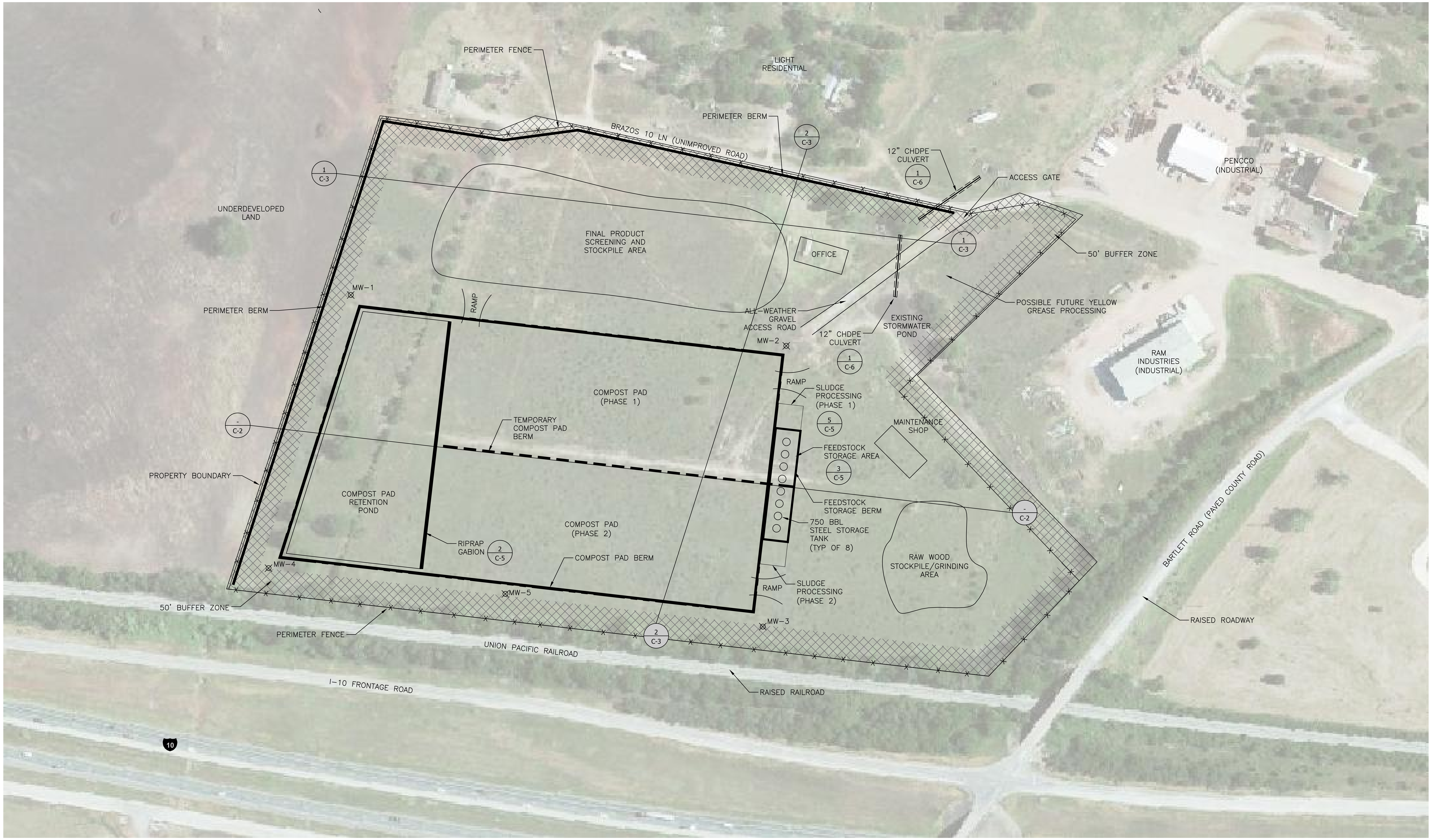
GENERAL NOTES & LEGEND

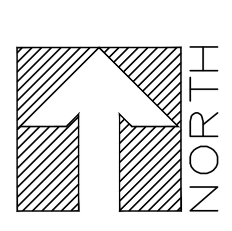
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

DATE: 5/27/16

JOB NO.
TX15.0094

SHEET 2 of 8
DWG NO. G-1





SITE PLAN
1" = 100'-0"

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

GENERAL NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY IMAGEPATCH.COM EARTHSTAR GEOGRAPHIC SINO, 2015 MICROSOFT CORPORATION.
2. PROCESSING FACILITIES PLANNED TO BE CONSTRUCTED IN TWO PHASES. ENTIRE STOMATA RETENTION POND TO BE CONSTRUCTED IN PHASE 1.
3. COMPOSITE LINER INSTALLED UNDER COMPOSTING PAD, FEEDSTOCK STORAGE AREA, AND STOMATA RETENTION POND . -/C-5
4. GRADING PLAN SEE -/C-2 AND -/C-3.
5. DRAINAGE PLAN SEE -/C-4.
6. NO SEPARATE TIPPING AREA, BULKING MATERIALS, FEEDSTOCK AND SLUDGE ARE PLACED IN WINDROWS WITHIN PROCESSING AND COMPOSTING AREAS.
7. FEEDSTOCK AND COMPOST PAD RETENTION POND WATER TO BE USED ONLY ON COMPOST PAD.
8. IF PRESENT, WASTE GRADE COMPOST WILL BE STORED ON COMPOST PAD AND RE-PROCESSED AS SOON AS PRACTICABLE.

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TAG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

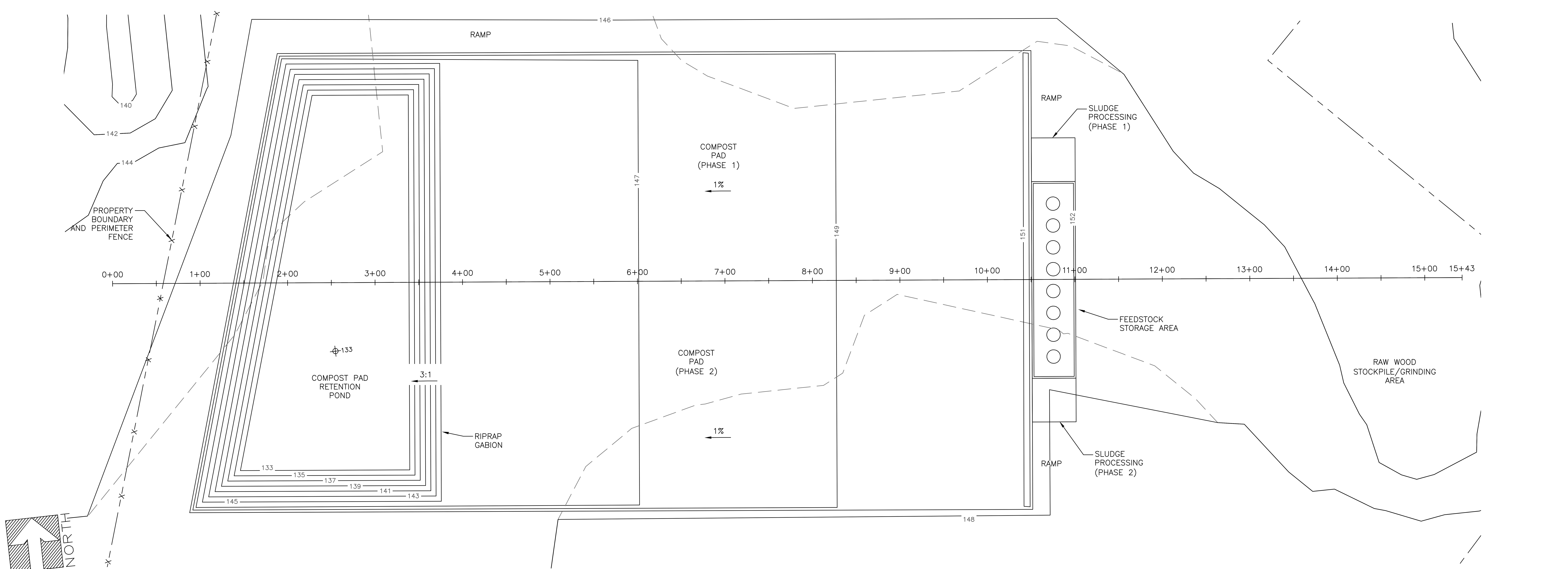
SITE PLAN

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO.
TX15.0094

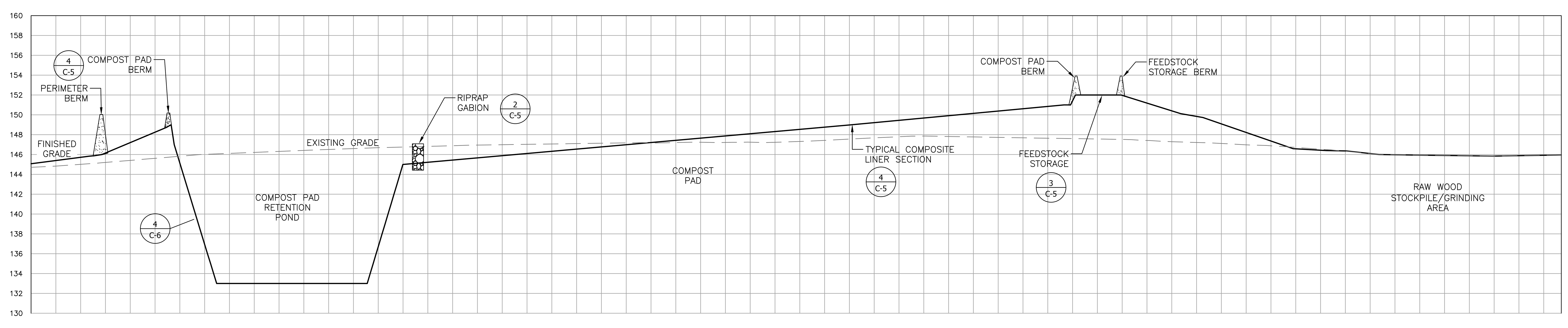
SHEET 3 of 8
DWG NO. C-1

XREF:



GRADING PLAN

1" = 60'-0" (- / C-1)



WEST TO EAST - STORMWATER RETENTION POND AND COMPOST PAD (- / -)

SOIL VOLUMES:

CUT: 52,000 CY
FILL: 45,000 CY
BERMS: 7,000 CY
NET CUT/FILL: 0 CY

STORMWATER RETENTION POND

CLAY VOLUME EXCAVATED: 19,700 CY
SAND VOLUME EXCAVATED: 24,900 CY
ELEVATION OF 25-YEAR, 24-HOUR DESIGN STORM VOLUME: 138 FT

GENERAL NOTES:

1. COMPOSITE LINER INSTALLED UNDER COMPOST PAD, FEEDSTOCK STORAGE AREA, AND STORMWATER RETENTION POND .
2. POND BOTTOMS AND CLAY LINER SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY, STANDARD PROCTOR.

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

GRADING PLAN AND PROFILE - 1

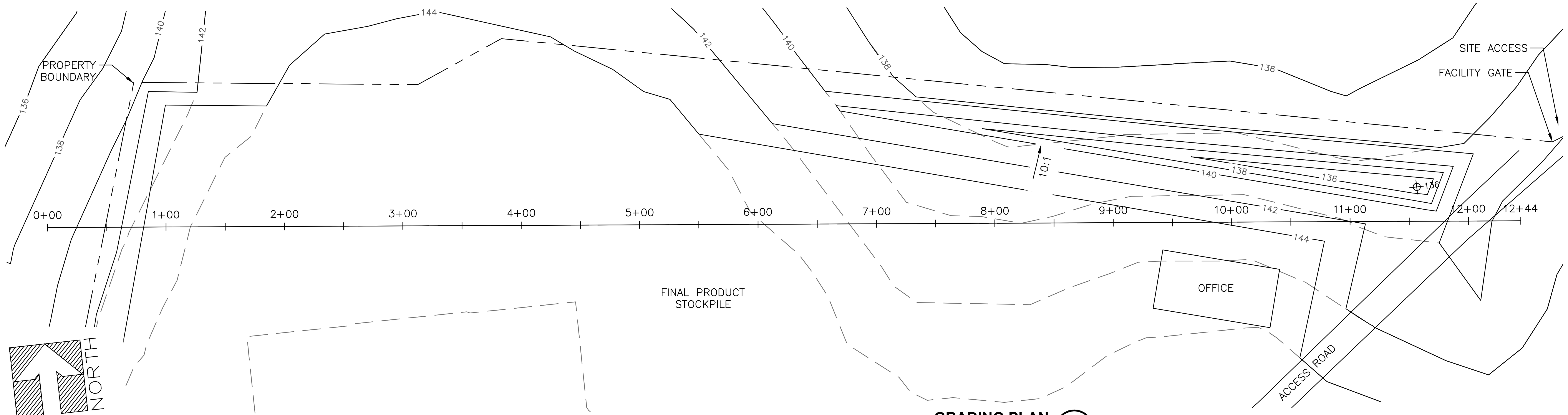
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO.
TX15.0094

SHEET 4 of 8
DWG NO. C-2

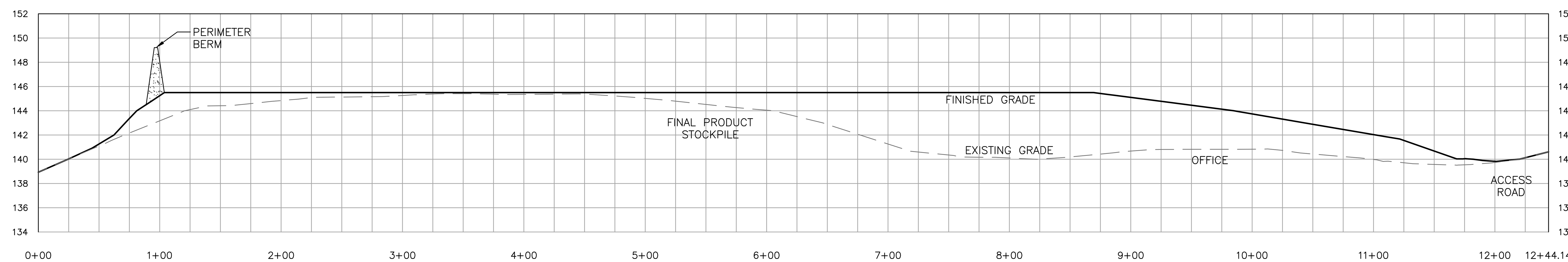
GENERAL NOTES:

1. COMPOSITE LINER INSTALLED UNDER COMPOST PAD, FEEDSTOCK STORAGE AREA, AND STORMWATER RETENTION POND .
2. POND BOTTOMS AND CLAY LINER SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY, STANDARD PROCTOR.

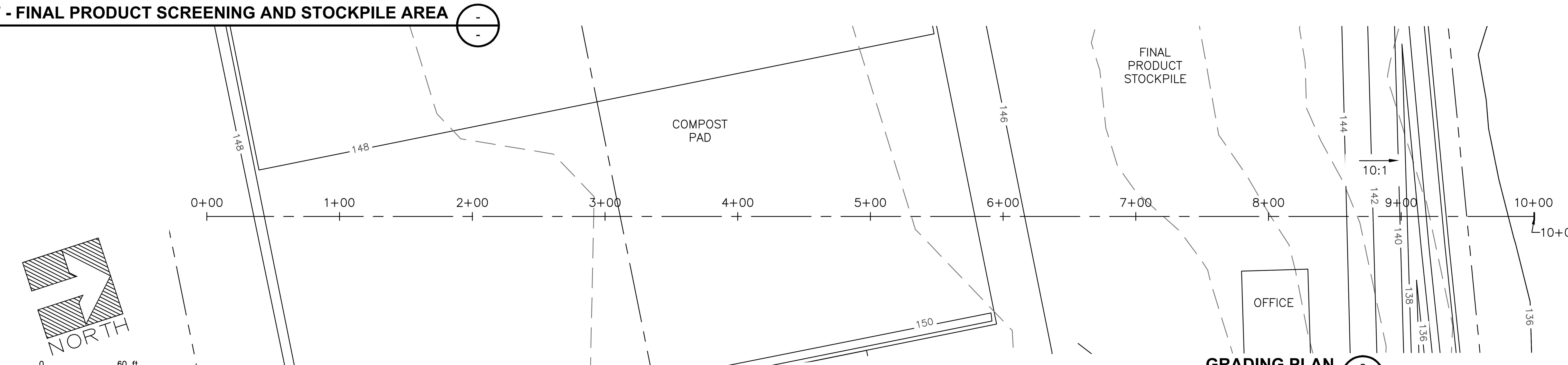


GRADING PLAN (1 / C-1)

1" = 60'-0"

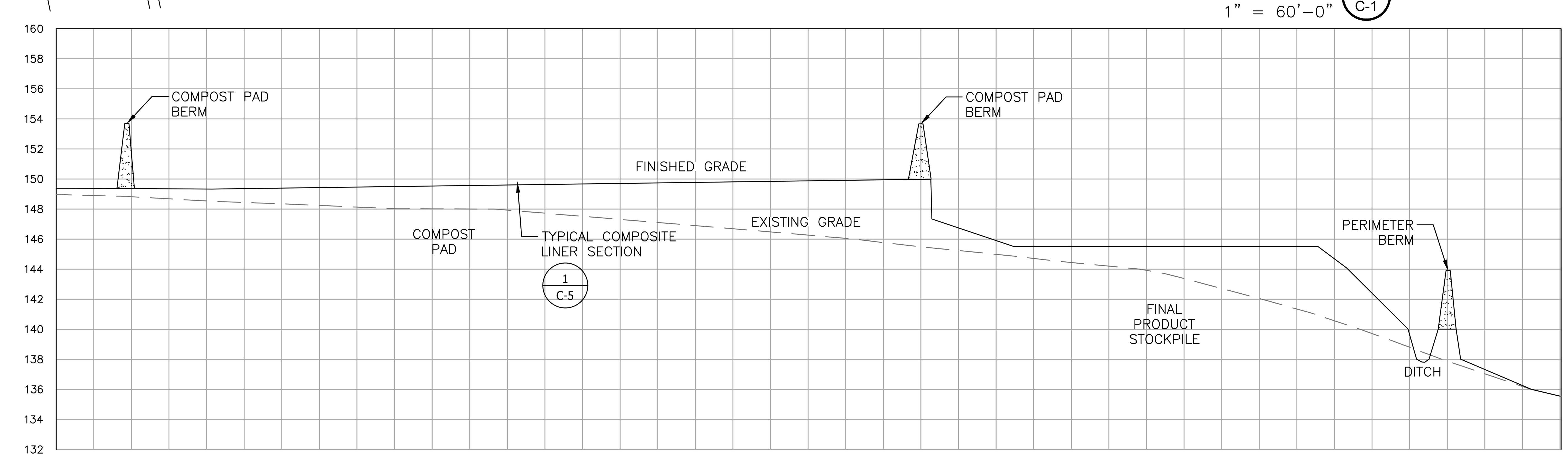


WEST TO EAST - FINAL PRODUCT SCREENING AND STOCKPILE AREA (- / -)



GRADING PLAN (2 / C-1)

1" = 60'-0"



SOUTH TO NORTH - COMPOST PAD AND FINAL SCREENING (- / -)

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME: S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

GRADING PLAN AND PROFILE - 2

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO. TX15.0094

SHEET 5 of 8
DWG NO. C-3

XREF:

POST CONSTRUCTION ON-SITE DRAINAGE

	Reach 1	Reach 2	Reach 3
Drainage Area (acres)	11.0	11.9	11.3
Time of Concentration (hr)	1.8	9.1	5.5
Rainfall Intensity (in/hr)	2.8	0.7	1.1
Runoff Coeficient	0.35	0.35	0.3
Flow Rate (cf/sec)	10.9	2.9	3.7

GENERAL NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY IMAGEPATCH.COM EARTHSTAR GEOGRAPHICS SIO, 015 MICROSOFT CORPORATION.
2. TOPOGRAPHY ADAPTED FROM USGS NATIONAL ELEVATION DATASET 2013.
3. CONTOUR INTERVAL 2 FEET, EXCEPT WHERE INDICATED.

NORTH

0 100 ft

DRAINAGE PLAN
1" = 100'-0"

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: CS
CHECKED BY: TG
DATE: 05/27/16

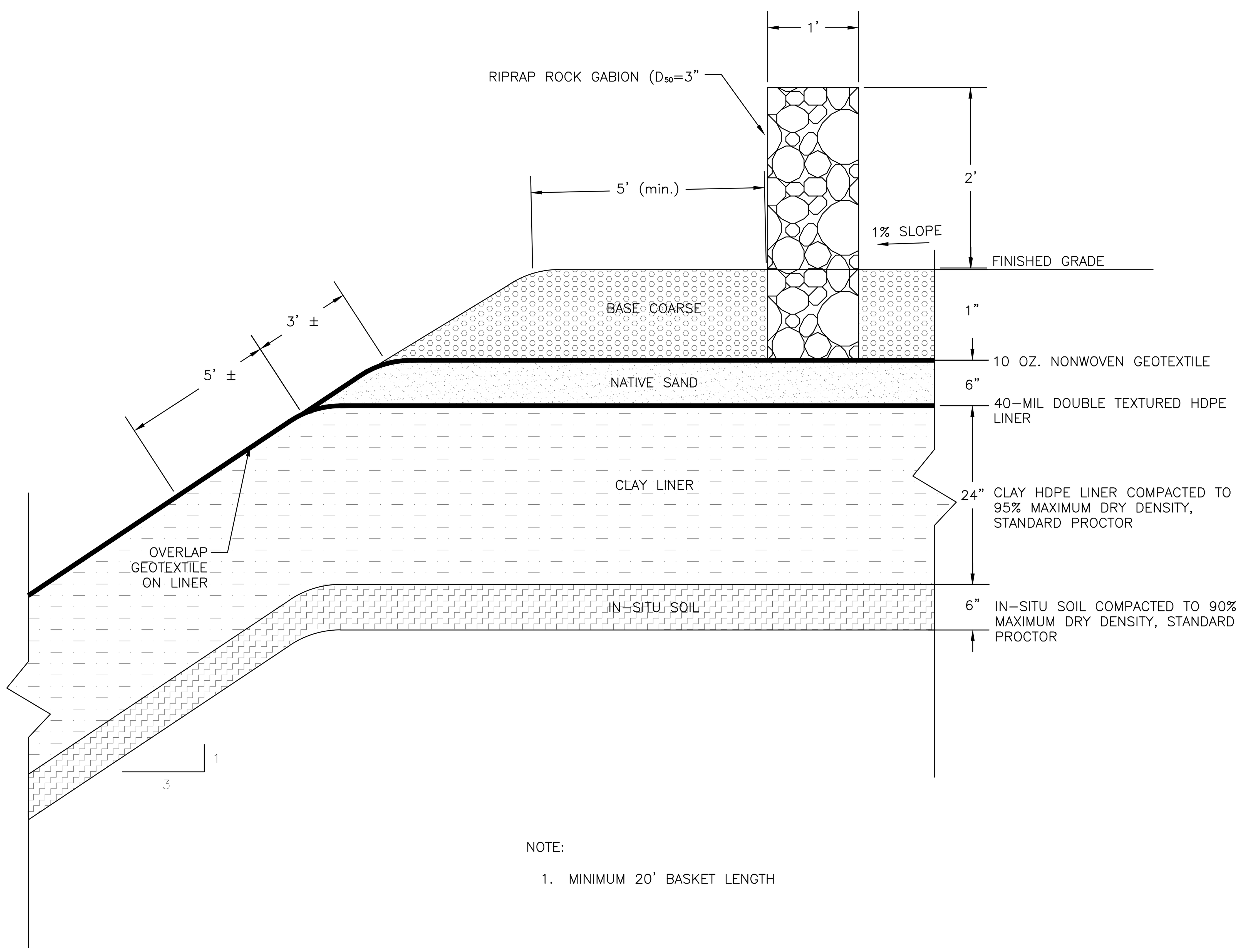
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

DRAINAGE PLAN

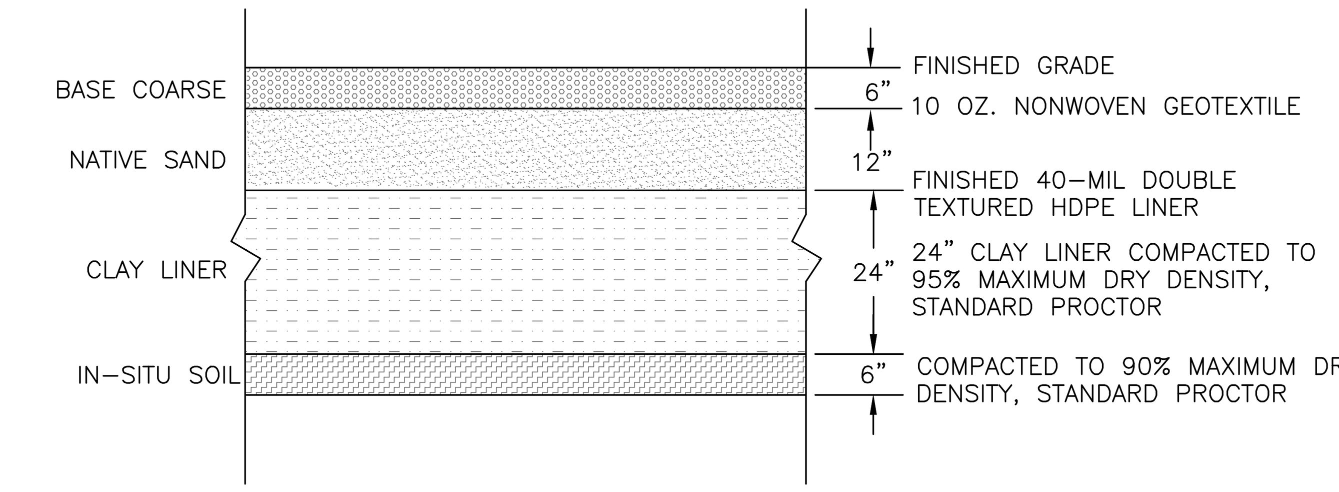
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO.
TX15.0094

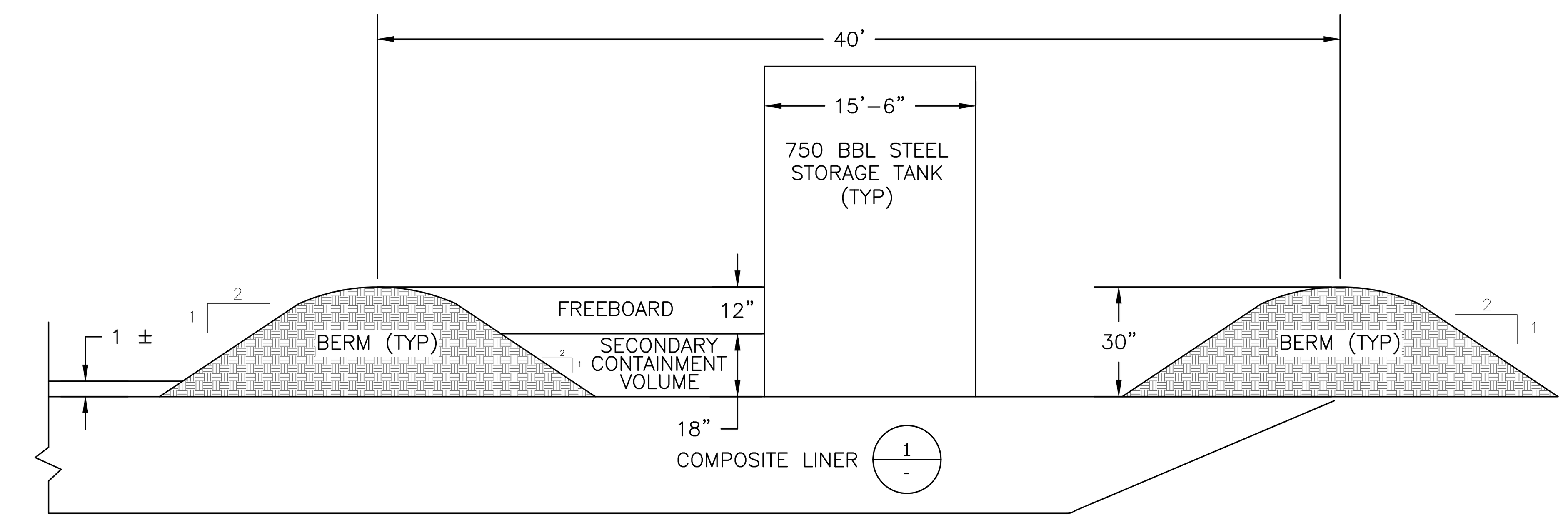
SHEET 6 of 8
DWG NO. C-4



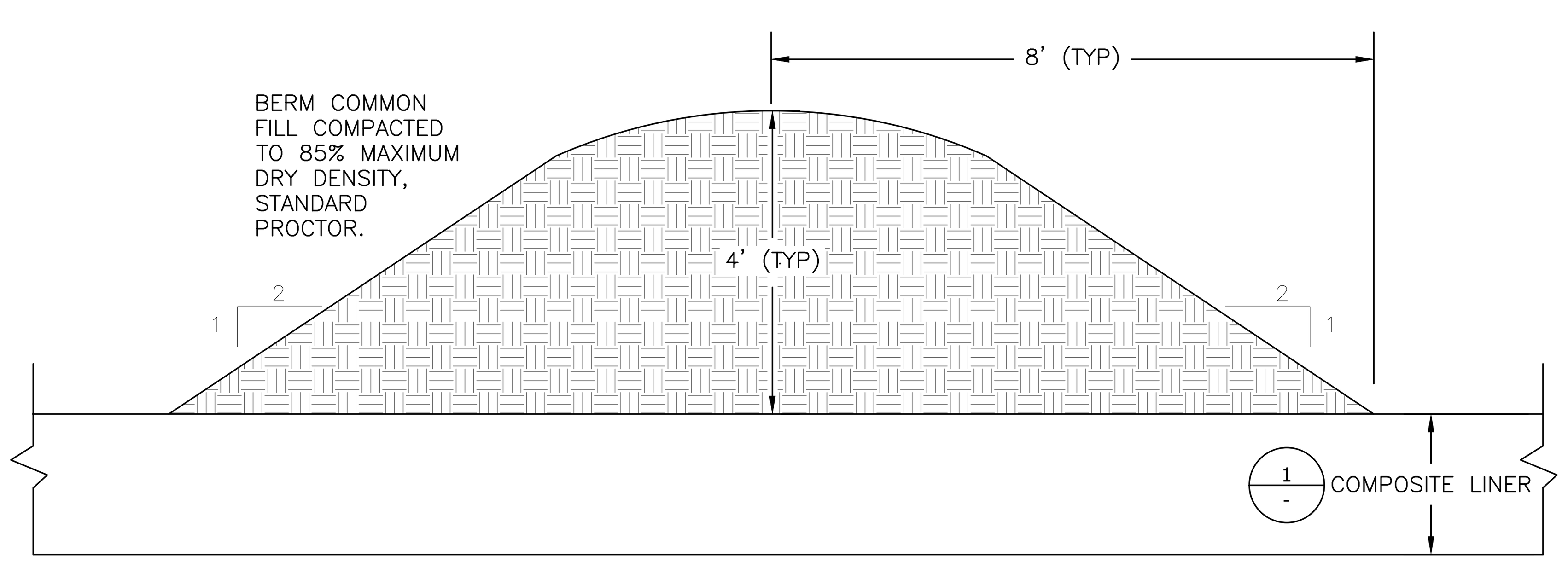
TYPICAL RIPRAP ROCK GABION SECTION (2 / C-1)
NTS



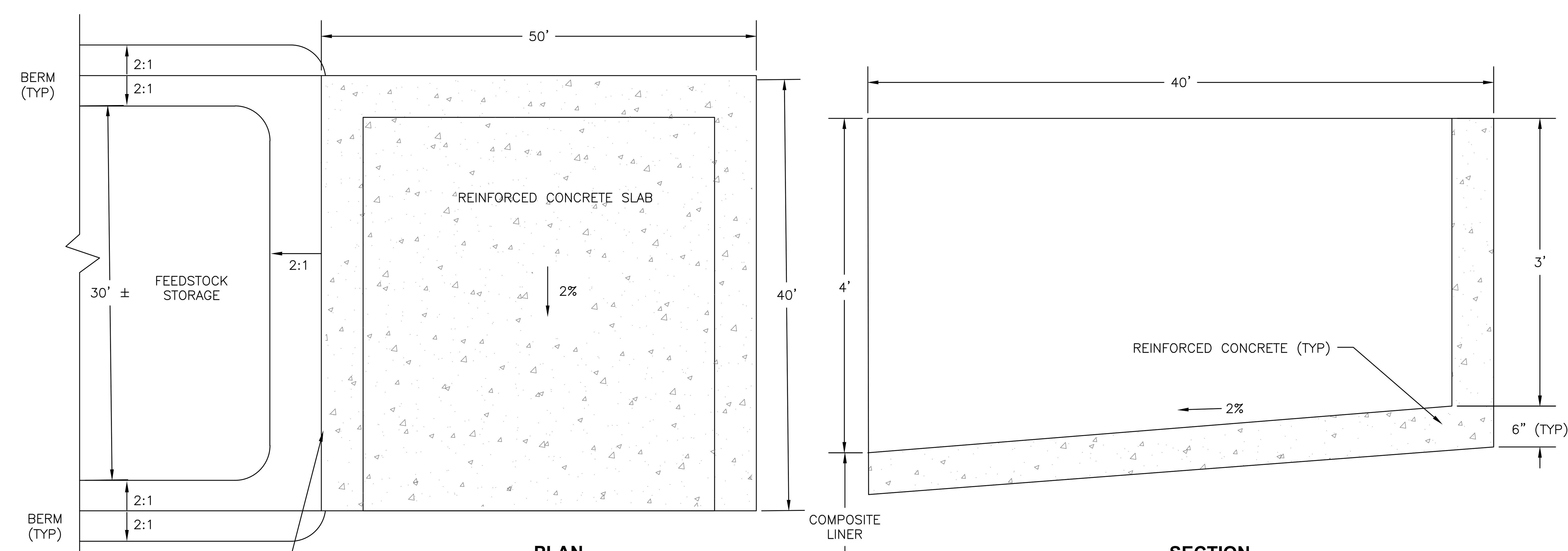
TYPICAL COMPOSITE LINER SECTION (1 / C-1,C-2,C-3)
NTS



FEEDSTOCK STORAGE SECTION (3 / C-1)
NTS



TYPICAL BERM SECTION (4 / C-2)
NTS



SLUDGE PROCESSING PLAN AND SECTION (5 / C-1)
NTS

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: JA
CHECKED BY: TG
DATE: 05/27/16

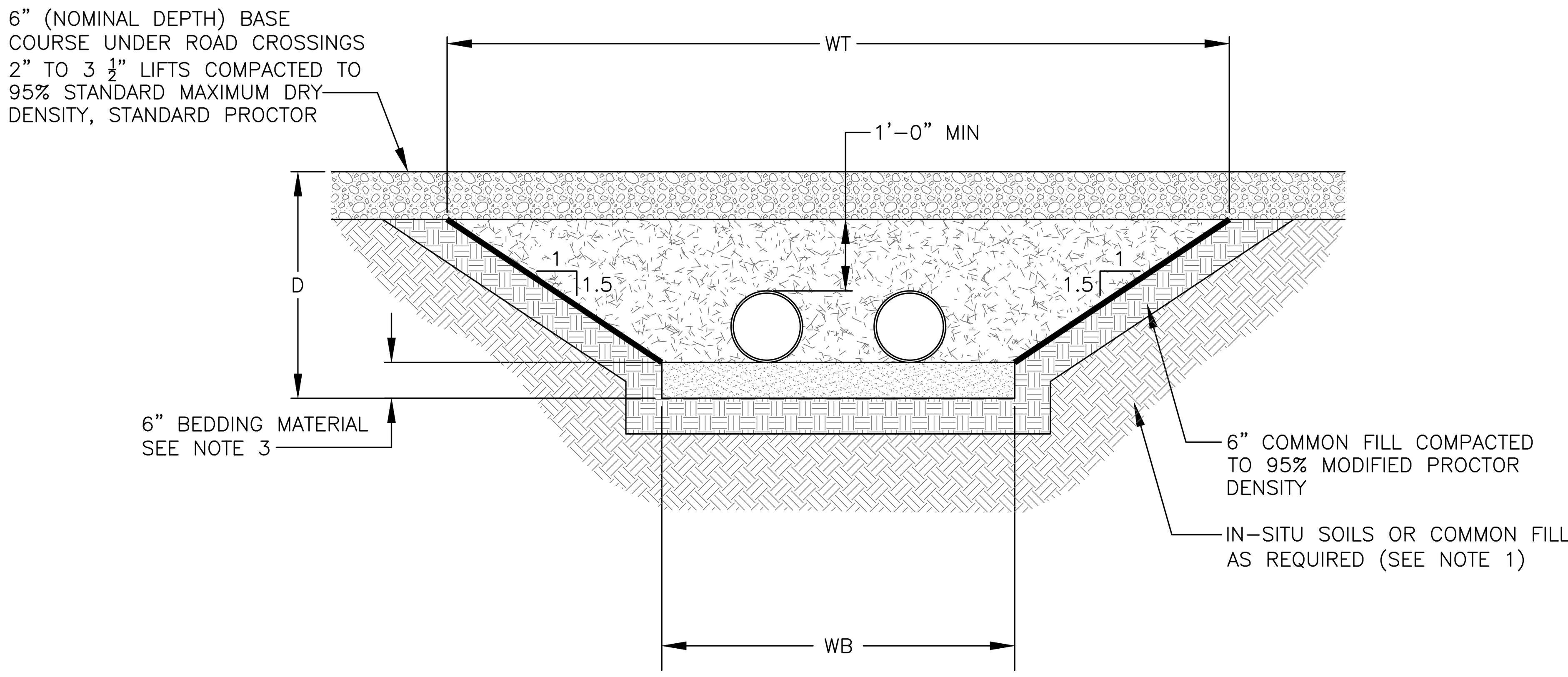
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

CIVIL DETAILS

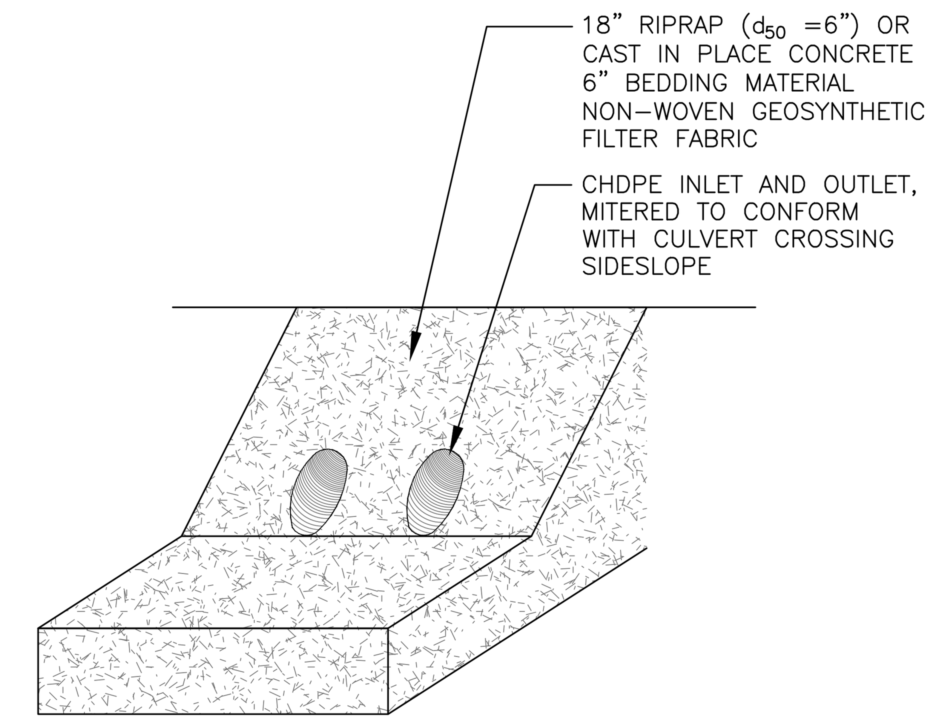
STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
DATE: 5/27/16

JOB NO.
TX15.0094

SHEET 7 of 8
DWG NO. C-5



SECTION



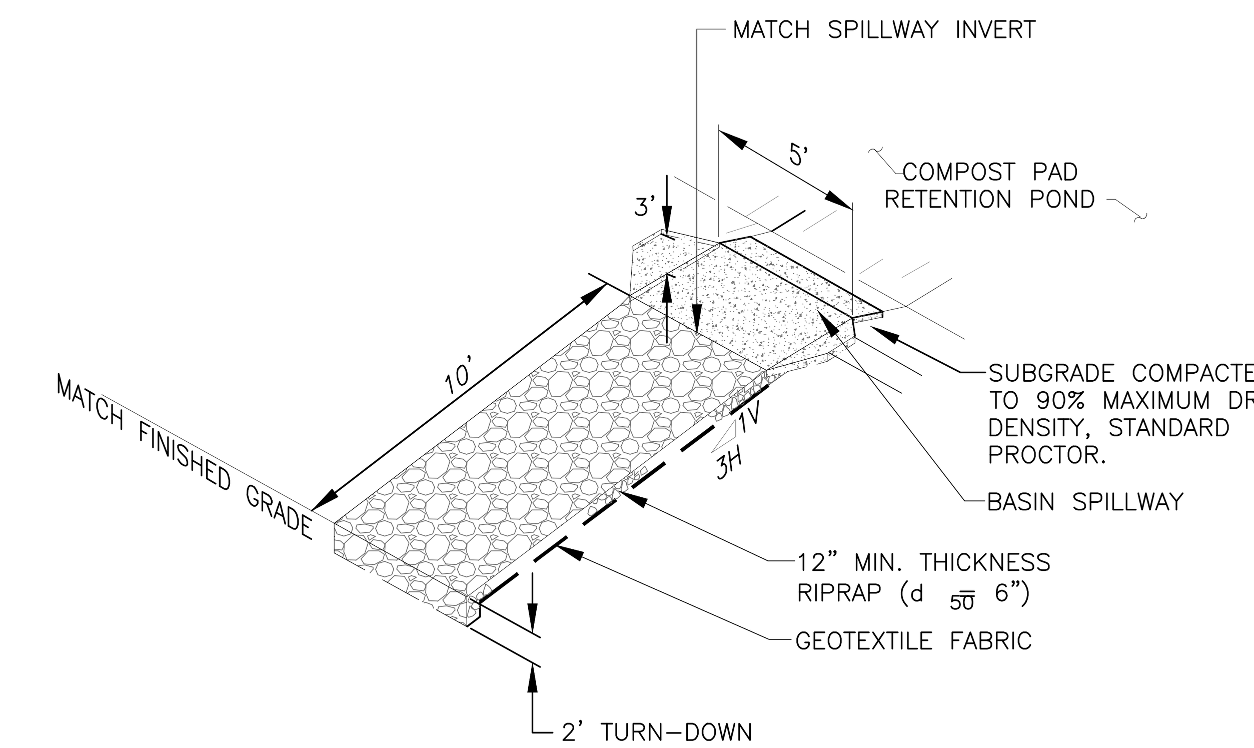
TYPICAL CULVERT INLET AND OUTLET DETAIL

CULVERT DESIGN SUMMARY TABLE

Culvert	25-yr Peak Flow (cfs)	Invert Upstream (ft)	Invert Downstream (ft)	Length (ft)	Number	Size (inch)	Exit Velocity (fps)	WB	WT	D
East overflow	4.1	141	139	150	2	12	5.6	5	11	2.5
North	7.3	137	136	150	3	12	4.4	6	12	2.5

NOTES:

1. IN-SITU SOILS OR FILL BENEATH CULVERT STRUCTURES (RCP AND EROSION PROTECTION) SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY STANDARD PROCTOR.
2. SEE DRAINAGE PLAN FOR LOCATIONS OF CULVERT CROSSINGS.
3. BEDDING MATERIAL SHALL BE NATIVE SILTY SAND AND SHAPED TO PROVIDE UNIFORM CONTACT WITH THE BOTTOM OF THE CULVERTS. NO MATERIALS GREATER THAN 0.25".
4. NUMBER OF CULVERT PIPES SHALL VARY ACCORDING TO CULVERT SCHEDULE.
5. 6" MINIMUM SPACING BETWEEN EACH CULVERT PIPE, WALL TO WALL.

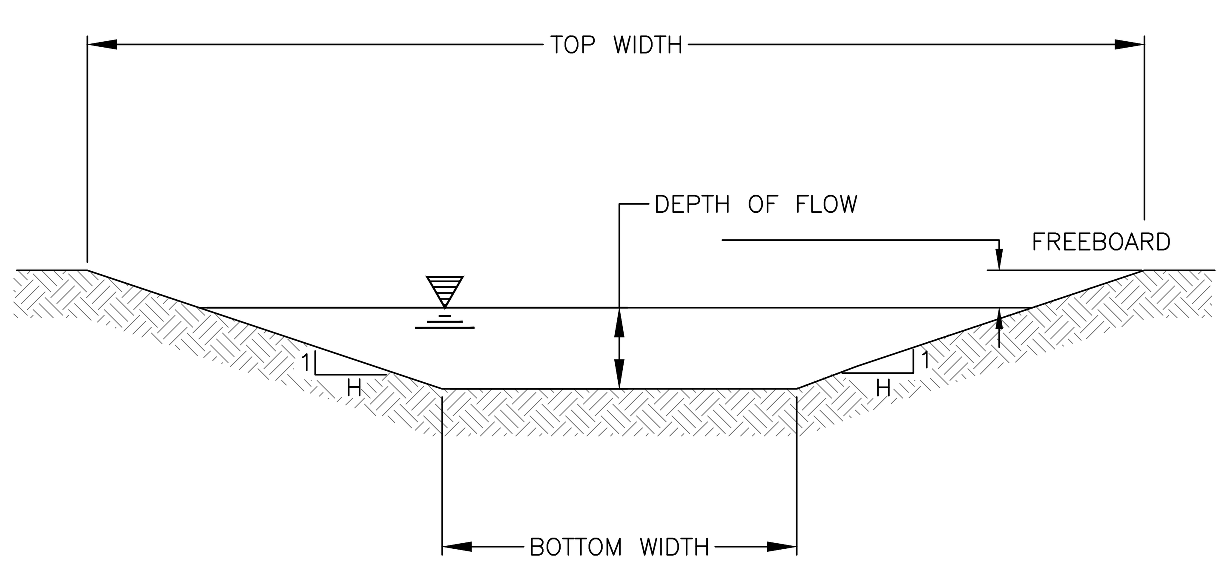


COMPOST PAD RETENTION POND SPILLWAY (3 / C-4)

N.T.S.

TYPICAL CULVERT DETAILS (1 / C-4)

N.T.S.



SECTION

DITCH DESIGN SUMMARY TABLE

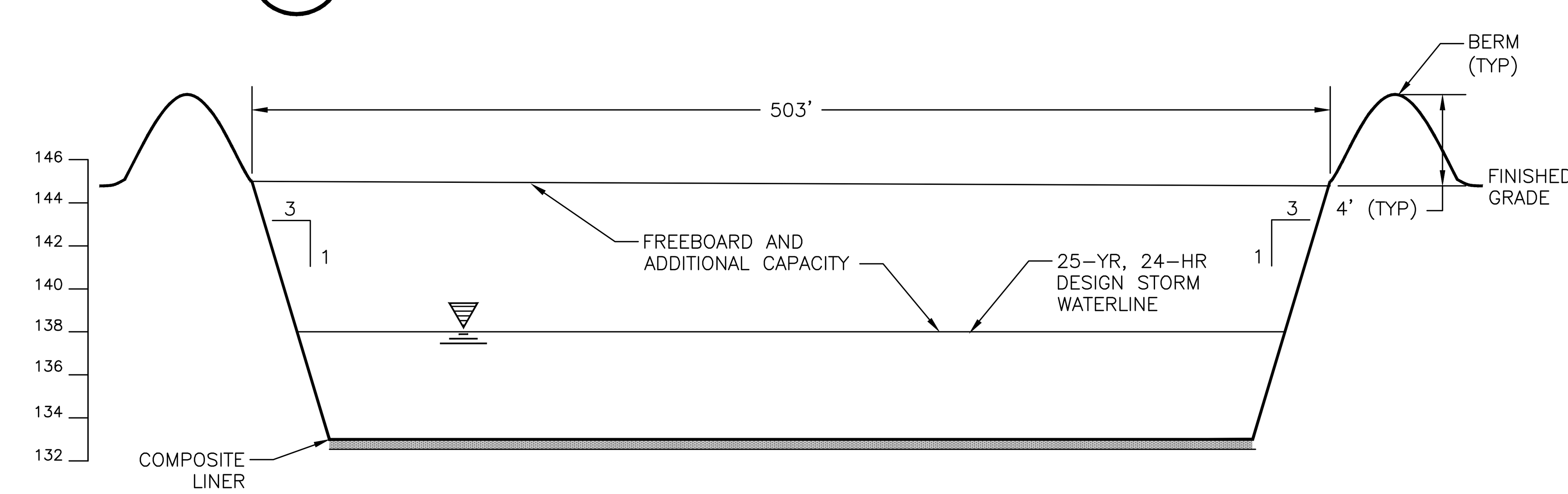
Ditch	25-yr, Peak Flow (cfs)	Average Slope (%)	Bottom Width (ft)	Sideslope H:1V	Top Width (ft)	Depth of Flow (ft)	Velocity (fps)	Freeboard (ft)	Minimum Total Depth (ft)	Ditch Depth (ft)	Erosion Protection
North	3.2	0.1	0	3	12	0.6	3.2	1.0	1.6	2.0	none

NOTES:

1. MAXIMUM ALLOWABLE VELOCITY FOR DITCHES WITHOUT EROSION PROTECTION 5 FPS.
2. DEPTH OF FLOW DETERMINED FROM MINIMUM GRADE OF CHANNEL.
3. FLOW VELOCITY DETERMINED FROM MAXIMUM GRADE OF CHANNEL.

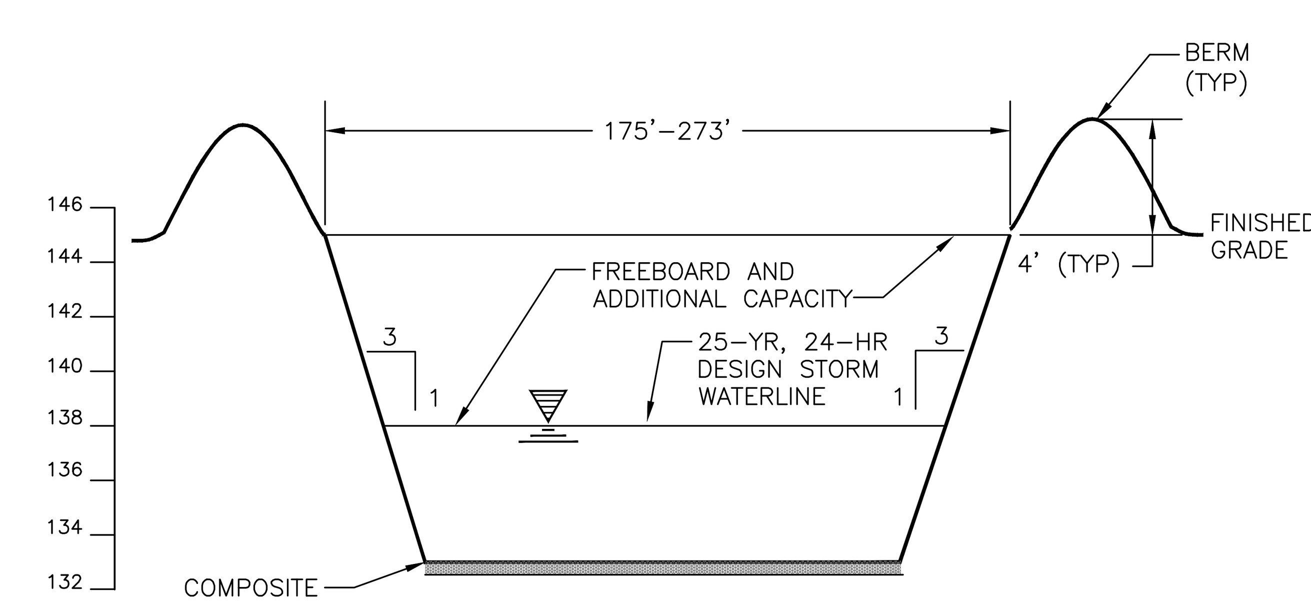
TYPICAL DITCH DETAILS (2 / C-4)

N.T.S.



COMPOST PAD RETENTION POND SECTION (A / C-4)

N.T.S.



COMPOST PAD RETENTION POND SECTION (B / C-4)

N.T.S.

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 05/27/16
IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

FACILITY LOCATION
LATITUDE : 29° 46' 33.55" NORTH
LONGITUDE : 96° 04' 41.00" WEST

XREF:

NO	DATE	BY	REVISION MADE
0	11/13/15	TG	TCEQ PERMIT SUBMITTAL
1	5/27/16	TG	TCEQ TECHNICAL REVIEW

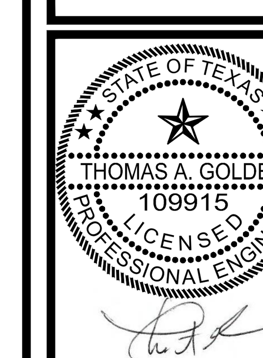
FILE NAME:S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
ENVIRONMENTAL SCIENTISTS & ENGINEERS
4030 W. BRAKER LANE, SUITE 325
AUSTIN, TX 78759-5336
(512) 821-2765

DESIGNED BY: TG
DRAWN BY: JA
CHECKED BY: TG
DATE: 05/27/16

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS

DRAINAGE DETAILS



DATE: 5/27/16

JOB NO. TX15.0094

SHEET 8 of 8
DWG NO. C-6

Appendix A

Boundary Metes and Bounds with Drawing

MICHAEL P. & CAROLYN S. HICKS

EASEMENT "C"

0.208 ACRES

ALL THAT TRACT OR PARCEL OF LAND consisting of a 30.0 ft. Easement or 0.208 Acres across a 32.209 Acre tract and a 2.000 Acre tract that has been surveyed and described this day. Said tract being a portion of the 62.53606 Acre tract belonging to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas, located in the Stephen F. Austin Survey, A-7, Austin County, Texas. Said tract consisting of a total 0.208 Acres and being a 30.0 ft. wide Strip, of which 0.122 Acres are out of the 2.000 Acre tract and 0.086 Acres are out of the 32.209 Acre tract and being more particularly described as follows:

BEGINNING at a 1/2" iron rod found in the East line of a 26.370 Acre tract that has been surveyed and described this day, the same being the Southwest corner of the 5.000 Acre tract described in Deed to Pencco Trucking, Inc. recorded in File# 985366 O.R.A.C.T. for the Southwest corner of Easement "A", a 0.552 Acre tract that has been surveyed and described this day and the Northwest corner of the herein described tract;

THENCE S 68d 42′ 47″ E, with the South line of the 5.000 Acre tract, the same being the South line of Easement "A" and the North line of the 32.209 Acre tract and passing at 115.52 ft. a 1/2" iron rod set for the Northeasterly corner of the 32.209 Acre tract, the same being the Northwesterly corner of the 2.000 Acre tract that has been surveyed and described this day and continuing with the common line with the 5.000 Acre Pencco tract and Easement "A", a total distance of 292.02 ft. to a 1/2" iron rod found for the Northwesterly corner of the 4.026 Acre tract described in Deed to Reactive & Alloy Metals Industries, Inc. recorded in File# 030093 O.R.A.C.T. and being the Northwest corner of Easement "B", a 0.345 Acre tract that has been surveyed and described this day, for the Northeast corner of the herein described tract;

THENCE S 48d 04′ 49″ W, with the common line with the 4.026 Acre tract and Easement "B", a distance of 33.61 ft. to a large

June 3, 2015
W.O.# 15-7115

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

MICHAEL P. & CAROLYN S. HICKS

EASEMENT "C"

0.208 ACRES (continued)

spike nail set at a fence corner post in concrete for the Southwest corner of Easement "B" and the Southeast corner of the herein described tract;

THENCE N 68d 42' 47" W, severing the 2.000 Acre tract and passing at 176.49 ft. a 1/2" iron rod set for reference to the Northwest corner of the 2.000 Acre tract, the same being a reference to the Northeast corner of the 32.209 Acre tract and continuing, a total distance of 310.50 ft. to a 1/2" iron rod set in the common line with the 26.370 Acre tract and the 32.209 Acre tract for the Southwest corner of the herein described tract;

THENCE N 69d 33' 23" E, with the common line with the 26.370 Acre tract, a distance of 45.07 ft. to the **PLACE OF BEGINNING** and containing, 0.208 Acres, of which 0.086 Acres are out of the 32.209 Acre tract and 0.122 Acres are out of the 2.000 Acre tract and both tracts having been surveyed and described this day.

NOTES: Bearings shown hereon are based on the 5.000 Acre Pencco Tract recorded in File# 985366 O.R.A.C.T.

Reference is hereby made to plat, of the subject tract, prepared this day.

June 3, 2015
W.O.# 15-7115

GLEN S. ALEXANDER

Glen S. Alexander
Registered Professional Land Surveyor, #4194

STATE OF TEXAS REGISTERED GLEN S. ALEXANDER 4194 PROFESSIONAL LAND SURVEYOR

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

REACTIVE & ALLOY METALS INDUSTRIES, INC.

EASEMENT "B"

0.345 ACRES

ALL THAT TRACT OR PARCEL OF LAND consisting of a 30.0 ft. Easement or 0.345 Acres and being a portion of the 4.026 Acre tract described in Deed to Reactive & Alloy Metals Industries, Inc. recorded in File# 030093 of the Official Records of Austin County, Texas, located in the Stephen F. Austin Survey, A-7, Austin County, Texas. Said tract consisting of 0.345 Acres and being that 30.0 ft. wide Strip mentioned in the reservation of easement recorded in File# 985366 O.R.A.C.T. and being more particularly described as follows:

BEGINNING at a 1/2" iron rod found in the Westerly or Northwesterly Right-of-way of Bartlett Road (Public Road, Formerly Mlcak Road) for the Southeast corner of the 5.000 Acre tract described in Deed to Pencco Trucking, Inc. recorded in File# 985366 O.R.A.C.T., the same being the Southeast corner of Easement "A", a 0.552 Acre tract that has been surveyed and described this day, for the Northeast corner of the 4.026 Acre tract and the Northeast corner of the herein described tract;

THENCE S 60d 35' 21" W, with the Westerly Right-of-way of Bartlett Road, a distance of 38.77 ft. to a 1/2" iron rod set for the Southeast corner of the herein described tract;

THENCE N 68d 42' 47" W, with a line, which is 30.00 ft. South of and parallel with the North line of the 4.026 Acre tract, a distance of 496.56 ft. to a large spike nail set at a fence corner post in concrete for the Southeast corner of Easement "C", a total of 0.208 Acre, 30.0 ft. Strip that has been surveyed and described this day and being a portion of the 62.53606 Acre residue tract recorded in File# 997087 O.R.A.C.T. and a portion of the 2.000 Acre tract that has been surveyed and described this day;

THENCE N 48d 04' 49" E, with the common line with the 2.000 Acre tract, a distance of 33.61 ft. to a 1/2" iron rod found in the existing gravel drive for the Northeasterly corner of the 2.000 Acre tract, in the South line of the 5.000 Acre Pencco tract

June 3, 2015
W.O.# 15-7115

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

REACTIVE & ALLOY METALS INDUSTRIES, INC.

EASEMENT "B"

0.345 ACRES (continued)

for the Northwest corner of the 4.026 Acre tract and the herein described tract;

THENCE S 68d 42' 47" E, with the South line of the 5.000 Acre Pencco tract, the same being in the South line of Easement "A", a distance of 505.96 ft. to the **PLACE OF BEGINNING** and containing 0.345 Acres.

NOTES: Bearings shown hereon are based on the 5.000 Acre Pencco Tract recorded in File# 985366 O.R.A.C.T.

Reference is hereby made to plat, of the subject tract, prepared this day.

June 3, 2015
W.O.# 15-7115

Glen S. Alexander

Glen S. Alexander
Registered Professional Land Surveyor, #4194

STATE OF TEXAS REGISTERED GLEN S. ALEXANDER 4194 PROFESSIONAL LAND SURVEYOR

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

ALEXANDER SURVEYING
LAND SURVEYORS

MICHAEL P. & CAROLYN S. HICKS

EASEMENT "A"

0.552 ACRES

ALL THAT TRACT OR PARCEL OF LAND consisting of a 30.0 ft. Easement or 0.552 Acres and being a portion of the 5.000 Acre tract described in Deed to Pencco Trucking, Inc. recorded in File# 985366 of the Official Records of Austin County, Texas and being that 30.0 ft. Strip reserved in the above mentioned Deed. Said tract being located in the Stephen F. Austin Survey, A-7, Austin County, Texas and being more particularly described as follows:

BEGINNING at a 1/2" iron rod found in the Westerly or Northwesterly Right-of-way of Bartlett Road (Public Road, Formerly Mlcak Road) for the Southeast corner of the 5.000 Acre tract mentioned above and being the Easterly corner of the 4.026 Acre tract described in Deed to Reactive & Alloy Metals Industries, Inc. recorded in File# 030093 O.R.A.C.T. for the Northeast corner of Easement "B", a 0.345 Acre tract which is a 30.0 ft. Strip across a portion of the 4.026 Acre tract and is also mentioned in reservation recorded in File# 985366 O.R.A.C.T. for the Southeast corner of the herein described tract;

THENCE N 68d 42' 47" W, with the South line of the 5.000 Acre tract, the same being the North line of the 4.026 Acre tract and the North line of Easement "B" and passing at 505.96 ft. a 1/2" iron rod found in the gravel road for the North or Northwest corner of the 4.026 Acre tract, the same being the Northeasterly corner of the 2.000 Acre tract that has been surveyed and described this day and the Northeasterly corner of Easement "C", a total of 0.208 Acres that has been surveyed and described this day and continuing and passing at 682.45 ft. a 1/2" iron rod set for the Northeasterly corner of a 32.209 Acre tract that has been surveyed and described this day and continuing, a total distance of 797.98 ft. to a 1/2" iron rod found for an angle point in the 32.209 Acre tract, in the Easterly line of a 26.370 Acre tract that has been surveyed and described this day and the Southwest corner of the 5.000 Acre Pencco Trucking, Inc. tract and the herein described tract;

THENCE N 50d 24' 53" E, with the common line with the 26.370 Acre adjoining tract, the same being the Westerly line of the 5.000

June 3, 2015
W.O.# 15-7115

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

MICHAEL P. & CAROLYN S. HICKS

EASEMENT "A"

0.552 ACRES (continued)

Acre tract, a distance of 34.34 ft. to a 1/2" iron rod set for the Northwest corner of the herein described tract;

THENCE S 68d 42′ 47″ E, with a line, which is 30.00 ft. North of and parallel with the South line of the 5.000 Acre tract, a distance of 800.60 ft. to a 1/2" iron rod set in the common line with the 5.004 Acre tract belonging to Pencco Trucking, Inc. for an angle point in the herein described tract;

THENCE S 39d 41′ 04″ E, with the common line between the 5.000 Acre Pencco Trucking, Inc. tract and the 5.004 Acre Pencco Trucking, Inc. tract, a distance of 4.11 ft. to a 1/2" iron rod found in the Westerly Right-of-way of Bartlett Road for the Northeasterly corner of the herein described tract;

THENCE S 60d 35′ 21″ W, with the Westerly Right-of-way of Bartlett Road, a distance of 36.19 ft. to the **PLACE OF BEGINNING** and containing 0.552 Acres.

NOTES: Bearings shown hereon are based on the 5.000 Acre Pencco Tract recorded in File# 985366 O.R.A.C.T.

Reference is hereby made to plat, of the subject tract, prepared this day.

June 3, 2015
W.O.# 15-7115

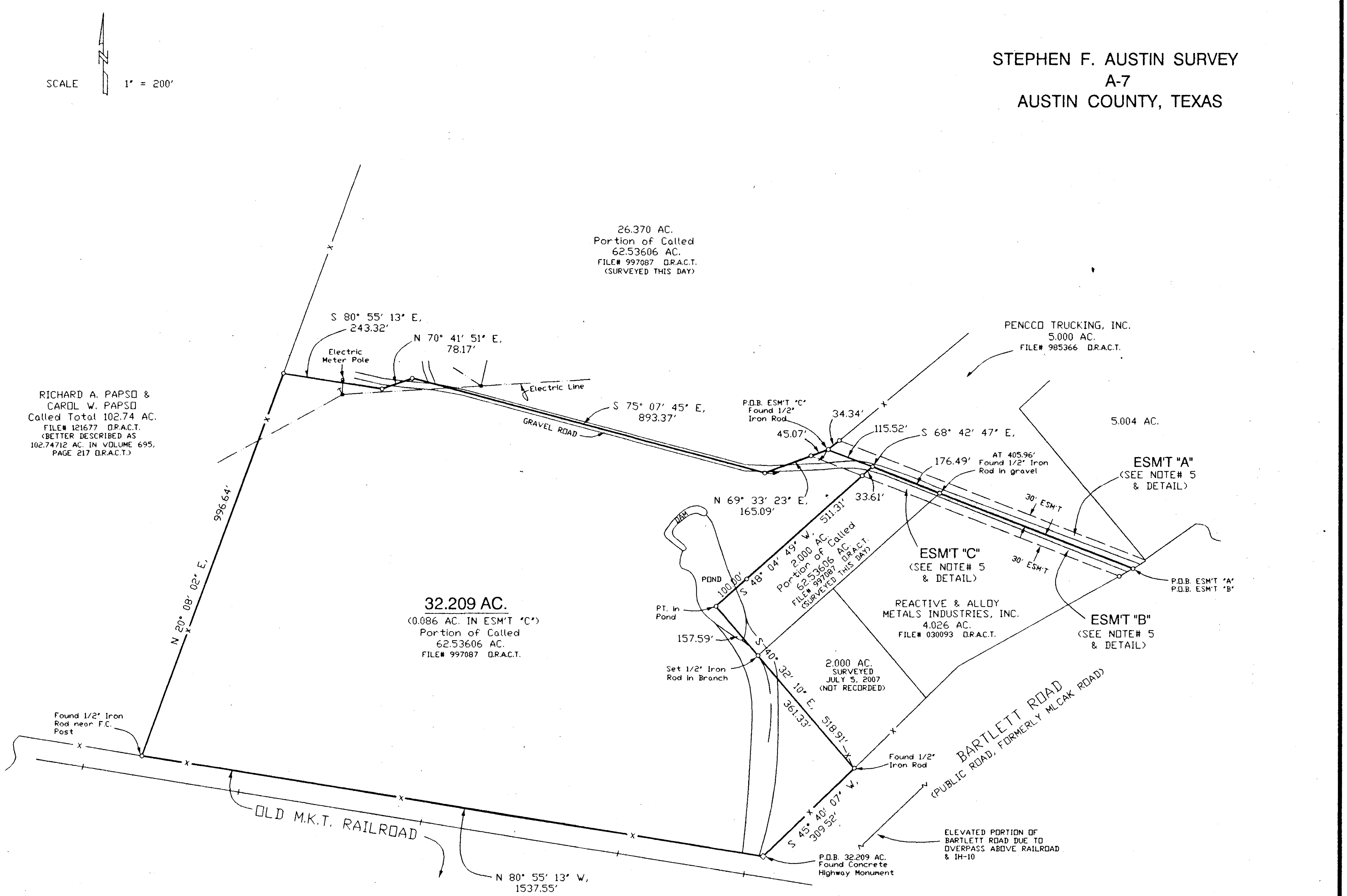
Glen S. Alexander

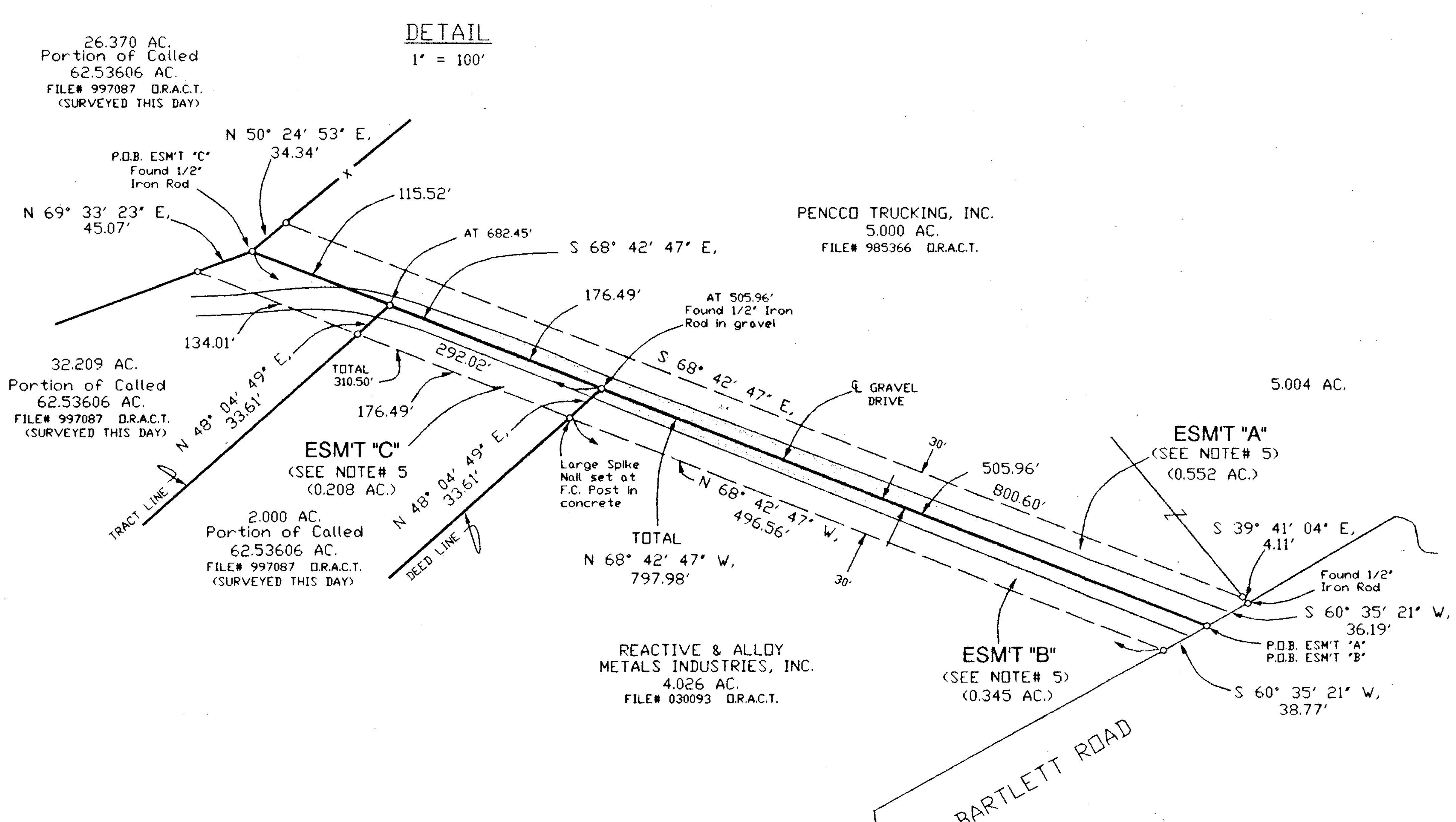
STATE OF TEXAS REGISTERED GLEN S. ALEXANDER 4194 PROFESSIONAL LAND SURVEYOR

Glen S. Alexander
Registered Professional Land Surveyor, #4194

105 E. Luhn P.O. Box 386 Bellville, Texas 77418 979 / 865-9145 Fax 979 / 865-5988
alexandersurveying@sbcglobal.net TBPLS Firm No. 10134400

STEPHEN F. AUSTIN SURVEY
A-7
AUSTIN COUNTY, TEXAS





NOTES:
1.) The tract of land shown hereon lies within Zone "X" (Areas determined to be ouside the 0.2% Annual Chance Floodplain) of the Flood Hazard Zone according to the F.I.R.M., Flood Insurance Rate Map# 48015C 0350E, Map Revised September 3, 2010.

2.) Bearings shown hereon are based on the 5.000 Acre Pencco Tract recorded in File# 985366 O.R.A.C.T.

3.) Reference is hereby made to metes and bounds description, of the subject tract, prepared this day.

4.) o denotes set 1/2" iron rod, unless otherwise noted.

5.) ESM'T "A" - 0.552 Acres is that same easement, called 30' wide, Reserved in deed to Pencco Trucking, Inc. recorded in File# 985366 O.R.A.C.T.

ESM'T "B" - 0.345 Acres -30.0' Easement across and a portion of the 4.026 Acre tract recorded in File# 030093 O.R.A.C.T. and is also mentioned in Reservation, recorded in File# 985366 O.R.A.C.T.

ESM'T "C" - Total of 0.208 Acres - 30.0' Easement across and a portion of the residue of the 62.53606 Acre tract, now surveyed as 2.000 Acres and 32.209 Acres - of the 0.208 Acres, 0.122 Acres are out of the 2.000 Acre tract and 0.086 Acres are out of the 32.209 Acre tract.

6.) That easement to Houston Lighting & Power Co., recorded in Volume 772, Page 20 O.R.A.C.T. is not described well enough to locate, on the ground.

7.) This plat was prepared for the exclusive use of the individuals and/or institutions named on this survey. It is non transferable to additional institutions or individuals without expressed recertification by Alexander Surveying.

8.) This plat is the property of Alexander Surveying. Reproduction of this plat for any purpose is expressly forbidden without the written consent of an authorized agent of Alexander Surveying.

I, Glen S. Alexander, Registered Professional Land Surveyor, do hereby certify that the plat and/or the description shown hereon accurately represents the results of an on the ground survey made under my direction and supervision on ____JUNE 3, 2015____, and all corners and acreage are shown hereon. There are no conflicts, protrusions or easements apparent on the ground, except as shown and/or noted hereon.

This survey was performed in connection with the transaction described in G.F. No. ____6712000942____ of __FIDELITY NATIONAL TITLE__ and is certified for that transaction only.

USE OF THIS SURVEY FOR ANY OTHER PURPOSE OR BY OTHER PARTIES SHALL BE AT THEIR OWN RISK AND THE UNDERSIGNED SURVEYOR IS NOT RESPONSIBLE FOR ANY LOSS RESULTING THEREFROM.

Glen S. Alexander
Glen S. Alexander - Registered Professional Land Surveyor, #4194

STATE OF TEXAS REGISTERED GLEN S. ALEXANDER 4194 PROFESSIONAL LAND SURVEYOR

OWNER: MICHAEL P. & CAROLYN S. HICKS
BUYER: SOUTHWEST DISPOSAL, LLC

ALEXANDER SURVEYING
105 E. Luhn Street P. O. BOX 386
Bellville, Texas 77418
Phone: 979-865-9145 Fax: 979-865-5988
alexandersurveying@sbcglobal.net

Glen S. Alexander	County AUSTIN	Field Crew E.W.
R.P.L.S. No. #4194	Survey STEPHEN F. AUSTIN SURVEY, A-7	Computations G.A.
TBPLS FIRM NO. 10134400	City	Drafting D.C.
Date JUNE 3, 2015	Addition	Work Order 15-7115

Appendix B

Owner Affidavit and Lease Agreement

Property Owner Affidavit

We, Michael P. & Carolyn S. Hicks, the owner of record of *32.209 ACRES: ALL THAT TRACT OR PARCEL OF LAND consisting of 32.209 Acres located in the Stephen F. Austin Survey, A7, Austin County, Texas. Subject tract being a portion of the 62.53606 Acre tract described in Deed to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas*, acknowledge that the State of Texas may hold me either jointly or severally responsible for the operation, maintenance, and closure and post-closure care of the facility. For a facility where waste will remain after closure, We acknowledge that we have a responsibility to file with the county deed records an affidavit to the public advising that the land will be used for a solid waste composting facility prior to the time that the facility actually begins operating as a municipal solid waste composting facility, and to file a final recording upon completion of disposal operations and closure of the composting units in accordance with Title 30 Texas Administrative Code §330.19, Deed Recordation. We further acknowledge that we or the operator and the State of Texas shall have access to the property during the active life and post-closure care period, if required, after closure for the purpose of inspection and maintenance.

Michael P. Hicks
Michael P. Hicks

17 May 2016
Date

Carolyn S. Hicks
Carolyn S. Hicks

17 May 2016
Date

For:
MSW Permit # 2388
RN: 108878331
Project Name: Sealy Composting Facility
Operator: SouthWaste Disposal, LLC.

Appendix F

Biological Assessment

W&M ENVIRONMENTAL GROUP, LLC

May 20, 2016

Mr. Ben Camacho
Daniel B. Stephens & Associates, Inc.
4030 West Braker Lane, Suite 325
P.O. Box 17300
Austin, Texas 78759

RE: Qualified Biologist Certification
Biological Assessment for Proposed Sealy Compost Facility
Northwest Corner of IH-10 and Bartlett Road
Sealy, Austin County, Texas
W&M Project No. 1057.028

Dear Mr. Camacho:

The October 30, 2015 Biological Assessment completed for the Proposed Sealy Compost Facility in Sealy, Texas was prepared by a qualified biologist in accordance with standard procedures of the United States Fish and Wildlife Service and the Texas Parks and Wildlife Department to determine the effect of the facility on the endangered or threatened species.

If you have any questions, please feel free to contact me at 512-501-4085.

Very truly yours,

W&M ENVIRONMENTAL GROUP, LLC

Aaron Brewer, P. G.
Project Manager

W&M ENVIRONMENTAL GROUP, LLC

TEXAS PARKS & WILDLIFE

Life's better outside.®

Based on the project description, the Wildlife Habitat Assessment Program does not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources.

Signed: Rick Hanson

Date: 12/11/15

Biological Assessment

Proposed Sealy Compost Facility
NWC IH-10 and Bartlett Road
Sealy, Austin County, Texas

Appendix I

Stormwater Drainage Analysis

May 27, 2016

Texas Commission on Environmental Quality
Municipal Solid Waste Permit Section (MC-124)
Waste Permits Division
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Re: Stormwater Drainage Analysis and Secondary Containment
South Waste Disposal [Proposed] Sealy Compost Facility - Austin County
Municipal Solid Waste - Permit No. 2388

To Whom It May Concern:

Daniel B. Stephens & Associates, Inc. (DBS&A) is pleased to submit this report documenting stormwater drainage calculations completed during design of the referenced compost facility. The required minimum volume of the pond was determined using the Natural Resources Conservation Service (NRCS) Curve Number method and the 25-year, 24-hour design storm. As specified in the Texas Department of Transportation (TxDOT) Bridge Division Hydraulic Manual, drainage calculations for determination of peak discharge using the Rational Method were performed for both pre-construction and post-construction conditions. The 25-year design storm most similar to the time of concentration was used to determine peak flow. Calculations were also performed to design secondary containment for the liquid feedstock storage area, which includes the volume of the largest tank and precipitation from the 25-year, 24-hour design storm.

Surface Water Protection

The facility is designed to control rainfall run-on and run-off. A raised railroad track adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the site from these upgradient locations. The compost processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on), and is sloped toward a stormwater retention pond on the west side of the bermed area to collect run-off from the composting area. Perimeter berms along the west and north property boundary will be utilized to route on-site run-off to a central point of concentration near the facility access gate. This centralized location will aid stormwater monitoring without increasing run-off north of the site (due to a reduction in contributing acreage, the peak flow decreased by nearly 18 percent). This will also improve stormwater management by re-routing run-off around the existing residential property to the north.

Retention Pond Design

Based on the 25-year, 24-hour design storm precipitation event and including a 10 percent factor of safety, the minimum required capture volume for the 11 acre compost pad and stormwater retention pond is approximately 2.7 million gallons (13,500 cubic yards). In addition to the minimum capacity needed to contain this design storm, the 3-acre, 12-foot-deep stormwater retention pond has more than 5 million gallons (25,000 cubic yards) in additional surplus capacity. Given the nature of the facility's setting (i.e., net evaporative based on mean precipitation and evaporation data), the pond is not anticipated to accumulate significant volumes of water. However, the pond has been designed to maintain sufficient capacity to handle a series of larger rainfall events. As designed, the stormwater retention pond has approximately 7 feet of freeboard (over the design storm), and is surrounded by a 4-foot-tall berm. The pond has been designed with an overflow spillway set 1 foot above the bottom of the berm.

Peak Discharge

Evaluation of peak discharge for each of the on-site sub-basin was performed to ensure that site development will not cause increases to downstream, off-site drainage. Drainage to the natural water course west and north of the site will be eliminated due to construction of the self-contained stormwater retention pond and regrading of the northwest corner of the site. Run-off on the east side of the site is expected to increase from 2.5 to 3.7 cubic feet per second (cfs), but will be conveyed to an existing, on-site stormwater pond. The only planned off-site discharge point will be located near the facility access gate. Based on the 25-year design storm, peak discharge at this location is expected to decrease from 3.5 to 2.9 cfs.

Flow from this area will be conveyed in an unlined ditch along the northern property boundary. A 12-inch-diameter corrugated high density polyethylene (CHDPE) culvert system will convey stormwater under the unimproved road north of the site, prior to being discharged onto a riprap outfall structure. These drainage improvements will allow stormwater flow to be rerouted around the existing residential property north of the site into a natural drainage course. Although drainage on the east side of the site is also self-contained, an additional 12-inch-diameter CHDPE culvert system will be installed under the facility access road to handle overflow from the existing stormwater retention pond.

Secondary Containment

Secondary containment calculations were performed to design the height of the berm around the liquid feedstock storage area. Calculations considered the largest tank volume of 31,500 gallons and precipitation from the 25-year, 24-hour design storm. As the tanks will sit on the ground, the area occupied by the tanks was excluded. A berm height of 30 inches was chosen to provide freeboard of 12 inches.

Thank you for your review of this permit application. If you have any questions or require additional information, please contact our office at (505) 822-9400.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Thomas Golden, P.E.
Project Engineer

TG

Attachments

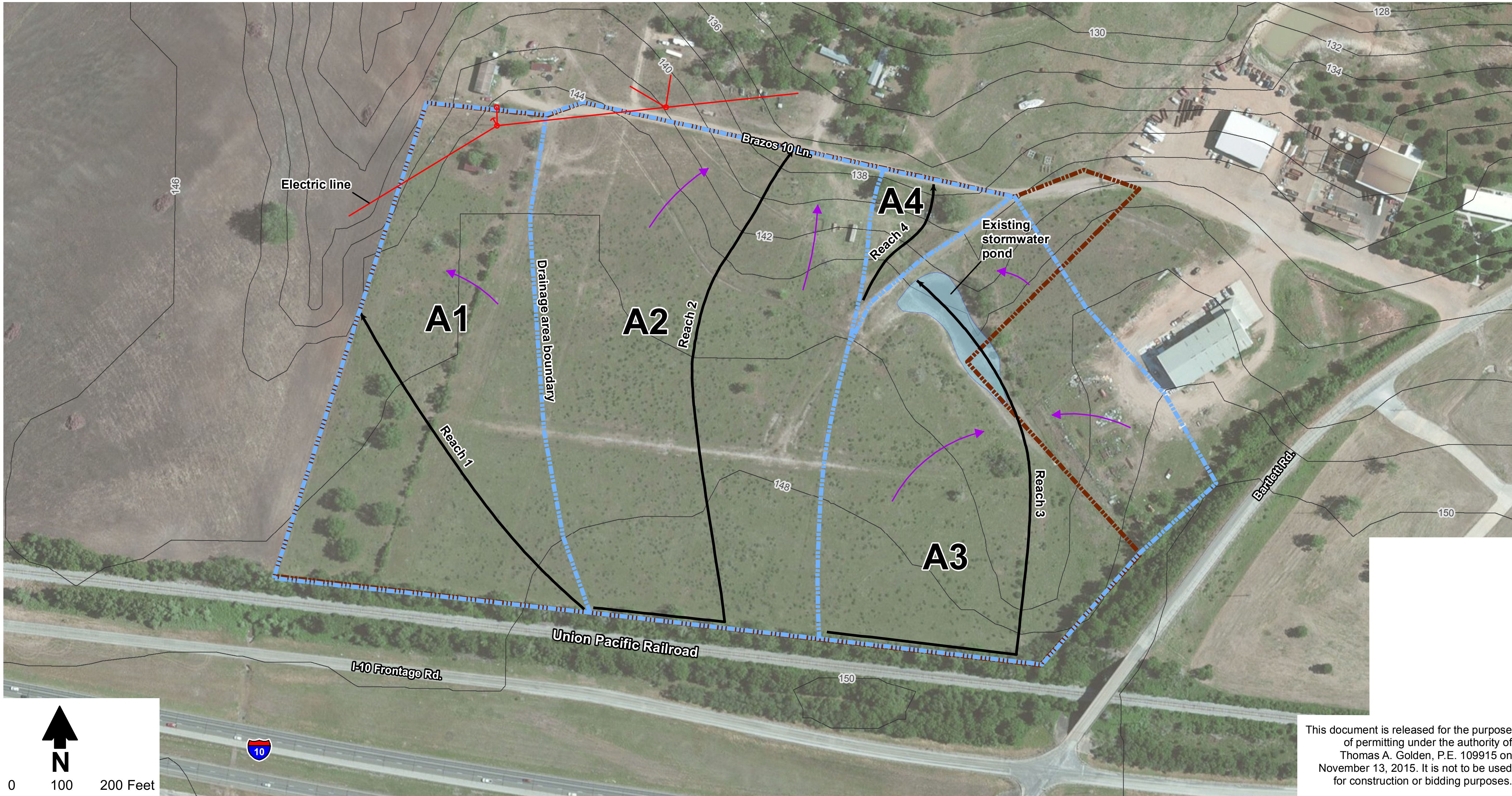
1. Pre-Construction On-Site Drainage Map
2. Post-Construction On-Site Drainage Map
3. Required Stormwater Retention Pond Volume Calculations
4. Stormwater Retention Pond Design Volume Calculations
5. Peak Discharge Calculations
6. Secondary Containment Calculations

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Attachment 1

Pre-Construction On-Site Drainage Map



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on November 13, 2015. It is not to be used for construction or bidding purposes.

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

Explanation

- Property Boundary
- 530 Contour interval and elevation (ft msl)
- Rainfall runoff flow direction
- Drainage area reach
- Drainage area boundary
- **A1** Drainage area number

	Reach 1	Reach 2	Reach 3	Reach 4
Drainage Area (acres)	8.9	13.5	11.3	.9
Time of Concentration (hr)	5.2	7.0	8.7	1.3
Rainfall Intensity (in/hr)	1.1	0.9	0.7	3.1
Runoff Coeficient	0.3	0.3	0.3	0.3
Flow Rate (cf/sec)	3.0	3.5	2.5	0.8

Note: Calculations provided in appendix C2

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
11/6/2015 JN ES14.0050

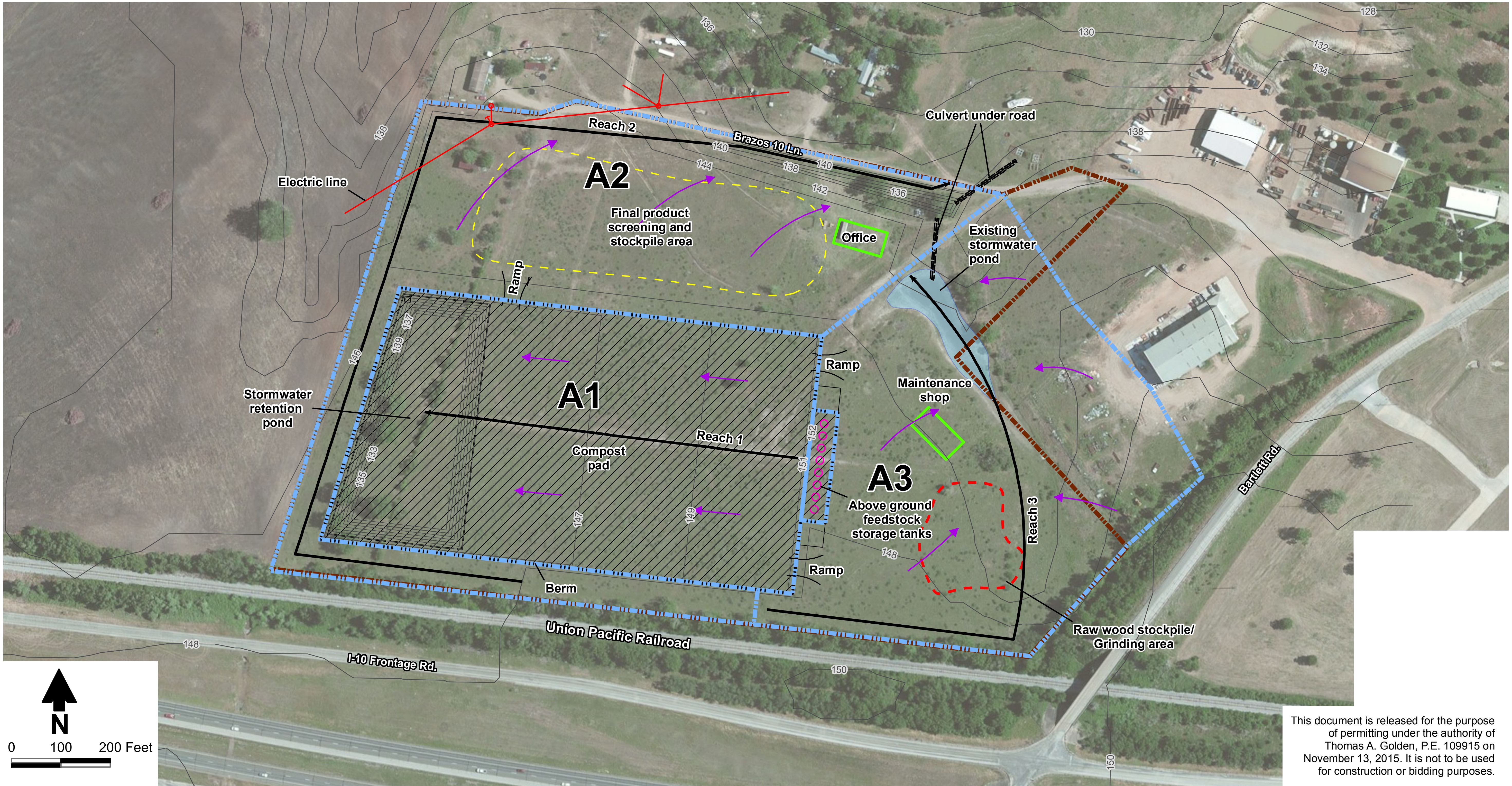
SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Pre-Construction On-Site Drainage Map

Figure 10

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig10_drainage_map.mxd

Attachment 2

Post-Construction On-Site Drainage Map



This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on November 13, 2015. It is not to be used for construction or bidding purposes.

Explanation

- Property Boundary
- Proposed permit area
- 530 Contour interval and elevation (ft msl)
- Rainfall runoff flow direction
- Drainage area reach
- Drainage area boundary
- **A1** Drainage area number

	Reach 1	Reach 2	Reach 3
Drainage Area (acres)	11.0	11.9	11.3
Time of Concentration (hr)	1.8	9.1	5.5
Rainfall Intensity (in/hr)	2.8	0.7	1.1
Runoff Coeficient	0.35	0.35	0.3
Flow Rate (cf/sec)	10.9	2.9	3.7

Note: Calculations provided in appendix C2

Sources:
1. Alexander Surveying, June 3, 2015.
2. Topography adapted from USGS National Elevation Dataset, 2013.
3. Aerial photo provided by ESRI and the National Agriculture Imagery Program (NAIP) imagery, 2014.

SEALY COMPOSTING FACILITY
AUSTIN COUNTY, TEXAS
Post-Construction On-Site Drainage Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
11/6/2015 JN ES14.0050

Figure 11

S:\Projects\TX15.0094_Sealy_Proposed_Composting_Facility\GIS\MXDs\Reports\Permit2_stamped\Fig11_post_constr_drainage.mxd

Attachment 3

Required Stormwater Retention Pond Volume Calculations

Introduction

This calculation determines the volume of stormwater runoff from a 25-year, 24-hour storm.

Assumptions

1. Processing area is 11 acres
2. Due to presence of liner, assume land use behaves like paved roads with curb and gutter.

Variables/Conversion Factors

CN[1] =	98		(Wurbs, 2002, Table 8.3)
Precip[2] =	8.5	inches	(USGS, 2004, Figure 47)
1 acre-ft =	43,560	ft^3	
1 ft^3 =	7.48	gallons	
1 ft =	12	inches	

Stormwater runoff depth:

The NRCS rainfall-runoff relationship is usually expressed as (Vr, P, S in inches) [1]

$$\boxed{S = \frac{1000}{CN} - 10}$$ (Wurbs, 2002, Equation 8.18)

$$\boxed{V_r = \frac{(P - 0.2S)^2}{P + 0.8S}}$$ (Wurbs, 2002, Equation 8.15)

S =	0.20	inches
Vr =	8.26	inches

The total volume of runoff from the site is calculated by multiplying the runoff depth (Vr, inches) by the total area of the site

$$\boxed{Total\ V = V_r * Area}$$

Total V =	91	in-acres
=	329,818	ft^3
=	2,467,212	gallons
=	12,215	CY

Notes

Perimeter berm will divert runon around the site.

Site will be graded to form two relatively equal stormwater basins of approximately 90 acres each.

References

1. Wurbs, Water Resources Engineering (2002)
2. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf

Attachment 4

Stormwater Retention Pond Design Volume Calculations

Contour	Area	V (cf)	V (cy)	Cum V (cy)
133	65110			
135	72277	137387	5088	5088
137	79731	152008	5630	10718
139	87476	167207	6193	16911
141	95511	182987	6777	23688
143	103837	199348	7383	31072
145	112453	216290	8011	39082

Design storm volume:	13,500	CY
Design storm volume:	2,726,460	gallons
Design storm elevation:	137.8	elevation
Additional capacity:	25,582	CY
Additional capacity:	5,166,638	gallons

Attachment 5

Peak Discharge Calculations

Introduction

The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for pre-construction sub-basin A1.

Assumptions

1. Drainage area A1 is 8.9 acres[4]
2. Assume pre-construction land use is "unimproved".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach

The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$

(Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}}$$

(Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3}t_L}$$

(Wurbs, 2002, Equation 8.7)

Calculation

From GIS figures, the hydraulically most distant point is

l = 750 ft

The average land slope of the watershed measured from USGS topo data is

slope (Y) = 0.007 ft/ft

Therefore,

t_L = 3.2 hr

tc = 5.3 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figure 45, P = 6 inches

therefore,

i = 1.13 in/hr

For land use of "unimproved", C can vary from 0.1-0.3 (Wurbs, 2002 Table 8.2)

0.3 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 3.0 acre-in/hr

3.0 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 3.3 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction

The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for pre-construction sub-basin A2.

Assumptions

1. Drainage area A1 is 13.5 acres[4]
2. Assume pre-construction land use is "unimproved".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach

The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$ (Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}}$$ (Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3}t_L}$$ (Wurbs, 2002, Equation 8.7)

Calculation

From GIS figures, the hydraulically most distant point is

l = 1300 ft

The average land slope of the watershed measured from USGS topo data is

slope (Y) 0.009 ft/ft

Therefore,

t_L = 4.2 hr

tc = 7.0 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figure 45, P = 6 inches

therefore,

i = 0.86 in/hr

For land use of "unimproved", C can vary from 0.1-0.3 (Wurbs, 2002 Table 8.2)

0.3 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 3.5 acre-in/hr

3.5 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 3.8 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction

The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for pre-construction sub-basin A3.

Assumptions

1. Drainage area A1 is 11.3 acres[4]
2. Assume pre-construction land use is "unimproved".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach

The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$

(Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}}$$

(Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3}t_L}$$

(Wurbs, 2002, Equation 8.7)

Calculation

From GIS figures, the hydraulically most distant point is

l = 1250 ft

The average land slope of the watershed measured from USGS topo data is

slope (Y) 0.006 ft/ft

Therefore,

t_L = 5.2 hr

tc = 8.7 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figures 45 and 46, P = 6.375 inches

therefore,

i = 0.73 in/hr

For land use of "unimproved", C can vary from 0.1-0.3 (Wurbs, 2002 Table 8.2)

0.3 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 2.5 acre-in/hr

2.5 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 2.7 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction
The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm. This calculation determines the peak discharge for pre-construction sub-basin A4.

Assumptions
1. Drainage area A1 is 0.9 acres[4]
2. Assume pre-construction land use is "unimproved".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach
The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$ (Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}}$$ (Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3}t_L}$$ (Wurbs, 2002, Equation 8.7)

Calculation

From GIS figures, the hydraulically most distant point is

l = 300 ft

The average land slope of the watershed measured from USGS topo data is

slope (Y) 0.027 ft/ft

Therefore,

t_L = 0.8 hr

tc = 1.3 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figures 42 and 43, P = 3.95 inches

therefore,

i = 3.09 in/hr

For land use of "unimproved", C can vary from 0.1-0.3 (Wurbs, 2002, Table 8.2)

0.3 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 0.8 acre-in/hr

0.8 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 0.9 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction

The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for post-construction sub-basin A1.

Assumptions

1. Site area is 11 acres[4]
2. Assume post-construction land use behaves like a "railroad yard".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach

The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$ (Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}}$$ (Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3}t_L}$$ (Wurbs, 2002, Equation 8.7)

Calculation

From GIS figures, the hydraulically most distant point is

l = 650 ft

The average land slope of the watershed based on anticipated finished grade

slope (Y) 0.010 ft/ft

Therefore,

t_L = 1.1 hr

tc = 1.8 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figure 44, P = 5 inches

therefore,

i = 2.81 in/hr

For land use of "railroad yard", C can vary from 0.2-0.35 (Wurbs, 2002 Table 8.2)

0.35 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 10.8 acre-in/hr

10.9 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 12.0 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction
The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for post-construction sub-basin A2.

Assumptions
1. Site area is 11.9 acres[4]
2. Assume post-construction land use behaves like a "railroad yard".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach
The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}}$$ (Wurbs, 2002, Equation 4-21)

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900 CN^{0.7} Y^{0.5}}}$$ (Wurbs, 2002, Equation 8.3)

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3} t_L}$$ (Wurbs, 2002, Equation 8.7)

Calculation
From GIS figures, the hydraulically most distant point is

l = 2450 ft

The average land slope of the watershed based on anticipated finished grade

slope (Y) 0.005 ft/ft

Therefore,

t_L = 5.5 hr

tc = 9.1 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figures 45 and 46, P = 6.375 inches

therefore,

i = 0.70 in/hr

For land use of "railroad yard", C can vary from 0.2-0.35 (Wurbs, 2002 Table 8.2)

0.35 selected as conservative (will produce more runoff)

Peak Discharge Calculation

Qp = 2.9 acre-in/hr

2.9 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 3.2 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Introduction

The stormwater channels and pipes will be sized to handle the peak discharge (runoff) from the 25-year storm.
This calculation determines the peak discharge for post-construction sub-basin A3.

Assumptions

1. Site area is 11.3 acres[4]
2. Assume post-construction land use behaves like a "railroad yard".

Variables/Conversion Factors

1 hr =	3600	sec
1 acre-ft =	43,560	ft^3
1 ft =	12	inches

Outline of Approach

The rational method for calculating the peak runoff (applicable to watersheds less than 200 acres)[1,2]

$$\boxed{Q_P = CiA}$$

where
Q_p = peak discharge (acres-in/hr)
C = dimensionless runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (acres)

Intensity is determined from a depth-duration-frequency curve and the time of concentration for the watershed[2]:

$$\boxed{i = \frac{P}{t_c}} \qquad \text{(Wurbs, 2002, Equation 4-21)}$$

where
P = depth of rainfall for the design storm of duration tc
tc = time of concentration for the watershed

Time of concentration of the watershed can be estimated using the curve number
First, the NRCS lag equation is used to calculated the lag time for the watershed[1]:

$$\boxed{t_L = \frac{l^{0.8}(1{,}000 - 9CN)^{0.7}}{1{,}900CN^{0.7}Y^{0.5}}} \qquad \text{(Wurbs, 2002, Equation 8.3)}$$

where
t_L = lag time of watershed (hr)
l = hydraulic length from the outlet to the most hydraulically remote point in the watershed (ft)
Y = average land slope of the watershed in percent

Time of concentration is related to lag time:

$$\boxed{t_c = \frac{5}{3} t_L} \qquad \text{(Wurbs, 2002, Equation 8.7)}$$

Calculation

From GIS figures, the hydraulically most distant point is

l = 1350 ft

The average land slope of the watershed based on anticipated finished grade

slope (Y) 0.005 ft/ft

Therefore,

t_L = 3.3 hr

tc = 5.5 hr

Based on the design storm for a duration similar to the time of concentration

From USGS DDF Atlas for Texas[3] Figure 45, P = 6 inches

therefore,

i = 1.09 in/hr

For land use of "railroad yard", C can vary from 0.2-0.35 (Wurbs, 2002 Table 8.2)

0.3 selected due to anticipated volume of raw stockpiled materials

Peak Discharge Calculation

Qp = 3.7 acre-in/hr

3.7 cfs

Consider factor of safety for pipe and channel sizing:

1.1 factor of safety

Qp = 4.1 cfs

References

1. Wurbs, Water Resources Engineering (2002)
2. TXDOT Hydraulic Design Manual, http://onlinemanuals.txdot.gov/txdotmanuals/hyd/rational_method.htm
3. USGS DDF Atlas for Texas (2004), http://pubs.usgs.gov/sir/2004/5041/pdf/sir2004-5041.pdf
4. Areas taken from GIS

Attachment 6

Secondary Containment Calculations

Secondary Containment Calculations

Methodology

Secondary containment calculations were prepared for the liquid feedstock storage area. The calculations provided are based on the rule found in 30 Texas Administrative Code (TAC) Chapter 330 Part §330.63(D). This section of the rule requires that "secondary containment be designed to control and contain a worst-case spill or release". These secondary containment calculations take into account the volume of the largest tank or, where 10 percent of the total storage tank capacity within a containment area exceeds the total capacity of the largest tank, this volume is used for the design tank containment volume, V_{tank}. These calculations also take into account precipitation from a 25-year, 24-hour rainfall event (design storm), V_{precip}. Precipitation for each containment area is calculated using equation 1:

$$V_{precip} = A_{cont} * i \qquad \text{(Eqn. 1)}$$

where V_{precip} = volume of precipitation
A_{cont} = total containment area
i = depth of precipitation for the design storm

The total required secondary containment, $V_{SC\text{-}req}$, is the sum of precipitation from the design storm and the capacity of the largest tank, as shown in equation 2:

$$V_{SC\text{-}req} = V_{precip} + V_{tank} \qquad \text{(Eqn. 2)}$$

Available secondary containment is based on the open containment area, A_{open}, found by subtracting the footprint of any equipment located on the ground, A_{equip}, from the total containment area, A_{cont}, as shown in equation 3:

$$A_{open} = A_{cont} - A_{equip} \qquad \text{(Eqn. 3)}$$

The secondary containment volume, $V_{SC\text{-}exist}$, is determined by multiplying the open containment area, A_{open}, by the average height of the containment berm, curb or wall, h_{cont}, and adding in additional containment storage, V_{add}, such as sump volume or hydraulic pass-through into other containment areas, as shown in equation 4:

$$V_{SC\text{-}exist} = A_{open} * h_{cont} + V_{add} \qquad \text{(Eqn. 4)}$$

Available containment can then be compared to the required secondary containment to determine whether a deficiency exists, and engineered solutions can be proposed to eliminate the deficiency. When a containment surplus is found, the available freeboard, h_{FB}, or the height from the top of the design containment water surface to the top of the containment wall, can be calculated based on the available open containment area, as shown in equation 5:

$$h_{FB} = (V_{SC\text{-}exist} – V_{SC\text{-}req}) / A_{open} \qquad \text{(Eqn. 5)}$$

<u>Sample Calculation</u>

A sample calculation for the liquid feedstock storage area is provided below.

According to data from *Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas*, a collaboration between the United States Geological Survey and the Texas Department of Transportation (June 2004), a 25-year, 24-hour storm event at the site produces approximately 8.5 inches of rainfall. The liquid feedstock storage area was designed with dimensions of 40 feet by 200 feet for a total containment area, A_{cont}, of approximately 8,000 square feet (ft^2). The volume of precipitation is calculated using equation 1:

$$V_{precip} = A_{cont} * i = 8{,}000\ ft^2 * 8.5\ in * (ft/12\ in) * (7.48\ gallons / ft^3) \qquad \text{(Eqn. 1)}$$

$$V_{precip} = 42{,}390\ gallons$$

Eight storage tanks are proposed on the ground within the containment area, each with a tank capacity, V_{tank}, of 31,500 gallons. The total required secondary containment is calculated using equation 2:

$$V_{SC\text{-}req} = V_{precip} + V_{tank} = 42{,}390 \text{ gallons} + 31{,}500 \text{ gallons} \quad \text{(Eqn. 2)}$$

$$V_{SC\text{-}req} = 73{,}890 \text{ gallons}$$

The storage tank diameter is 15.5 feet, resulting in a footprint area for all eight tanks, A_{equip}, of 1,510 ft^2. The open containment area can be calculated using equation 3:

$$A_{open} = A_{cont} - A_{equip} = 8{,}000 \text{ ft}^2 - 1{,}510 \text{ ft}^2 \quad \text{(Eqn. 3)}$$

$$A_{open} = 6{,}490 \text{ ft}^2$$

The containment berm height in this containment area, h_{cont}, is designed to be 30 inches (2.5 feet). There is no additional containment capacity in the storage area. The total existing available containment capacity is then calculated using equation 4:

$$V_{SC\text{-}exist} = A_{open} * h_{cont} + V_{add} \quad \text{(Eqn. 4)}$$

$$V_{SC\text{-}exist} = (\ 6{,}490 \text{ ft}^2 * 30 \text{ inches} * [\text{ft}/12 \text{ in}]\ ) * (7.48 \text{ gallons} / \text{ft}^3) + 0 \text{ gallons}$$

$$V_{SC\text{-}exist} = 121{,}380 \text{ gallons}$$

Comparing the required to the available secondary containment shows that a surplus exists of approximately 47,490 gallons. Based on this calculated surplus, determine the approximate freeboard. Freeboard will be based on the open area, A_{open} = 6,490 ft^2. Using equation 5:

$$h_{FB} = (\ 121{,}380 \text{ gallons} - 73{,}890 \text{ gallons}\ ) / (7.48 \text{ gallons} / \text{ft}^3) / 6{,}490 \text{ ft}^2 * (12 \text{ in/ft}) \quad \text{(Eqn. 5)}$$

$$h_{FB} = 12 \text{ inches}$$

Appendix N

Closure Cost Summary & Estimate

CLOSURE COST SUMMARY
SEALY COMPOST FACILITY, AUSTIN COUNTY, TX

CLOSURE COST SUMMARY	
COMPOSTING PAD & RETENTION POND REMOVAL AND BACKFILL	$217,516
CONCRETE AREAS REMOVAL SLUDGE PROCESSING PADS	$16,925
FACILITY CLOSURE (INCLUDING TANKS, GRADING, BUILDINGS, MISC EQUIPMENT)	$107,238
POST CLOSURE COSTS	$22,400
ADMINISTRATIVE COSTS	$38,940
SUBTOTAL CLOSURE COST	$403,018
Contingency (10%)	$40,302
TOTAL CLOSURE COST	$443,320
Required Financial Security	$443,320

Assumptions

1) The facility is in compliance with the conditions of the permit at the time of closure
2) Final closure work will be completed by independent contractors. No equipment from the facility will be used.
3) Any water stored on site will be used for soil conditioning during the closure process or sent for off-site disposal, as appropriate.
4) The compost pad will be demolished and removed The area of the pad and storm water pond will be backfilled with on-site soils and graded to match site topography.
5) The office trailer and other structures will be demolished or recycled and removed.
6) Surface tanks will be washed out, disinfected, and hauled away for disposal/recycle.
7) Soil from the earthen berms will be used on-site for grading and backfill.
8) This closure cost estimate accounts for the maximum amount of feedstock, compost products, and stormwater stored on-site at any one point in time.

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

CLOSURE COST ESTIMATE
SEALY COMPOST FACILITY, AUSTIN COUNTY, TX

Item / Material	Units	Quantity	Unit Price	Subtotal	REFERENCES
COMPOSTING PAD & RETENTION POND REMOVAL AND BACKFILL					
Mob/demob dozer/grader - 2 pieces of equipment	RND TRP	2	$1,020	$2,040	RS Means 01 54 36.50 0100
Removal of liner material & handling of protective material (1' thick)	CY	17,747	$5.45	$96,719	RS Means 31 23 16.46 3220
Transportation of materials by truck, disposal located approximatley 26 miles from the site. Assumes approximately 160 loads.	CY	3,221	$6.95	$22,388	RS Means 31 23 23.20 4098/4100
Dispose of 6" of liner material at landfill	TON	5	$155	$799	RS Means 02 81 20.10 6000
Fill pond excavation, incl. compaction	CY	39,168	$2.44	$95,570	RS Means 31 23 23.14 5420\.23 5050
SUBTOTAL				**$217,516**	
CONCRETE AREAS REMOVAL - SLUDGE PROCESSING PADS					
Demolition of concrete sludge processing pads	CY	81	$202	$16,362	RS Means 02 41 13.33 4320
Transportation of materials by truck, disposal located approximatley 26 miles from the site.	CY	81	$6.95	$563	RS Means 31 23 23.20 4098/4100
SUBTOTAL				**$16,925**	
FACILITY CLOSURE (INCLUDING TANKS, GRADING, BUILDINGS, MISC EQUIPMENT)					
Site and pit closure work supervision (consultant)	DY	20	$1,200	$24,000	Based on engineer's field consultant rate
Washout, disinfect, and haul for disposal/recycle, 31,500 gal steel tank	EA	8	$3,288	$26,300	RS Means 02 65 10.30 0863/1029
Berm removal - material used as on site fill	CY	6,252	$0	$0	Use demolition equipment to spread
Seeding: Rye grass, tractor spreader	MSF	1,488	$26	$38,677	RS Means 32 92 19.14 3400
Sedimentation fencing	LF	4,460	$1.21	$5,397	RS Means 31 25 14.16 1100
Washout, disinfect, demob office trailer and maintenance shop for sale/reuse	EA	2	$220	$440	RS Means 01 52 13.20 0890
Washout, disinfect, remove, dispose/salvage miscellaneous on-site equipment	LS	1	$5,000	$5,000	Professional opinion
Sight security - light towers and existing fencing	DY	20	$371	$7,424	RS Means 01 54 33 3500
SUBTOTAL				**$107,238**	
POST CLOSURE COSTS					
Annual inspection of vegetation for two years	DY	2	$1,200	$2,400	Based on engineer's field consultant rate
Verification sampling	EA	2	$5,000	$10,000	Professional opinion
Closure certification, site inspection, and reporting	LS	1	$10,000	$10,000	Professional opinion
SUBTOTAL				**$22,400**	
ADMINISTRATIVE COSTS					
Site survey	LS	1	$9,400	$9,400	RS Means 02 21 13.16 1510
Preparation of engineering plans, bid documents, and closure notification	LS	1	$29,126	$29,126	RS Means 01 11 31.30 0900
Facility closure sign	SF	12	$34.50	$414	RS Means 01 58 13.50 0020
SUBTOTAL				**$38,940**	
TOTAL				**$403,018**	

RS Means - RS Means Heavy Construction Cost Data, 28th edition, 2014

Eight (8) 31,500-gallon feedstock storage tanks are the only on site tanks.
Earthen berm is 4 feet high by 8 feet wide at the base for perimeter and pond berms, 2.5 feet high by 5 feet wide at the base for the tanks berms.
Two concrete sludge processing pads measure 40 feet by 50 feet, 0.5-foot thick, sloped toward compost pad.
Removal of office trailer, portable toliet, above ground piping, carport, misc equipment, empty mobile frac tanks

Notes:	CY	Cubic yard
	DY	Day
	EA	Each
	LS	Lump sum
	MSF	Million square feet
	RND TRP	Round trip
	SF	Square feet

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER

5/27/16

Appendix O

TxDOT Correspondence

Texas Department of Transportation

403 HUCK ST. | YOAKUM, TX 77995 | (361)293-4300 | WWW.TXDOT.GOV

1512 FM 102
Wharton, TX 77488

December 28, 2015

Mr. Ben Camacho
Environmental Scientist
Daniel B. Stephens & Associates, Inc.
4030 West Braker Lane, Suite 325
Austin, TX 78759

Subject: Municipal Solid Waste Permit Application – Sealy Composting Facility – Austin County

Dear Mr. Camacho:

I have reviewed the traffic data you submitted in connection with the above subject project. Because this project is not accessed from nor does it border a state roadway, TxDOT does not have any comments on the proposed project.

Should you have any questions or require further clarification, please do not hesitate to contact me at (979) 532-3143.

Sincerely,

Ryan Simper

Ryan S. Simper, PE
Area Engineer – Wharton, TX
Yoakum District

cc: Jeffery Vinklarek, PE
Director of Operations – Yoakum District

Kyle Novicke
Maintenance Supervisor – Austin County

Attachment B

Redline / Strikeout Revisions

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application (Permit No. 2388)
San Felipe, Austin County, Texas

Submitted to **Texas Commission on Environmental Quality**
Austin, Texas

November 16, 2015
Revised
May 27, 2016

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Registered Texas P.G. Firm #50045
4030 W. Braker Lane, Suite 325 • Austin, Texas 78759

Table of Contents

Part I Requirements of 30 TAC §330.59 for a Composting Facility

Section 1. Facility Permit Requirements 1
1.1 Municipal Solid Waste 1
1.1.1 Permit Applicability 1
1.1.2 MSW Permits 1
1.1.3 Water and Storm Water 1
1.1.4 Air Quality 2
1.1.5 Miscellaneous 2
1.2 Texas State Laws 2

Section 2. Operation and Process Summary 2

Section 3. Facility Location 3
3.1 Location 3
3.2 Access Routes ..... ~~3~~4
3.3 Geographic Coordinates 4

Section 4. Maps 4
4.1 General Location 4
4.2 General Topographic Maps 4
4.3 Land Use 4
4.4 Land Ownership ..... ~~4~~5

Section 5. Property Owner Information ..... ~~6~~5
5.1 Legal Description of the Facility ..... ~~6~~5
5.2 Property Owner Affidavit and Lease Agreement ..... ~~6~~5

Section 6. Legal Authority and Appointments ..... ~~6~~7
6.1 Legal Authority ..... ~~6~~7
6.2 Appointments 7

Section 7. Evidence of Competency 7
7.1 Other Operation Ownership 7
7.2 Financial Interest or Enforcement Actions 9

Part II Requirements of 30 TAC §330.60, Part II of the Application

Section 8. Existing Conditions Summary 10
8.1 Historical Land Use 10
8.2 Site Specific Conditions 10

Section 9. Climate 10

Section 10. Waste Acceptance Plan 11
10.1 Sources and Characteristics 11
10.2 Limiting Parameters 11
10.3 Prohibited Wastes and Materials 13
10.4 Un-compostable Materials 13

Section 11. Feedstocks and Sources 13
11.1 Grease Trap Waste 14
11.2 OSSF Wastes 14

Section 12. Generation Areas 15
12.1 Service Population 15
12.2 Growth Trends 15

Section 13. Land Use 16
13.1 Zoning 16
13.2 Land Use Characterization 16
13.3 Site Soils and Geology 16
13.4 Waterways, Wetland, and Floodplain Use and Characterization 17
13.5 Groundwater and Water Wells 18
13.6 Other Wells 18
13.7 Structures and Site Proximity 19
13.8 Texas Historical Commission Review 19
13.9 Compatibility 19

Section 14. Water Quality 19
14.1 Construction Storm Water Discharge Permit 19
14.2 Multi Sector Storm Water Discharge Permit 19

Section 15. Air Quality 20
15.1 Control of Airborne Emissions 20
15.2 Minimizing Odors 20
15.3 Control of Windblown Material 20
15.4 Authorizations and Permits 20

Section 16. Access Roads 21
16.1 Roadway Data 21
16.2 Vehicular Traffic Volume 22
16.3 Facility Access Road Design Data 23
16.4 Facility Impact on Roadway System 23

References ..... ~~24~~23

Part III Site Development Plan for a Composting Facility

Section 17. General Facility Design 25
17.1 Facility Plan and Facility Layout 25
17.2 Facility Access 25
17.2.1 Operator in Charge 25
17.2.2 Operating Hours 25
17.2.3 Variance # 1 26
17.2.4 Facility Sign 26
17.2.5 Facility Access Control 26
17.3 Odor Control 27
17.4 Dust Control 27
17.5 Storage Units and Equipment Details 28
17.5.1 Storage Units 28
17.5.2 Compost Pad 28

~~17.5.3 Auxiliary Equipment........ 28~~
17.5.~~4~~3 Feedstock Storage Area 28
17.5.~~5~~4 Liquid Transfer Equipment........ ~~29~~28
17.5.~~6~~5 Final Product Screening and Stockpile 29
17.6 Containment Dikes or Walls 29

Section 18. Process Description and Controls........ 29
18.1 Process Diagrams and Drawings........ 29
18.1.1 Variance #2 29
18.2 Equipment 30
18.3 Feedstock Identification 31
18.4 Receiving/Tipping Process........ 32
18.4.1 Feedstock 32
18.5 Processing 33
18.5.1 Material Processing........ 33
18.6 Post-Processing 34
18.7 Product Distribution 34
18.7.1 Compost 34
18.8 Sanitation 35
18.8.1 Run-on and Run-off Control........ 35
18.8.2 Cleaning Equipment and Connections........ 35
18.9 Non Hazardous Waste Storage and Disposal 36
18.9.1 Non~~-~~-Hazardous Waste 36
18.9.2 Hazardous Wastes........ 36

Section 19. Endangered Species Protection 36

Section 20. Surface Water Protection Plan........ 37
20.1 Run-On and Run-Off Management System 37
20.2 Drainage Calculations .... ~~38~~39
20.3 Erosion Control 39
20.4 Drainage Maps and Plans........ 39

Section 21. Geological Report........ ~~39~~40
21.1 Regional and Local Geology/Hydrogeology........ 40
21.2 Subsurface Soil Investigation........ 40
21.3 Groundwater Investigation........ 42
21.4 Surrounding Water Wells........ 43
21.5 Geotechnical Study 45
21.6 Active Geologic Processes........ ~~46~~45

Section 22. Groundwater Protection Plan 46
22.1 Liner and Pad System 46
22.2 Liner Quality Control Plan........ ~~47~~46
22.3 Management Practices 47
22.4 Groundwater Monitor System........ 48

Section 23. Facility Closure Plan and Financial Assurance 48
23.1 Closure Plan Requirements........ 48
23.2 Operation Termination Requirements........ 49
23.3 Procedure for Closure of Facility by Operator........ 50

23.3.1 Removal 50
23.3.2 Decontamination 50
23.4 Closure Sampling and Analysis Plan 51
23.4.1 Sampling 51
23.4.2 Analysis ..... ~~52~~**51**
23.5 Reporting 52
23.6 Procedure for Closure of Facility by an Independent Third Party 52
23.7 Financial Assurance 53

References 53

Part IV Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a Composting Facility

Section 24. Personnel 55
24.1 Operator in Charge 55
24.1.1 Training 55
24.1.2 Duties 55
24.2 Laborers 55

Section 25. Equipment 56
25.1 Equipment Type, Function, Inspection, and Maintenance 56

Section 26. Production Processes ..... ~~57~~**56**
26.1 Control of Unloading for Unauthorized Materials ..... ~~57~~**56**
26.2 Material Processing 57
26.2.1 Liquids 57
26.2.2 Solids 58
26.2.3 Composting 58
26.3 Waste Storage and Disposal 59
26.3.1 Non-Hazardous Waste 59
26.3.2 Hazardous Wastes 59
26.4 Product Distribution ..... ~~59~~**60**

Section 27. Alternate Disposal 60
27.1 Non Standard Products 60

Section 28. Pollution Prevention Plan 60
28.1 Unauthorized Material 60
28.2 Sanitation and Litter 61
28.2.1 Facility Generated Wastes 61
28.2.2 Storage Requirements ..... ~~61~~**62**
28.2.3 Materials along the Route to the Facility 62
28.2.4 Work Area Sanitation 62
28.2.5 Employee Sanitation Facilities 62
28.2.6 Control of Windblown Material 62
28.2.7 Road Maintenance ..... ~~62~~**63**
28.3 Ventilation and Odor Control 63
28.4 Overloading and Breakdown 63
28.4.1 Design Capacity 63
28.4.2 Equipment Failures ..... ~~63~~**64**

28.4.3 Back Up Processing or Disposal 64
28.5 Final Product Use 64

Section 29. Vector Control Plan .... ~~64~~**65**
29.1 Inspection and Monitoring .... ~~64~~**65**
29.2 Facility Program Evaluation .... ~~65~~**66**
29.3 Records and Documents .... ~~65~~**66**

Section 30. Security .... ~~66~~**67**
30.1 Facility Access .... ~~66~~**67**

Section 31. Emergency Action Plan .... ~~67~~**68**
31.1 Spills .... ~~67~~**68**
31.2 Fire .... ~~67~~**68**
31.3 Medical .... ~~67~~**68**
31.4 Adverse Weather .... ~~67~~**68**
31.5 Health and Safety Training .... ~~68~~**69**

Section 32. Fire Prevention and Control Plan .... ~~68~~**69**
32.1 Fire Response .... ~~68~~**69**
32.2 Fire Prevention .... ~~68~~**70**
32.3 Fire Control .... ~~69~~**71**
32.4 Staff Training .... ~~70~~**71**

Section 33. Spill Containment and Contingency Plan .... ~~70~~**72**
33.1 Leak Detection .... ~~70~~**72**
33.1.1 Storage Tanks .... ~~70~~**72**
33.1.2 Liner .... ~~71~~**72**
33.2 Spill Prevention and Control .... ~~71~~**72**
33.2.1 Receiving and Liquid Feedstock Transfers .... ~~71~~**72**
33.2.2 Sanitation .... ~~71~~**72**
33.3 Spill Emergency Actions .... ~~71~~**73**

Section 34. Recordkeeping and Reporting Requirements .... ~~72~~**73**
34.1 Recordkeeping .... ~~72~~**73**
34.2 Signatory .... ~~73~~**74**
34.3 Reporting Requirements .... ~~73~~**75**
34.3.1 Documentation and Reporting of Final Product Testing .... ~~73~~**75**
34.3.2 Annual Reporting .... ~~74~~**75**

Section 35. Sampling and Monitoring .... ~~74~~**76**
35.1 Facility Inspections .... ~~74~~**76**
35.1.1 Inspection Locations and Procedures .... ~~74~~**76**
35.1.2 Reporting Requirements .... ~~75~~**76**
35.2 Odor Audit/Investigation .... ~~75~~**77**
35.3 Compost .... ~~76~~**78**
35.3.1 Sampling and Analysis for Maturity .... ~~76~~**78**
35.3.2 Sampling and Analysis of Final Product .... ~~77~~**79**
35.4 Groundwater .... ~~79~~**80**
35.4.1 Background Samples .... ~~79~~**80**
35.4.2 Annual Samples .... ~~80~~**81**
35.4.3 Analytical Methods .... ~~80~~**82**

35.5 Data Precision and Accuracy .... ~~80~~82
35.6 Documentation .... ~~80~~82
35.7 Reporting Requirements .... ~~81~~82

Section 36. Quality Assurance and Quality Control .... ~~82~~83
36.1 Sampling, Monitoring, and Inspection .... ~~82~~83
36.1.1 Records Control .... ~~82~~83
36.1.2 Matrix Spikes and Matrix Spike Duplicates .... ~~82~~84
36.1.3 Method Blanks .... ~~83~~84
36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates .... ~~83~~85
36.1.5 Surrogates .... ~~83~~85
36.1.6 Data Reduction, Evaluation, and Review .... ~~84~~85
36.1.7 Matrix Interferences and Sample Dilutions .... ~~84~~85
36.1.8 Chain of Custody .... ~~84~~86
36.1.9 Sample Collection and Preparation .... ~~85~~87
36.1.10 Analytical Method Detection Limits and Method Performance .... ~~86~~87
36.1.11 Instrument and Equipment Calibration and Frequency .... ~~86~~88
36.1.12 Laboratory Case Narrative .... ~~87~~89
36.2 Final Product Compost QA/QC .... ~~88~~90

References .... ~~89~~90

Requested Variances and Waivers

Part I

None

Part II

None

Part III

Variance #1 Extended waste acceptance hours. 26

Variance #2 Storage of bulk material and finished Grade 1 or Grade 2 compost. .... ~~30~~29

Part IV

None

List of Tables

Part I

Table 1. Landowner List (½ Mile Radius) .... ~~5~~**6**

Part II

Table 2. Final Product Analytical Requirements and Standards 12
Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations 14
Table 4. Service Area and Population 15
Table 5. Roadway Data 22
Table 6. Vehicular Traffic Volume .... ~~22~~**23**

Part III

Table 7. Equipment 30
Table 8. Energy and Mass Balance Calculations .... ~~32~~**31**
Table 9. Surrounding Well Information .... ~~43~~**42**
Table 10. Wells within ½ Mile .... ~~44~~**43**
Table 11. Saturated Hydraulic Conductivities .... ~~46~~**45**

Part IV

Table 12. MSW Disposal Limits 61
Table 14. Facility Inspections .... ~~74~~**76**
Table 15. Final Product Analytical Requirements and Standards .... ~~77~~**79**
Table 16. Groundwater Sampling Parameters .... ~~79~~**81**

List of Figures

Part I

Figure 1 Facility Location Map
Figure 2 Topographic Map
Figure 3 Land Use Map
Figure 4 Landowner Property Map

List of Figures (continued)

Part II

Figure 5 Wind Rose Map

Figure 6 Wetland Map

Figure 7 Flood Plain Map

Figure 8 Access Road Map

Part III

Figure 9 Process Diagram

Figure 10 Pre-Construction On-Site Drainage Map

Figure 11 Post-Construction On-Site Drainage Map

Figure 12 Geologic Map

Figure 13 Stratigraphic Column

Figure 14 Hydrogeologic Cross Section

Figure 15 Potentiometric Surface Elevation Map, October 2015

Figure 16 Generalized Cross-Section A-A’

List of Drawings

Part III

Sheet 1 Title Sheet

Sheet 2 General Notes and Legend

Sheet 3 Site Plan

Sheet 4 Grading Plan and Profile - 1

Sheet 5 Grading Plan and Profile - 2

Sheet 6 Drainage Plan

Sheet 7 Civil Details

Sheet 8 Drainage Details

List of Appendices

Part I

Appendix A	Boundary Metes and Bounds with Drawing
Appendix B	**Owner Affidavit and** Lease Agreement
Appendix C	Secretary of State Certificate of Incorporation

Part II

Appendix D	Historical Aerial Photographs
Appendix E	NRCS Custom Soil Resource Report
Appendix F	Biological Assessment
Appendix G	EDR TX Water Well Report & Oil and Gas Report
Appendix H	Texas Historical Commission Review

Part III

Appendix I	Stormwater Drainage Analysis
Appendix J	Approved Boring Plan
Appendix K	Boring Logs
Appendix L	Geotechnical Laboratory Reports
Appendix M	Liner Construction Quality Assurance Plan
Appendix N	Closure Cost Summary & Estimate

Part IV

None

General Appendices

Appendix O	TXDOT Correspondence
Appendix P	Council of Government and Local Government Correspondence
Appendix Q	Supplementary Technical Report
Appendix R	Mailing Labels

List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSDS	Material Safety Data Sheet
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility

List of Acronyms (continued)

pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
yd	yard(s)

List of Acronyms (continued)

pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
yd	yard(s)

Part I

Requirements of 30 TAC §330.59 for a Composting Facility

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART I

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

Table of Contents

Part I This document constitutes the requirements of 30 TAC §330.59 for a composting facility.

Section 1. Facility Permit Requirements ... 1
1.1 Municipal Solid Waste ... 1
1.1.1 Permit Applicability ... 1
1.1.2 MSW Permits ... 1
1.1.3 Water and Storm Water ... 1
1.1.4 Air Quality ... 2
1.1.5 Miscellaneous ... 2
1.2 Texas State Laws ... 2

Section 2. Operation and Process Summary ... 2

Section 3. Facility Location ... 3
3.1 Location ... 3
3.2 Access Routes ... ~~3~~4
3.3 Geographic Coordinates ... 4

Section 4. Maps ... 4
4.1 General Location ... 4
4.2 General Topographic Maps ... 4
4.3 Land Use ... 4
4.4 Land Ownership ... ~~4~~5

Section 5. Property Owner Information ... ~~6~~5
5.1 Legal Description of the Facility ... ~~6~~5
5.2 Property Owner Affidavit and Lease Agreement ... ~~6~~5

Section 6. Legal Authority and Appointments ... ~~6~~7
6.1 Legal Authority ... ~~6~~7
6.2 Appointments ... 7

Section 7. Evidence of Competency ... 7
7.1 Other Operation Ownership ... 7
7.2 Financial Interest or Enforcement Actions ... 9

Requested Variances and Waivers

Part I

None

List of Tables

Part I

Table 1. Landowner List (½ mile radius) ... ~~6~~5

List of Figures

Part I

Figure 1	Facility Location Map
Figure 2	Topographic Map
Figure 3	Land Use Map
Figure 4	Landowner Property Map

List of Drawings

Part I

None

List of Appendices

Part I

Appendix A	Boundary Metes and Bounds with Drawing
Appendix B	**Owner Affidavit and** Lease Agreement
Appendix C	Secretary of State Certificate of Incorporation

List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality

°F	Fahrenheit degrees
FM	Farm to Market Road
ft	feet
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	Safety Data Sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality

THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program

Section 1. Facility Permit Requirements

The SouthWaste Disposal, LLC Sealy Composting Facility (the Facility) will generate approximately 5,200 cubic yards of finished compost per month and is required to obtain a permit for the composting operations. The Facility requires a permit and is subject to 30 TAC §330, 30 TAC §332, and other sundry rules.

The Facility will consist of bulk material chipping and storage areas, a lined grease trap waste/septic/sewage sludge (GSS) processing area (composting pad), a composting area for other approved non-GSS waste, a **compost**~~stormwater~~ **pad** retention pond, a post-processing area, aboveground feedstock storage tanks, and office areas (which include toilet and potable water facilities). GSS composting and curing processes will be restricted to the lined GSS processing area. Yellow grease processing may be added to future operations, which would be discussed in a future permit modification.

1.1 Municipal Solid Waste

1.1.1 Permit Applicability

The Facility will store, handle, process, and dispose of municipal solid waste (MSW). This application is for a new composting permit to process GSS and non-GSS waste and to compost the solids from these waste sources. Other activities performed within the Facility boundaries that do not require a permit under 30 TAC §332 include the use of tankage/equipment related to a liquid waste transfer station, storage and composting of food wastes, and chipping and grinding operations. These activities will be incorporated as part of this Facility permit. The Facility is not a medical waste mobile treatment or a mobile treatment unit.

Compliance information is discussed in the Site Development Plan presented in Part III of this application. This Facility does not store combustible material and is not required to comply with TAC §37, Subchapter J. Groundwater monitoring may be required by the Executive Director and will be maintained in accordance with the requirements of §330 Subchapter J, if required.

1.1.2 MSW Permits

1. Municipal Solid Waste Facilities TAC §30§330
    a. 30TAC §330.1 (d): The Facility will compost MSW in accordance with the requirements of 30TAC §332, but is required to apply for a permit in accordance with 30TAC §332.3(a). The application will follow the applicable requirements of 30TAC §330 Subchapter B.
2. 30TAC §332: Composting

1.1.3 Water and Storm Water

1. Spill Prevention and Control 30TAC §327
2. TPDES Multisector General Permit TXR050000 – Storm Water
    a. Sector C: Chemical and Allied Products

1.1.4 Air Quality

1. RULE §106.4 Requirements for Permitting by Rule
2. RULE §106.472 Organic and Inorganic Liquid Loading and Unloading
3. Composting Standard Permit Rule §332.8 Air Quality Requirements

1.1.5 Miscellaneous

4. Financial Assurance 30TAC §37
5. Public Notice 30TAC §39

1.2 Texas State Laws

6. Texas Solid Waste Disposal Act, Texas Health and Safety Code (THSC) Chapter 361
7. Texas Litter Abatement Act, THSC Chapter 365
8. Texas Toxic Chemical Release Reporting Act, THSC Chapter 370
9. Texas Clean Air Act, THSC Chapter 382
10. Texas Water Code (TWC) Chapter 26 (relating to Water Quality Control)

Section 2. Operation and Process Summary

The Facility will divert organic materials from typical MSW streams for beneficial reuse while maintaining standards for human health and safety and environmental protection. The Facility will produce compost from non-hazardous MSW. The Facility is required to obtain a compost permit.

The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).~~The estimated quantity of incoming feedstock to be received is approximately 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or approximately 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).~~ Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this Facility. The other feedstock accepted at the Facility will include municipal sewage sludge, food processing waste, and septage wastewater. The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be received either chipped or screened or in raw form, in which case it will be chipped on the property. All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking materials will be stored and then chipped and screened at a designated area. The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

The liquid feedstock will be pumped either into aboveground storage tanks for temporary storage or to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks.

Feedstock material will be applied to the windrows using a vacuum truck or equivalent. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstock material to be evenly distributed throughout the windrows and prevents moisture or liquids from collecting at the base of the compost material. Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, then the temperature within the mixture throughout the windrow will be monitored.

After the monitoring period, the final composted product will be placed in a stockpile on the lined processing area for curing. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches and will be tested for maturity and final product parameters. Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (waste grade compost) will be disposed off-site at an authorized MSW facility. Compost will initially be sold in bulk form. However, the facility may sell containerized compost at some time in the future.

Section 3. Facility Location

3.1 Location

Project Name: SouthWaste Disposal, LLC Sealy Composting Facility

Project Location: Northwest corner of Bartlett Road and U.S. Interstate 10 in Austin County, Texas

Project Location Description: The Facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

3.2 Access Routes

Route 1: Traversing on U.S. Interstate 10, exit onto Bartlett Road and turn north on Bartlett Road. Then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located adjacent to Brazos 10 Lane on the south.

3.3 Geographic Coordinates

The latitude and longitude of the approximate centroid of the property are 29° 46' 33.55” North and –96° 04' 41.00" West, respectively (North American Datum of 1983).

Section 4. Maps

4.1 General Location

The Site is located near the city of San Felipe, just east of the city of Sealy, in Austin County, Texas. See Figure 1 for a Facility Location Map. The Facility Location Map is scaled at ½ inch equals 1 mile. The property boundaries and longitudinal and latitudinal coordinates have been overlaid on the enlarged map. The Facility location map accurately shows proximity to surrounding features.

The property is 32.209 acres in size and irregular in shape.

4.2 General Topographic Map

The Topographic Map (Figure 2) is an excerpt of United States Geological Survey 7½-minute quadrangle sheets as an equivalency for the facility. The topographic map is at a scale of 1 inch equals 2,000 feet (1:24,000).

4.3 Land Use

The Land Use Map (Figure 3), on a scale of 1 inch equals ½ mile, depicts boundaries of the tract of land to be used by the applicant and extends at least 1 mile beyond the tract boundaries sufficient to show the following:

- Each well, spring, and surface water body or other water of the state within the map area;
- The general character of the areas adjacent to the Facility, including public roads, towns, and the nature of development of adjacent lands such as residential, commercial, agricultural, recreational, undeveloped, and so forth;
- The location of any waste disposal activities conducted on the tract not included in the application; and,
- The ownership of tracts of land adjacent to the Facility and within a reasonable distance from the proposed point or points of discharge, deposit, injection, or other place of disposal or activity.

4.4 Land Ownership

The landowners within ½ mile of the Facility boundaries listed in the following table are shown on Figure 4. The source of the names and addresses of property owners is the Austin County Appraisal District Database.

The Land Ownership Map (Figure 4), along with the list of landowners (Table 1), identifies properties owned by adjacent and potentially affected landowners within ½ mile of the Facility boundaries. The mineral interest ownership, designated as executive rights, under the facility is owned by the property owner, Michael and Carolyn Hicks (INST #997087 DRACTX).

Section 5. Property Owner Information

5.1 Legal Description of the Facility

The Facility is located near the cities of Sealy and San Felipe in Austin County, Texas. The following is a legal description with deed record information.

> Legal Description: 32.209 ACRES: ALL THAT TRACT OR PARCEL OF LAND consisting of 32.209 Acres located in the Stephen F. Austin Survey, A7, Austin County, Texas. Subject tract being a portion of the 62.53606 Acre tract described in Deed to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas.

As of submission of this application, the County had not completed its final plat in its records for this property. The survey (Appendix A) drawing is considered the final plat submitted to Austin County.

The Boundary Metes and Bounds with Drawing, included as Appendix A, is an official metes and bounds description and drawing of the proposed facility prepared and sealed by a registered surveyor.

5.2 Property Owner Affidavit and Lease Agreement

A property owner affidavit signed by the property owner includes the statements and affirmations of §330.59 (d) (2) (A), (B), (C). An executed Commercial Contract for Unimproved Property between SouthWaste, the "Buyer," and Mr. Mike Hicks dated May 4, 2015, the property owner and "Seller," is included in Appendix B.

According to the Commercial Contract for Unimproved Property, SouthWaste has agreed to lease the property for a term of 24 months, beginning 60 days following the effective date of the contract. At the end of the 24-month lease term, the 32.209-acre property will be sold to SouthWaste.

Table 1. Landowner List (½-mile radius)

Map #	Owner	Address
34, 35	Alvin Konvicka	516 Acres Lane, Sealy, Texas 77474
32	Barry Wayne Jackson	1723 Prince George Court, Katy, Texas 77492
40, 41	Beatrice Mae Haczynski	12040 Mlcak Road, Sealy, Texas 77474
46	Bhaidani Ali	5003 Skipping Stone Loane, Sugarland, Texas 77479
11	Brian and Ramona Valenti	3911 Wood Park, Sugarland, Texas 77479
47	Cardenas Rebecca	5408 Holly St, Bellaire, TX 774014704
37	Charles Mlcak	4106 Sea Meadow Court, Katy, Texas 77494
39	Christopher Haczynski	12040 Mlcak Road, Sealy, Texas 77474
22	Clem Buchala	263 Manak Road, Sealy, Texas 77474
17	David Wickens Family Partnership, LTD.	3027 Willow Oak Lane, Sealy, Texas 77418
13	DNAR, LLC	PO Box 396, Barker, Texas 77413
45	Donna Cash	7625 SE IH 10 Frontage Road, Sealy, Texas 77474
12	Douglas and Linda Simmons	11326 Inwood Drive, Houston, Texas 77077
8	Farshad Nazemi	11305 Green Vale, Houston, Texas 77024
15	Frank and Victoria Chou	2585 Meyer Road, Sealy, Texas 77474
36	Fred and JoAnn Buri	7918 Hilshire Green Drive, Houston, Texas 77005
9, 10	GeoSouthern Energy Corporation	1425 Lake Front Circle, Suite 200, The Woodlands, Texas 77380
44	Geraldine Hamil	7595 SE IH 10 Frontage Road, Sealy, Texas 77474
42	James Lezak	9455 Lake Drive, Chappell Hill, Texas 77426
30	Jeanette Kucera	131 Lezak Road, Sealy, Texas 77474
38	Jeanne Netardus	8518 Ivy Falls Court, Houston, Texas 77040
27	John Gannon, Inc.	525 Park Grove, Katy, Texas 77450
20	Joseph Walker Dudgeon, Jr. Trustee	23042 260th Avenue, Centerville, Iowa 52544
25, 29	JWJ Stone Properties	PO Box 277, San Felipe, Texas 77473
26	Kenneth and Cheri Bumbera	413 Brazos Hill Lane, Sealy, Texas 77474
48	Levine Sidney	PO Box 592, Sealy, TX 77474
43	Maxine Rudloff	7439 SE IH 10 Frontage Road, Sealy, Texas 77474
1	Michael and Carolyn Hicks	1228 Brazos Ten Lane, Sealy, Texas 77474
28	Patricia Bagwell	PO Box 473, San Felipe, Texas 77473
2, 4	Pencco	PO Box 600, San Felipe, Texas 77473
3	Reactive Metals & Alloy Metals	PO Box 786, Sealy, Texas 77474
16, 21	Richard and Carol Papso	10 Preston Court, Sugarland, Texas 77479
24	Rubie Mae Buchala	477 Manak Road, Sealy, Texas 77474
19	Rudolfo and Celia Pena	3226 Mulberry Lane, Houston, Texas 77084
14	Terrell Burtschell	106 6th Street, Sealy, Texas 77474
23	Victoria Buchala	6060 NE IH 10 Frontage Road, Sealy, Texas 77474
5, 6, 7	Vital Link, Inc.	PO BOX 303, San Felipe, Texas 77473
33	Whitehorse Development, LLC	2352 FM 1094, Sealy, Texas 77474
18	William Skrivanek	2226 Skrivanek Road, Sealy, Texas 77474
31	Woodridge Development LP	PO Box 22606, Houston, Texas 77227

Section 6. Legal Authority and Appointments

6.1 Legal Authority

SouthWaste has provided verification of legal status in the form of a one-page certificate of incorporation issued by the Secretary of State (Appendix C). The Secretary of State filing number for SouthWaste (owner and operator) is SOS#800553020.

6.2 Appointments

SouthWaste Disposal, LLC is a corporation, and the application will be signed by Mr. Tim Cox, Vice President of Operations for SouthWaste. Mr. Cox meets the requirements of TAC §305.44 related to the delegation of signatory authority. Mr. Cox has been granted legal authority to sign and encumber SouthWaste Disposal, LLC.

Section 7. Evidence of Competency

7.1 Other Operation Ownership

SouthWaste owns and operates several active MSW facilities throughout Texas, as indicated below:

RN Number:	RN101478071		
Name:	SouthWaste Disposal, LLC San Antonio Facility		
Primary Business:	Organic composting		
Street Address:	20805 Old Limn Road		
County: Bexar	*Nearest City:* Elmendorf	*State:* TX	*Zip Code:* 78112
Physical Location:			
7 miles west of Elmendorf near roadway 1 mile southwest of Interstate Highway 37			
Customer's Role:	Owner / Operator	*Begin Date*:	06/04/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2317	Active
Petroleum storage tank	Registration	87042	Active
Storm water	Permit	TXR05BC61	Active

RN Number:	RN105876601		
Name:	Austin Liquid Waste Processing Facility		
Primary Business:	No primary business description on file		
Street Address:	828 Linger Lane		
County: Travis	*Nearest City:* Austin	*State:* TX	*Zip Code:* 78725
Physical Location:			
Located on Linger Lane approximately 800 feet southwest of the intersection of Highway 183 and Linger Lane			
Customer's Role:	Owner	*Begin Date*:	NA
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2367	Active

RN Number:	RN101289171		
Name:	SouthWaste Disposal, LLC South Plains Facility		
Primary Business:	Grease and grit trap processing		
Street Address:	801 North Avenue P		
County: Lubbock	*Nearest City:* Lubbock	*State:* TX	*Zip Code:* 79403
Physical Location:			
No physical location description on file			
Customer's Role:	Owner / Operator	*Begin Date*:	05/05/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2231	Active

RN Number:	RN103155800 RN101288603		
Name:	SouthWaste Disposal Hurst Facility		
Primary Business:	Industrial chemical manufacturing plant		
Street Address:	6407 Hurst Street		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77024
Physical Location:			
1.933 acres located on 6407 Hurst Street in Houston, Harris County			
Customer's Role:	Owner / Operator	*Begin Date*:	01/01/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Sludge	Registration	23737	Cancelled
Sludge	Registration	24075	Active
Air new source permits	Registration	120677	Active
Air new source permits	Registration	120683	Active
MSW processing	Permit	2241A	Active
MSW processing	Permit	2241B	Pending
Storm water	Permit	TXR05BV26	Active

RN Number:	RN102327715		
Name:	SouthWaste Disposal Dallas Facility		
Primary Business:	No primary business description on file.		
Street Address:	525 South 6th Avenue		
County: Tarrant	*Nearest City:* Mansfield	*State:* TX	*Zip Code:* 76063
Physical Location:			
Located at 525 South 6th Avenue in the city of Mansfield approximately ½ mile south of the intersection of 6th Avenue and Broad Street			
Customer's Role:	Owner / Operator	*Begin Date*:	10/23/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air New Source Permits	Registration	115976	Active
MSW Processing	Permit	2256	Active
Storm water	Permit	TXRNEW710	Active

RN Number:	RN102803590		
Name:	SouthWaste Disposal Lockwood Facility		
Primary Business:	No primary business description on file		
Street Address:	753 Lockwood Drive		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 78112
Physical Location:			
753 Lockwood Drive 0.4 mile south of Clinton Drive, Houston, Texas			
Customer's Role:	Owner / Operator	*Begin Date*:	02/16/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air new source permits	Registration	11741	Active
MSW processing	Permit	1117	Canceled

SouthWaste is experienced with MSW facility type operations and understands the MSW rules and regulations set forth by the State of Texas. SouthWaste is currently staffed with several licensed solid waste facility supervisors that manage SouthWaste operations throughout Texas. Prior to operating the Sealy Composting Facility, SouthWaste will designate a licensed solid waste facility supervisor. In addition, the Facility will employ at least one TCEQ-certified compost operator within six months from the initiation of operations at the Facility. The TCEQ-certified compost operator will routinely be on-site during the hours of operation. Mr. Tim Cox is the principal and supervisor of the Facility's organization.

7.2 Financial Interest or Enforcement Actions

Currently, SouthWaste has one financial interest in a solid waste site in another state, territory, or country outside the State of Texas, which includes their Central Florida Disposal Interests facility located in Groveland, Florida. SouthWaste does not have any final enforcement orders, court judgments, consent decrees, or criminal convictions by the State of Texas, the State of Florida, or the federal government within the last five years relating to compliance with applicable legal requirements relating to the handling of solid or liquid waste under the jurisdiction of the TCEQ, the Florida Department of Environmental Protection, or the United States Environmental Protection Agency (U.S. EPA).

Part II

Requirements of 30 TAC §330.60

PART II

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas. **Near San Felipe, Texas**.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

Table of Contents

Part II This document constitutes the requirements of 30 TAC §330.60, Part II of the Application.

Section 8. Existing Conditions Summary 10
8.1 Historical Land Use 10
8.2 Site Specific Conditions 10

Section 9. Climate 10

Section 10. Waste Acceptance Plan 11
10.1 Sources and Characteristics 11
10.2 Limiting Parameters 11
10.3 Prohibited Wastes and Materials 13
10.4 Un-compostable Materials 13

Section 11. Feedstocks and Sources 13
11.1 Grease Trap Waste 14
11.2 OSSF Wastes 14

Section 12. Generation Areas 15
12.1 Service Population 15
12.2 Growth Trends 15

Section 13. Land Use 16
13.1 Zoning 16
13.2 Land Use Characterization 16
13.3 Site Soils and Geology 16
13.4 Waterways, Wetland, and Floodplain Use and Characterization 17
13.5 Groundwater and Water Wells 18
13.6 Other Wells 18
13.7 Structures and Site Proximity 19
13.8 Texas Historical Commission Review 19
13.9 Compatibility 19

Section 14. Water Quality 19
14.1 Construction Storm Water Discharge Permit 19
14.2 Multi Sector Storm Water Discharge Permit 19

Section 15. Air Quality 20
15.1 Control of Airborne Emissions 20
15.2 Minimizing Odors 20
15.3 Control of Windblown Material 20
15.4 Authorizations and Permits 20

Section 16. Access Roads 21
16.1 Roadway Data 21
16.2 Vehicular Traffic Volume 22
16.3 Facility Access Road Design Data 23
16.4 Facility Impact on Roadway System 23

References .... ~~24~~23

Requested Variances and Waivers

Part II

None

List of Tables

Part II

Table 2. Final Product Analytical Requirements and Standards 12

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations 14

Table 4. Service Area and Population 15

Table 5. Roadway Data 22

Table 6. Vehicular Traffic Volume .... 23~~2~~

List of Figures

Part II

Figure 5 Wind Rose Map

Figure 6 Wetland Map

Figure 7 Flood Plain Map

Figure 8 Access Road Map

List of Appendices

Part II

Appendix D Historical Aerial Photographs

Appendix E NRCS Custom Soil Resource Report

Appendix F Biological Assessment

Appendix G EDR TX Water Well Report & Oil and Gas Report

Appendix H Texas Historical Commission Review

Acronyms

ADT	average daily traffic
BMPs	best management practices
CGP	Construction General Permit
EDR	Environmental Data Resources
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
GSS	grease trap waste/septic/sewage sludge
MSW	municipal solid waste
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OIC	Operator in Charge
OSSF	on-site sewage facility
PBR	Permit by Rule
PCB	polychlorinated biphenyls
PBR	Permit by Rule
SSO	sanitary sewer overflows
SWPPP	Storm Water Pollution Prevention Plan
TDWR	Texas Department of Water Resources
THC	Texas Historical Commission
TWBD	Texas Water Development Board
TXDOT	Texas Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tanks
WOTUS	Waters of the U.S.
yd	yard(s)

Section 8. Existing Conditions Summary

8.1 Historical Land Use

Daniel B. Stephens & Associates, Inc. (DBS&A) performed a Phase I Environmental Site Assessment (ESA) for the property in June 2015. According to the previous property owner, the property was never developed or used to store materials. The property was owned by Sea Corps prior to 1995 and was undeveloped during Sea Corps ownership. Based on a review of aerial photography ranging in dates from 1953 through 2012, the property appears to still be undeveloped.

8.2 Site Specific Conditions

The following property information was observed by DBS&A personnel during the June 2015 Phase I ESA site visit. The property, an approximately 32.209 acre tract of undeveloped land, is covered primarily with vegetation and native soil and does not contain any paved areas. A gravel road is located at the northern portion of the property. A man-made pond was observed in the eastern portion of the property on the day of the site visit. According to the property owner, the pond area was excavated and utilized as a stock pond. No structures, other than an unused wooden shed at the northwestern portion of the property, were observed during the Phase I ESA site visit. No evidence of underground storage tanks (USTs) or hydraulic/stationary lifts was observed. There were no signs of distressed vegetation or standing water observed during the site visit. DBS&A personnel did not observe any areas of staining on soil throughout the undeveloped property, and no unusual odors or stressed vegetation were noted. No storage tanks, drums, or other containers were observed at the property. No fill dirt or evidence of fill activities was observed at the property on the day of inspection. No hazardous materials, petroleum products, or waste storage areas were observed at the property.

Section 9. Climate

The average climate of Austin County is humid subtropical with hot summers. Evaporation and precipitation rates are provided on the Texas Water Development Board (TWDB) web site (http://www.twdb.texas.gov/surfacewater/conditions) for 1-degree quadrangular areas across the state. Austin County falls within quadrangle numbers 711 and 811. The data provided are based on sites operated by the National Weather Service and the Texas Department of Water Resources (TDWR). The average annual evaporation, based on data collected from 1954 through 2014, is 51.6 inches, and average annual precipitation, from 1940 through 2014, is 40.46 inches.

Prevailing winds are southerly March through November and northerly December through February. The Wind Rose, included as Figure 5, illustrates the predominant winds of Houston, Texas, which most accurately emulate the winds at the property.

Section 10. Waste Acceptance Plan

10.1 Sources and Characteristics

Sheet 3 of the Drawings section shows the facility plan and layout, including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that drawing, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, all structures, and other improvements to the property.

An estimated 270,000 tons of feedstock will be composted annually. **The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).**~~The estimated quantity of incoming feedstock to be received is up to 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or approximately 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).~~ Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this facility. Expected to account for 10 percent or less of the incoming feedstock, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped at the Facility. An estimated 111 tons of chipped bulking material may be placed on the processing area daily.

All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials as described in Part III.

10.2 Limiting Parameters

The anticipated final product grade of compost will be Grade 1. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

In order to confirm compost grade classification, two types of sampling and analysis will be performed at the Facility: sampling and analysis for maturity and sampling and analysis for final product grading.

A Maturity Protocol (maturity testing presented in Part III) has been developed to measure the potential for biological activity in the composted materials at the completion of the composting process.

In addition to maturity testing, all batches of final product will be analyzed for the parameters using the methods listed in Table 2, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury and will meet the other applicable standards presented in Table 2. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

Table 2. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total metals			
As	SW-846, Method 6020	≤10 mg/kg	≤41 mg/kg [a]
Cd	SW-846, Method 6020	≤16 mg/kg	≤39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤180 mg/kg	≤1200 mg/kg [a]
Cu	SW-846, Method 6020	≤1020 mg/kg	≤1500 mg/kg [a]
Pb	SW-846, Method 6020	≤300 mg/kg	≤300 mg/kg [a]
Hg	SW-846, Method 7470	≤11 mg/kg	≤17 mg/kg [a]
Mo	SW-846, Method 6020	≤75 mg/kg	≤75 mg/kg [a]
Ni	SW-846, Method 6020	≤160 mg/kg	≤420 mg/kg [a]
Se	SW-846, Method 6020	≤36 mg/kg	≤36 mg/kg [a]
Zn	SW-846, Method 6020	≤2190 mg/kg	≤2800 mg/kg [a]
Maturity / Stability	Maturity Protocol	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis	≤1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media (SW 9045D)	5.0 to 8.5 [b]	5.0 to 8.5 [b]
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/com	10 mmhos/com
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost that is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.
[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

Both maturity testing and final product testing are further discussed in Part III and IV.

10.3 Prohibited Wastes and Materials

This facility does not accept:

- Regulated hazardous waste,
- Used or scrap tires,
- Lead acid storage batteries,
- Polychlorinated biphenyls (PCB) wastes,
- Used motor vehicle oil,
- Items containing chlorinated fluorocarbon,
- Used oil filters; and
- Radioactive materials.

No special authorization is requested to accept Conditionally Exempt Small Quantity Generator Waste not listed as feedstock or for the disposal of Special Wastes or Industrial Wastes.

10.4 Un-compostable Materials

Only the designated feedstocks will be accepted at the Facility. Delivery trucks entering the property are inspected by the Operator in Charge (OIC) for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are either refused, or the drivers are directed to remove the unacceptable material from the load and then remove it from the property. In the event that unprocessable, prohibited, or unauthorized materials are discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized MSW facility.

Section 11. Feedstocks and Sources

The liquid feedstock will be pumped into either one of eight 31,500-gallon aboveground storage tanks for temporary storage or to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall when feedstock application is limited. No feedstock will be accepted in excess of the available capacity of the storage tanks.

The Facility may generate approximately 5,200 cubic yards of finished compost per month. Some chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. Chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and mass balance calculations for the GSS and non-GSS waste composting process are presented in Part III, Section 18.3.

11.1 Grease Trap Waste

Approximately 90 percent of the incoming feedstock accepted at the Facility will be grease trap waste. Grease traps are used by food service and processing establishments to separate out fats, oils, and greases in wastewater from dishwashers, sinks, floor drains, and dumpster pads. If grease and solids accumulations are not routinely pumped out of the trap, the grease overflows the trap, settles in the sewer collection system, and plugs up the sewer, thereby contributing to sanitary sewer overflows (SSO). Increasing public and regulatory concern over the potential public health and environmental impacts of SSO has increased maintenance of grease traps.

Grease trap wastes are siphoned out of traps as a liquid with about 5 to 6 percent total solids content. The waste contains grease, water, and sediment (food particles) that are washed down the drain. The grease is essentially comprised of fats and oils (triglycerides), which are comprised of one unit of a sugar alcohol (glycerol $C_3H_8O_3$) and three units of fatty acids. Fats and oils contain twice the energy of other organic materials.

The high energy content of the grease trap waste is advantageous to composting when high temperatures are needed to ensure pathogen reduction. The grease coats the bulking agent, which offers large surface areas for microbial decomposition in a compost pile. The high energy content encourages a more rapid rise in composting temperatures, which kills the pathogens that make humans ill (BioCycle, 2006). The large surface area accelerates the decomposition of the raw materials.

11.2 OSSF Wastes

On-site sewage facility (OSSF) septage is a slurry (solids content of only 3 to 10 percent) of organic and inorganic material. Septage includes pumpings from septic systems, aerobic treatment unit tanks, holding tanks, composting toilets, chemical or vault toilets, and other systems that receive domestic wastewaters. The exact composition of septage from a particular treatment system is highly dependent upon the activities and habits of its users**.** Table 3 lists the average metal concentration of septage (U.S. EPA, 1993).

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations

Parameter	Concentration (mg/L)			
	Septage	Biosolids	Part 503 Limits	Grade 1 Compost
Arsenic	4	10	41	10
Cadmium	3	7	39	16
Chromium	14	120	1,200	180
Copper	140	740	1,500	1,020
Mercury	0.15	5	17	11
Nickel	1.5	43	420	160
Lead	35	130	300	300
Selenium	2	5	100	36
Zinc	290	1,200	2,800	2,190

mg/L = Milligrams per liter

Section 12. Generation Areas

12.1 Service Population

The Facility will serve at least the counties listed in Table 4. The total potential population serviced is 6,412,450 persons (U.S. Census, 2014).

Table 4. Service Area and Population

County	Population 2014	County	Population 2014
Austin	29,114	Grimes	27,172
Bastrop	78,069	Harris	4,441,370
Burleson	17,253	Lee	16,742
Chambers	38,145	Liberty	78,117
Colorado	20,719	Montgomery	518,947
Fayette	24,833	Waller	46,820
Fort Bend	685,345	Washington	34,438
Galveston	314,198	Wharton	41,168
		Total Serviced	6,412,450

12.2 Growth Trends

The U.S. Census Bureau estimates a rural population of 44 persons per square mile. The Austin County population in 2014 was 29,114 (34 percent urban and 66 percent rural); it was 23,590 in 2000 (City-Data 2015), indicating that the county's population has increased at an average rate of 23.4 percent per year from 2000 to 2014. Bellville is the county seat, and other municipalities in the county are Sealy, Wallis, Brazos Country, Industry, and San Felipe. The total area of Austin County is 663 square miles. Austin County is rural in nature, but is networked by two main thoroughfares: U.S. Interstate 10 (I-10) and State Highway 36. The manufacturing, trade, service, agriculture, and local government sectors fuel the county’s employment. According to the Texas Labor Market Review for August 2015, Austin County has experienced a 2.0 percent to 3.2 percent job growth rate since 2014 compared to the 2.5 percent Texas average.

A series of aerial photographs (scale of 1 inch equals 2,000 feet) showing the property and areas within a 1-mile radius of the site boundaries are included in Appendix D. The quality of evaluation of aerial photographs is controlled by the photograph’s scale and quality. The aerial photographs show the development of the area within 1 mile of the property during the years 1977 to 2014. These photographs indicate a slow growth of the agriculture, commercial, and manufacturing industries with minimal increase to residential development. The Facility is bordered to the north by Brazos 10 Lane and residential properties. A sewage chemical treatment production company (Pencco Sealy) is located northeast of the Facility. The Facility is bordered to the west by undeveloped land and wooded areas. The Facility is bordered to the south by Union Pacific Railroad, wooded areas, and I-10. The Facility is bordered to the east by a custom metal fabrication and manufacturing company (Ram Industries) and wooded areas.

Section 13. Land Use

13.1 Zoning

The Facility is located in an unincorporated area of Austin County, Texas; east of San Felipe, Texas. Neither the City of San Felipe nor Austin County has any zoning restrictions; therefore, there are no zoning restrictions within 1 mile of the Facility. However, the Austin County Planning and Development Department requires a permit application to be submitted for any development that occurs within the county. The permit application and guidelines for obtaining the development permit can be accessed at http://austincounty.com/default.aspx?Austin_County/Permits.

13.2 Land Use Characterization

Land use in the vicinity of the Facility was determined based on a review of U.S. Geological Survey (USGS) topographic maps, aerial photographs, Austin County tax records, and visual observations made from public roads. Land use within a 1-mile radius of the Facility is predominantly agricultural, with some commercial and light industrial sites located adjacent to the property and scattered residential sites (Figure 3).

The following summarizes the quantities of various land use types within 1 mile of the Facility:

- 86 agricultural properties;
- 38 residential properties;
- 11 commercial businesses;
- 3 commercial / industrial businesses; and
- 2 commercial / agricultural businesses.

There are no licensed day cares, cemeteries, schools, recreational sites, recreational facilities, or sites having exceptional aesthetic quality within 1 mile of the Facility. In summary, the area surrounding the Facility and property has a relatively low population density and is used primarily for agricultural purposes. According to the Texas Department of Transportation (TXDOT) Texas Airport Directory Map, the Facility is located approximately 14.87 miles southeast of Grawunder field (code: 06R). The presence and operation of a composting facility is fully compatible with this setting and land use.

A 30-foot easement for Brazos 10 Lane, located at the northern property line, is shown on the survey included in Appendix A. No other easements have been found on the property.

13.3 Site Soils and Geology

The U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey (http://websoilssurvey.nrcs.usda.gov) for Austin County, Texas, was used to identify surface soils in the area of the proposed Facility. The predominant soil map units at the site are Lake Charles Clay, with 3 to 8 percent slopes, and Verland clay loam, with 0 to 3 percent slopes. Styx loamy fine sand is mapped outside the northeast boundary of the Site with a slight incursion across the north boundary following a topographic contour. An NRCS Custom Soil Resource Report for Austin County, Texas, which presents site soil information, is included in Appendix E.

The Lake Charles series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey sediments. These soils are on broad, coastal prairies and are mainly in cultivated and native pasture. Common crops on these soils are corn, cotton, rice, and grain sorghum. Native grasses include little bluestem, Indiangrass, eastern gamagrass, switchgrass, big bluestem, and brownseed Paspalum. Most areas have scattered live oak, water oak, elm, hackberry, and huisache trees.

The Verland series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level to very gently sloping soils formed in clayey and loamy sediments of the Beaumont Formation of Pleistocene age. Most of the soil is used for pasture or for growing rice and soybeans. Native vegetation is tall prairie grasses consisting primarily of Andropogons, Paspalums, switchgrass, and Indiangrass. Various species of trees have encroached on some areas.

The Styx series consists of very deep, well drained, moderately permeable soils that formed in sandy and loamy sediments. These nearly level to gently sloping soils are on high stream terraces. Most areas are used for pasture. A few areas are used for growing small grains for cool season grazing and truck crop production. Native vegetation is mainly post and blackjack oak and greenbrier, with an understory of mid and tall grasses.

The Site is located within a stratified sequence of the Cenozoic Era, Quaternary System, and Holocene Group. Based on review of the Bureau of Economic Geology Geologic Atlas of Texas (Fisher, 1974), Seguin 1974 Sheet, the property is located on the Beaumont Formation outcrop. The lithology is dominantly clay and mud of low permeability. The clay has a high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, and high plasticity. The formation thickness ranges up to 100 feet. Geologic and hydrogeologic information is further discussed in Part III of this application.

13.4 Waterways, Wetland, and Floodplain Use and Characterization

DBS&A personnel reviewed available USGS 7.5-minute topographic quadrangle maps for the site and vicinity, which indicates that the site is located on terrain sloping down to the north-northeast. Based on site observations, the general flow direction of stormwater run-off across the site appears to be in an east and northeast direction. Surface water drains as sheet flow to a man-made stock pond located at the eastern portion of the property. The property is located at the edge of a plateau with elevation of approximately 140 feet National Geodetic Vertical Datum. The Site is relatively level with some relief developing near the west, north, and east boundaries. The area north of the property descends to the Brazos River valley, with the Brazos River located approximately 2 miles east of the Site at its closest point. The nearest watercourse represented on the topographic map is an intermittent stream within the Brazos River valley approximately 0.3 mile north of the property that drains to an unnamed freshwater pond and a tributary to the Brazos River.

A Waters of the U.S. (WOTUS) and wetland determination was conducted at the Facility by W&M Environmental Group, LLC (W&M) in support of a biological assessment. The biological assessment report prepared by W&M and dated October 30, 2015 is included in Appendix F**.** As part of the WOTUS and wetlands determination, W&M reviewed several of the standard record sources for indications of streams and wetlands in the study area. Wetlands features are shown in a U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map in Figure 6. W&M reviewed the NWI for indications of wetlands on or adjacent to the study areas. The NWI map does not indicate the presence of wetlands on or adjacent to the property. The nearest mapped wetlands are represented within the Brazos River valley north of the property. Based on field observations conducted by W&M, one wetland was identified on the property within a swale in the eastern portion of the property and appears to be created by an excavation and impoundment (man-made pond) at the property. According to W&M, hydrology to the wetland appears to be provided by surface drainage from the property aided by a drainage swale through the cropland. The extent of the wetland as estimated by field observation and records review is 0.4 acre. The swales draining to the impoundment and on the downslope side of the impoundment do not have indications of ordinary high water marks or wetlands beyond the impoundment. The swales and wetland do not have a surface hydrologic connection or significant nexus to a downstream navigable water; therefore, they do not constitute jurisdictional WOTUS.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

13.5 Groundwater and Water Wells

A Water Well Report prepared by Environmental Data Resources (EDR) (EDR, 2015a), included as Appendix G**,** reported two public drinking water supply wells, associated with one non-transient, non-community public water system, that exist in the investigative area (Figure 3) but are greater than 500 feet from the site. Additionally, both public supply wells are screened below 350 feet and pressure cemented to surface in accordance with TCEQ requirements.

The Water Well Report further identified 34 domestic, irrigation, and industrial use wells within the investigative area, ranging in depth from 50 feet to 300 feet (EDR, 2015a). None of these wells are within 500 feet of the site. The composting pad will not be located within a 250-foot buffer of private wells or 500 feet of public wells. Wells are documented on Figure 3.

A review of plugged well reports on the TWDB Groundwater Data Viewer revealed no plugged wells within 0.5 mile of the site and only one within the investigative area (TWDB, 2015).

13.6 Other Wells

An Oil & Gas report by prepared by EDR (EDR, 2015b), included as Appendix G, identified four locations in the investigative area and greater than 0.5 mile from the site associated with oil and gas activity (EDR, 2015b). Three of these wells were dry holes and one is listed as a canceled location. There are no American Petroleum Institute numbers registered to the records searched. These wells are plotted on Figure 3.

13.7 Structures and Site Proximity

The nearest occupied structures are residential buildings, owned by the property owner, located approximately 480 feet north of the Facility. The nearest business is Ram Industries, located adjacent to the eastern end of the eastern property line of the Facility. Recreational, community, daycare centers, hospitals, or school sites do not exist within 1 mile of the Facility. **Chain link fencing with mesh weave roll or slats will screen the Facility from public view on the east property boundary, and perimeter berms and the southern raised railroad will screen the Facility from public view on the north, west, and south sides of the property.**

13.8 Texas Historical Commission Review

A Texas Historical Commission (THC) review has been completed. According to the Texas Historic Sites Atlas published by the Texas Historical Commission, there are no documented historic properties such as cemeteries, museums, historical markers within 1 mile of the Facility. Mitigation for discovered significant sites includes facility set back and road design to eliminate surface disturbance in the significant site. This mitigation has been approved by the THC State Historic Preservation Officer, and a stamped approval form is including in Appendix H.

13.9 Compatibility

The surrounding land uses are agricultural, which will benefit from the Facility's composting operations. Storage and land application of animal waste is common in the surrounding agriculture operations. The residential population is sparse, on farming and ranching operations. The Facility is compatible with the surrounding land uses. The Facility will not impact wetlands, flood plains, or waterways.

Section 14. Water Quality

14.1 Construction Storm Water Discharge Permit

The Facility is required to submit a Notice of Intent (NOI) for the Construction Activity Storm Water Discharge Permit and obtain coverage under the TCEQ Construction General Permit (CGP) TXR150000 since the construction of the Facility will disturb ~~fewer~~ more than 5 acres of ground surface. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to comply with the conditions of the CGP prior to submitting the NOI. Notice of Construction will also be posted.

14.2 Multi Sector Storm Water Discharge Permit

The Facility is required to submit an NOI for the Multi Sector Storm Water Discharge Permit. The NOI will be submitted electronically 24 hours prior to beginning operations. A SWPPP will be developed to comply with the conditions of the General Permit prior to submitting the NOI.

Section 15. Air Quality

15.1 Control of Airborne Emissions

Air emissions from MSW facilities will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. No specifically regulated airborne emissions are anticipated to be generated.

15.2 Minimizing Odors

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned or tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to ensure that odors are minimized, as described in the Sampling and Monitoring section of Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

15.3 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material to be used at the Facility consists of chipped and shredded wood and vegetative matter that is not very susceptible to being windblown. The Facility will not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows will not be performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and will be well-tuned and serviced at manufacturers' recommended service schedules.

15.4 Authorizations and Permits

Construction will not begin until Air Quality authorizations to operate, listed below, are complete. Air Quality authorizations do not require registration or notification to TCEQ. This Facility is not a major facility or subject to prevention of significant deterioration review.

Permit by Rule (PBR) will be claimed by the Facility, and documentation will be maintained in the Facility records. The composting operation of the Facility meets all of the applicable PBR requirements and is entitled to this air quality standard permit authorization in lieu of obtaining an air quality permit under Chapter 116. The Facility will operate under the Composting

Standard permit 332.8 and will not hold concurrent Air Quality Permits under Chapter 116 for the composting operation.

The composting operation will comply with the general requirements in §332.4 and 332.8(e). The following authorizations, which meet the requirements of the Air Quality Standard Permit for composting, will be implemented.

A. All permanent in-plant roads and vehicle work areas will be watered or treated with dust-suppressant chemicals for maximum control of dust emissions. Vehicular speeds on non-paved roads shall not exceed 10 miles per hour.

B. An adequate volume of bulking material to blend with or cover the material will be on hand prior to receiving material with a high odor potential and will be processed within 72 hours to prevent nuisances.

C. All activities, such as turning of compost, that could result in increased odor emissions will be conducted in a manner that does not create nuisance conditions. SouthWaste will employ the following:

   - *On-site buffer zones for odor control:* The processing area will be set back from the road with at least a 50-foot buffer from the property lines.
   - Additional waste handling procedures, storage procedures, and cleanup procedures for odor control when accepting putrescible waste: Liquid waste will be stored in storage tanks and transported through pipes. Any spilled feedstock will be cleaned up within 48 hours.

The Facility has been designed to minimize exposure of putrescible waste to the air. Liquid feedstock transfer operations will be controlled to prevent release of nuisance odors to the atmosphere. Putrescible waste holding time will be limited to three days. Putrescible waste will be covered with a layer of wood chips to contain odor.

Section 16. Access Roads

The Facility will use the roads listed in Table 5 for access. Access roadways within 1 mile of the Facility are shown on Figure 8.

16.1 Roadway Data

The access roads to the Facility are I-10, Bartlett Road, and Brazos 10 Lane. Vehicles accessing the Facility are anticipated to arrive via Interstate Highway 10, exit onto and turn north on Bartlett Road, then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located on the south side of Brazos 10 Lane.

The conditions of the access roads are described in Table 5. DBS&A personnel an evaluated Bartlett Road and Brazos 10 Lane and reviewed the Austin County Road and Bridge Report for Precinct #4 (dated June 22, 2015) and information provided by the property owner. According to TXDOT (Yoakum District), no load limits are designated for I-10 and Bartlett Road.

Additionally, there are no proposed public roadway improvements or location restrictions for I-10 and Bartlett Road; therefore, coordination with TXDOT is not required. Brazos 10 Lane is a private road used by the property owner and tenants, including commercial/industrial facilities (Pencco Sealy and Ram Industries).

Table 5. Roadway Data

Roadway	Dimensions	Type of Road	Condition Score	Load Limits	Capacity [a]	Repairs	Source [ba]
I-10	2 lanes (each direction) 14-foot lanes Center median Access roads	Asphalt pavement	Good	None	3,580 pch each direction	None	1
Bartlett Road	1 lane (each direction) 12-foot lanes No shoulders (2.83 miles)	Asphalt (blade mix overlay)	Fair / In need of repair	None	2,600 pch	Filled potholes in 2015 with cold mix asphalt	2
Brazos 10 Lane	Private road 14 feet wide (0.35 miles)	Gravel	Good	None	None (private road)	None	3

[a] Capacity calculated by U.S. Department of Transportation methods   pch = Passenger cars per hour
[ab] 1 = TXDOT Yoakum District
2 = Austin County Precinct 4
3 = DBS&A

16.2 Vehicular Traffic Volume

The initial volume of additional traffic generated by the Facility on the access roads to the Facility is estimated to be 10 vehicles per day. The maximum additional traffic projected at peak operation is estimated to be 50 vehicles per day.

The average daily traffic (ADT) on Bartlett road is based on the number of households and businesses that access the road. Bartlett Road traverses in a “horseshoe” like direction from two entry/exit routes on the I-10 frontage road; therefore, the ADT assumes that half the surrounding residences and businesses use the eastern entry/exit route, which is located near the Facility. Each household is expected to have an average trip of 3 trips per adult per day with an average adult population of 2 per household. Business traffic is approximately twice per day assuming 25 vehicles per business. Residential traffic access is approximated at 30 households, which is equivalent to 180 vehicles per day. Business traffic accounts for approximately 4 businesses, which is equivalent to 200 vehicles per day.

The population of Austin County is expected to grow at an average 7.24 percent annual rate to 2030 (Texas State Data Center, 2014). The projected traffic volumes presented in Table 6 were calculated assuming that traffic volumes would increase at this same rate over 20 years.

The projected traffic (10 vehicles per day) generated by the Facility represents approximately 2.76 percent of the current traffic on Bartlett Road and approximately 0.01 percent of the current traffic on I-10.

Given the limited traffic per day estimated to be generated by the Facility, no significant impact to the roadway system from traffic accessing the Facility is expected at either the existing or the future traffic loads. No measures, such as the construction of turn lanes or other road improvements, are predicted as part of this project.

Table 6. Vehicular Traffic Volume

Roadway	Existing Traffic	Projected Traffic in 20 years				Increased Traffic Due to Facility (%)	Source [a]
		Without Facility		With Facility			
	ADT	ADT	Annual Increase (%)	ADT	Annual increase (%)		
IH-10	52,805	56,628	7.24 [b]	56,638	7.25	0.01	1, 2
Bartlett Road	380	408	7.24 [b]	418	10	2.76	2
Brazos 10 Lane	Private road	—	—	—	—	—	—

[a] 1 = Texas Department of Transportation
2 = DBS&A
[b] Increase over 20 years

ADT= Average daily traffic

16.3 Facility Access Road Design Data

Brazos 10 Lane is a private gravel road that will provide access to the Facility access road. The Facility unloading areas will be constructed for wet-weather operational use.

The access road is provided with a sufficient turning radius of 300 feet to accommodate single deliveries. Vehicle parking is provided for equipment, employees, and visitors. Dust will be controlled by watering the Facility road when needed. Off-site mud tracking will be controlled by maintaining the entrance and loading areas. The access road has been designed to reduce ponding on the road. An inspection and maintenance program has been developed for the access road that will prevent rutting and potholes.

Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5 miles per hour.

16.4 Facility Impact on Roadway System

The current traffic consists of passenger vehicles, farm tractors, commercial transport trucks and trailers, agriculture transport tractor trailer rigs, and livestock/agriculture trailers. The Facility traffic will add passenger trucks and medium-size liquid and solid transport vehicles with 14.1-ton average and 21-ton maximum loads.

The impact on the roadway system is minimal. Due to the limited production, remoteness of the site, and low traffic volume, roads will not be significantly impacted by the additional traffic.

References

BioCycle. 2006. Composting Grease Trap Wastes. August 2006. BioCycle 47(8):27.

City-Data. 2015 Austin County, Texas. <http://www.city-data.com/county/Austin_County-TX.html> Accessed September 2015.

County of Austin. 2015. Road and Bridge Report Precinct #4. Annual Road Report. June 22, 2015.

Environmental Data Resources (EDR). 2015a. The EDR TX Oil & Gas Report, Proposed Sealy Composting Facility. September 30, 2015.

Environmental Data Resources (EDR). 2015b. The EDR TX Water Well Report, Proposed Sealy Composting Facility. September 30, 2015.

Fisher, W.L. 1974. Geologic Atlas of Texas, Seguin Sheet. University of Texas-Austin, Bureau of Economic Geology.

Natural Resources Conservation Service (NRCS).2015. Austin County, Texas Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov> Accessed September 22, 2015.

National Weather Service and Texas Water Development Board. 2015. Precipitation & Evaporation. <http://www.twdb.texas.gov/surfacewater/conditions/evaporation/index.asp> Accessed August 11, 2015.

Texas Commission on Environmental Quality. 2015. Wind Rose. <http://www.tceq.texas.gov/airquality/monops/windroses.html> Accessed August 11, 2015.

Texas Historical Commission. 2011. Texas Historic Sites Atlas 1995-2011. Austin County. <http://atlas.thc.state.tx.us/County, Texas>. Accessed September 21, 2015.

Texas Department of Transportation (TXDOT). 2013. Yoakum District Traffic Map, Sheet 2.

Texas State Data Center. 2014. Texas Population Projections, Population Projections Data Tool.

Texas Water Development Board (TWDB). 2015. Water Data Interactive Groundwater Data Viewer. <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>. Accessed October 1, 2015.

Texas Workforce Commission. 2015. Texas Labor Market Review Monthly Newsletter. August 2015.

U.S. Census Bureau 2014. Population, Population Change and Estimated Components of Population Change: April 1, 2010 to July 1, 2014.

U.S. Environmental Protection Agency (U.S. EPA). 1993. A Guide to the Federal EPA Rule for Land Application of Domestic Septage to Non-Public Contact Sites. EPA/832-B-92-005, Office of Wastewater, Enforcement and Compliance (WH-547). September 1993.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory Database. <http://www.fws.gov/wetlands/Wetlands-Mapper.html> Accessed September 22, 2015.

W&M Environmental Group, LLC. 2015. Biological Assessment: Proposed Sealy Compost Facility. October 30, 2015.

Wiltsee, G. 1998. Urban Waste Grease Resource Assessment. National Renewable Energy Laboratory, SR-570-26141.

Part III

Site Development Plan for a Composting Facility

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART III

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas. **Near San Felipe, Texas**.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

Table of Contents

Part III Site Development Plan for a Composting Facility.

Section 17. General Facility Design 25
17.1 Facility Plan and Facility Layout 25
17.2 Facility Access 25
17.2.1 Operator in Charge 25
17.2.2 Operating Hours 25
17.2.3 Variance # 1 26
17.2.4 Facility Sign 26
17.2.5 Facility Access Control 26
17.3 Odor Control 27
17.4 Dust Control 27
17.5 Storage Units and Equipment Details 28
17.5.1 Storage Units 28
17.5.2 Compost Pad 28
~~17.5.3 Auxiliary Equipment .... 28~~
17.5.~~4~~**3** Feedstock Storage Area 28
17.5.~~5~~**4** Liquid Transfer Equipment .... ~~29~~**28**
17.5.~~6~~**5** Final Product Screening and Stockpile 29
17.6 Containment Dikes or Walls 29

Section 18. Process Description and Controls 29
18.1 Process Diagrams and Drawings 29
18.1.1 Variance #2 29
18.2 Equipment 30
18.3 Feedstock Identification 31
18.4 Receiving/Tipping Process 32
18.4.1 Feedstock 32
18.5 Processing 33
18.5.1 Material Processing 33
18.6 Post-Processing 34
18.7 Product Distribution 34
18.7.1 Compost 34
18.8 Sanitation 35
18.8.1 Run-on and Run-off Control 35
18.8.2 Cleaning Equipment and Connections 35
18.9 Non Hazardous Waste Storage and Disposal 36
18.9.1 Non-Hazardous Waste 36
18.9.2 Hazardous Wastes 36

Section 19. Endangered Species Protection 36

Section 20. Surface Water Protection Plan 37
20.1 Run-On and Run-Off Management System 37
20.2 Drainage Calculations .... ~~38~~**39**
20.3 Erosion Control 39
20.4 Drainage Maps and Plans 39

Section 21. Geological Report .... ~~39~~**40**

21.1 Regional and Local Geology/Hydrogeology 40
21.2 Subsurface Soil Investigation 40
21.3 Groundwater Investigation 42
21.4 Surrounding Water Wells 43
21.5 Geotechnical Study 45
21.6 Active Geologic Processes .... ~~46~~**45**

Section 22. Groundwater Protection Plan 46
22.1 Liner and Pad System 46
22.2 Liner Quality Control Plan .... ~~47~~**46**
22.3 Management Practices 47
22.4 Groundwater Monitor System 48

Section 23. Facility Closure Plan and Financial Assurance 48
23.1 Closure Plan Requirements 48
23.2 Operation Termination Requirements 49
23.3 Procedure for Closure of Facility by Operator 50
23.3.1 Removal 50
23.3.2 Decontamination 50
23.4 Closure Sampling and Analysis Plan 51
23.4.1 Sampling 51
23.4.2 Analysis .... ~~52~~**51**
23.5 Reporting 52
23.6 Procedure for Closure of Facility by an Independent Third Party 52
23.7 Financial Assurance 53

References 53

List of Requested Variances

Variance #1 Extended Waste Acceptance Hours. 26

Variance #2 Storage of bulk material and finished Grade 1 or Grade 2 compost. .... ~~30~~**29**

List of Tables

Table 7. Equipment 30

Table 8. Energy and Mass Balance Calculations .... ~~32~~**31**

Table 9. Surrounding Well Information .... ~~43~~**42**

Table 10. Wells within ½ Mile .... ~~44~~**43**

Table 11. Saturated Hydraulic Conductivities .... ~~46~~**45**

List of Figures

Figure 9	Process Diagram
Figure 10	Pre-Construction On-Site Drainage Map
Figure 11	Post-Construction On-Site Drainage Map
Figure 12	Geologic Map
Figure 13	Stratigraphic Column
Figure 14	Hydrogeologic Cross Section
Figure 15	Potentiometric Surface Elevation Map, October 2015
Figure 16	Generalized Cross-Section A-A’

List of Drawings

Sheet 1	Title Sheet
Sheet 2	General Notes and Legend
Sheet 3	Site Plan
Sheet 4	Grading Plan and Profile - 1
Sheet 5	Grading Plan and Profile - 2
Sheet 6	Drainage Plan
Sheet 7	Civil Details
Sheet 8	Drainage Details

List of Appendices

Appendix I	Stormwater Drainage Analysis
Appendix J	Approved Boring Plan
Appendix K	Boring Logs
Appendix L	Geotechnical Laboratory Reports
Appendix M	Liner Construction Quality Assurance Plan
Appendix N	Closure Cost Summary & Estimate

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system

RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	safety data sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 17. General Facility Design

17.1 Facility Plan and Facility Layout

Sheet 3 in the Drawings section shows the facility plan and layout including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that figure, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, structures, and other improvements to the property. In addition, DBS&A has prepared engineering design drawings showing the GSS composting pad layout and cross sections.

The following drawings are located in the Drawings section:

- Drawing 1 Title Sheet;
- Drawing 2 General Notes and Legend;
- Drawing 3 Site Plan;
- Drawing 4 Grading Plan and Profile - 1;
- Drawing 5 Grading Plan and Profile - 2;
- Drawing 6 Drainage Plan;
- Drawing 7 Civil Details; and
- Drawing 8 Drainage Details

17.2 Facility Access

17.2.1 Operator in Charge

The operator in charge (OIC) will be responsible for monitoring access to the Facility. The OIC will schedule deliveries to ensure staff supervises all unloading operations. Public Access will be prohibited and enforced by the OIC.

17.2.2 Operating Hours

The proposed operating hours are subject to approval by TCEQ for extended waste acceptance hours.

The waste acceptance hours will be between ~~dawn and dusk~~ Monday through Saturday**, 7:30 a.m. to 5:30 p.m. during the months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September**. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday through Saturday from 7:00 a.m. to 7:00 p.m. When any alternative operating hours are employed, Facility personnel will record the dates, times, and duration in the site operating record.

17.2.3 Variance # 1

Variance #1: Extended waste acceptance hours.

Since daylight hours (~~between dawn and dusk,~~ Monday through Saturday**, 7:30 a.m. to 5:30 p.m. during the months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September**) would ensure a safe operation, this Facility requires a waste acceptance variance for extended hours.

This variance would be appropriate due to the remoteness of the Facility. Consolidated feedstock from several sources is gathered in bulk and transported in liquid tankers. The extended hours would permit waste haulers to optimize their service routes and accommodate their customers by servicing their grease traps during non-peak hours between 3:00 and 5:00 p.m. Additionally, composting operations are sometimes performed outside standard operating hours, as required by weather or other factors.

Since the Facility is located in a sparsely populated area with 24-hour agribusiness operations, the additional hours will not impact area residents or businesses.

17.2.4 Facility Sign

A sign will be conspicuously display at the entrance to the Facility, measuring at least 4-feet by 4-feet with letters at least 3 inches in height, stating the Facility name, type of facility, standard hours of operation, the permit number, and Facility rules. The posting of erroneous or misleading information will be prohibited. The potential sign will contain at least the following:

- SouthWaste Sealy Composting Facility;
- Telephone number;
- Permit number;
- Check in at office; and
- No public access allowed.

17.2.5 Facility Access Control

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials and scavenging. The following measures will be implemented:

- At least one OIC will be present at the Facility during operations to monitor visitors or transporters.
- The Facility will be completely enclosed with a perimeter fence, consisting of a 4-foot barbed wire fence with lockable gates.
- The entrance and exit gates will be secured when the Facility is not operational.
- No Trespassing signs will be placed around the perimeter of the Facility.

- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and noted in the Facility weekly log.
- A sign located at the entrance of the Facility will state that all visitors must check in at the office.
- Deliveries are scheduled by the OIC to facilitate orderly unloading.
- Unauthorized access will be prohibited. No public access is allowed.
- All truck traffic will be supervised by on-site personnel and must proceed directly to the loading and unloading areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance.
- All inbound and outbound traffic is closely monitored.
- Off-loading, loading, and processing preparation are limited to daylight hours.
- The Facility is located in a remote area. It is set back from Brazos 10 Lane with a landscape barrier that obscures the Facility from normal observation from the road, but maintains inspection capabilities by personnel from the road.
- At the Facility, transport units will be stored within the perimeter fencing and locked gate. The OIC will monitor the units. The cab will be locked. All valves will be locked to prevent discharge of liquids. Solid material will be covered.

17.3 Odor Control

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned and tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to that ensure odors are minimized as described Sampling and Monitoring section in Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

The GSS processing area will be located in a remote area with at least **a 50-foot set back distance** ~~50-foot buffers~~ **from the Facility boundary** to prevent creating odor nuisances.

17.4 Dust Control

No hoppers will be located or used for waste collection.

Dust will be controlled with water application, as needed. Graveled areas will be maintained to prevent rutting and potholes.

17.5 Storage Units and Equipment Details

17.5.1 Storage Units

Storage units will be purchased from a vendor and will be welded steel tanks that meet at least the standards contained in either (1) the American Petroleum Institute (API) Specification 12F - Specification for Shop Welded Steel Tanks for Storage of Production Liquids, or (2) the API Standard 650 - Welded Tanks for Oil Storage.

Tanks will be leak resistant, corrosion resistant, and designed to handle thermal stresses for outdoor storage at the Facility. Tanks are planned to be 750 barrels (or approximately 31,500 gallons)~~, but will be no more than 2,000 barrels (840,000 gallons)~~.

Storage tanks for untested, reclaimed water and liquid waste will be placed on a composite liner surrounded by clay berms designed to provide sufficient secondary containment for the largest tank volume, precipitation from the 25-year, 24-hour design storm, and an additional 1 foot of freeboard.

17.5.2 Compost Pad

The 11-acre GSS processing area includes an approximately 3.5-acre ~~stormwater~~ **compost pad** retention pond and a 7.5-acre compost pad. The entire area will include a composite liner as described in Section 22.1. The compost pad is designed to provide a footprint for approximately 20 windrows approximately 600 feet in length. Based on typical windrow dimensions, more than 100 tons of wood chips can be processed per operating day.

Pending the results of compost demand and feedstock availability, the liner for the compost pad is expected to be built in two phases. A temporary berm will be constructed between the two construction phases to the same specifications as the GSS processing area berms. The **entire** ~~stormwater retention pond~~ **compost pad retention pond** will be constructed during the first construction phase to handle stormwater run-off within the GSS processing area.

~~17.5.3 Auxiliary Equipment~~

~~An evaporator will be installed to enhance evaporation of accumulated stormwater in the stormwater retention pond. The unit will pump aloft up to 115,000 gallons per day. The unit converts water to a mist to accelerate natural evaporation processes. Based on site climate conditions, the unit is expected to eliminate up to 70 percent of the pumped water. Similar to a snow maker, the 40-horsepower motor throws water up to 60 feet in the air.~~

~~17.5.4~~**17.5.3** Feedstock Storage Area

The feedstock storage area is the receiving area for liquid waste transporters and the liquid feedstock storage area. The area is comprised of eight 31,500-gallon, welded steel storage tanks as specified in Section 17.5.1. Secondary containment for this area is described in Section 17.6. The feedstock storage area is designed to hold a one day supply of feedstock at the maximum incoming daily rate, but will likely provide up to one week of storage under typical daily operations. Feedstock is transferred using the liquid transfer equipment.

~~17.5.5~~**17.5.4** Liquid Transfer Equipment

1. *Receiving Transfer*. The transport truck vacuum pump system or equivalent will be used to transfer liquid feedstock into storage tanks.

2. *Liquid Feedstock Transfer*. The Facility vacuum truck or equivalent will extract liquid feedstock from the on-site storage tanks. The pump system on the vacuum truck will be used to spray liquid feedstock directly onto prepared windrows of bulking material located within the processing areas.

~~17.5.6~~**17.5.5** Final Product Screening and Stockpile

Finished compost will be stockpiled in an approximately 3.5-acre area north of the compost pad. Assuming a 30 percent volume reduction for compost maturation and an additional 30 percent reduction for screening, the footprint for final product from the 7.5-acre compost pad will be approximately 3.7 acres. The final product area will hold approximately a 90-day supply of finished compost, pending delivery of final product to end users.

17.6 Containment Dikes or Walls

The secondary containment for the feedstock storage area is designed to hold ~~at least~~ the volume of the largest tank (31,500 gallons) and a 25-year, 24-hour rain event (8.5 inches)**; in addition, it provides 12 inches of freeboard**. The secondary containment area will include a composite liner (geomembrane on top of a clay liner) and will be surrounded by compacted clay berms designed to minimize leakage in the event of a release of feedstock.

Section 18. Process Description and Controls

18.1 Process Diagrams and Drawings

This section specifically describes the GSS composting process at the GSS processing area. Composting of other approved materials will occur at either the GSS processing area or at other areas to the north and west, so long as it does not interfere with site drainage or wash off-site.

SouthWaste will perform GSS feedstock mixing, composting, and post-processing on the lined processing area (the lined pad used for composting and curing). However, as a part of this permit application, SouthWaste is requesting a variance from the Executive Director with regard to the screening and storage of finished compost and bulking material.

A process diagram that displays graphically the narratives is presented in Figure 9.

18.1.1 Variance #2

Variance #2: Storage of bulk material and finished Grade 1 or Grade 2 compost.

SouthWaste is requesting an approval from the Executive Director to chip/shred bulking material and screen and store finished Grade 1 or Grade 2 compost (not Waste Grade) at unlined portions of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 18.6 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished materials are intended for use in landscaping, vegetable gardens, and similar uses; therefore, storage of these materials on the unlined ground surface should not represent any potential for damage or impact to groundwater resources. Bulk materials and finished compost managed and stored in lined areas would limit the Facility's composting efficiency, resulting in an unnecessary hardship.

18.2 Equipment

Table 7 presents the minimum amount of equipment normally on-site and the provided equipment's operational capacity to adequately conduct the operation in conformance with the engineering design and industry standard operating procedures.

Table 7. Equipment

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Self-Propelled Tiller (a.k.a windrow turner)	1	Up to 800-1000 m³/hour	Blends, mixes, and turns compost	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for caked on residue. ▪ Repair per manufacturer's recommendations. ▪ Remove residue off blades.
Front-end Loader	2	Up to 15 m^3 bucket capacity	Compost and bulking material handling. Compost pad maintenance and spill and small fire control.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Excavator	1	Up to 190,204 lb operating weight	Compost and bulking material handling. Compost pad maintenance.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Dump Truck	1	Up to 70.5 tons carrying capacity	Compost and bulking material handling.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Chipper / Grinder	1	Up to 100 tons/hour	Chips and Shreds raw bulking material	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Feedstock storage tank	8	31,500 gal	Hold liquid feedstock materials for processing	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.

Table 7. Equipment (continued)

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Vacuum Truck or equivalent	1	Up to 7,000 gal	Unloads liquid feedstock into the storage tanks / distributes feedstock to windrows	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for tank compartment for leaks. ▪ Repair per manufacturer's recommendations. ▪ Remove residue.
Water storage tanks	1	20,000 gal	Water storage	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.
Pumps	1	Up to 300 gpm	Transfer liquid raw materials and products	▪ Inspect piping, gaskets, orifices, and motor. Repair per manufacturer's recommendation.
Water truck	1	3,000 gal	Dust control	▪ Inspect tanks for leaks. ▪ Inspect and Repair working parts per manufacturer's instructions.
~~Evaporator~~	~~1~~	~~115,000 gal per day~~	~~Enhanced evaporation of accumulated stormwater~~	~~▪ Inspect piping, gaskets, orifices, pump, and motor for leaks or corrosion.~~ ~~▪ Repair per manufacturer's recommendation.~~

18.3 Feedstock Identification

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. Initially, incoming grease trap waste will be brown grease, but yellow grease processing may be included in future operations. **Since, the TCEQ does not regulate yellow grease processing, a permit modification will be requested only if the yellow grease operation area is relocated.** ~~A permit modification will be requested when this change is anticipated.~~ **The Department of State Health and Services will be contacted for authorization to process yellow grease prior to any acceptance of this type of waste. Incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).**~~The estimated quantity of incoming feedstock to be received is up to 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or approximately 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste).~~ Expected to account for less than 10 percent of the incoming feedstock at this Facility, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- ~~Septate~~**Septage**; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped on the property. The Facility may generate approximately 5,200 cubic yards of finished compost per month. Chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. In addition, chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and Mass Balance calculations for the GSS and non-GSS waste composting process are presented in Table 8. These calculations present the amount of product that will be produced based on anticipated amounts of bulking and feedstock materials.

Table 8. Energy and Mass Balance Calculations

Input Information	Calculations
Bulking Material Calculations:	
▪ 1,600 cy wood chips in each windrow x 20 windows ▪ Process requires approx. 90 calendar days to mature	▪ 32,000 cy of chips on pad (=1,600 cy chips per windrow * 20 number of windrows) ▪ 356 cy chips used / calendar day (=32,000 cy / 90 calendar days) ▪ 8,000 tons chips / 90 days (=32,000 cy * 0.25 ton / cy) ▪ 111 tons chips / operating day (=8,000 tons / 3 months / 24 operating days per month ▪ 2,667 tons chips / month (=8,000 tons / 3 months)
Feedstock Calculations:	
▪ 250,000 gal of feedstock per operating day applied to windrows	▪ 930 tons per operating day of feedstock coming in (=250,000 gal * 7.44 lb per gal / 2,000 lb per ton) ▪ 22,320 tons per month of feedstock coming in (=930 tons * 24 operating days per month) ▪ 66,960 tons of feedstock coming in / 90 days (=22,320 tons per month * 3 months) ▪ 267,840 tons per year of feedstock coming in (=22,320 tons per month * 12 months) ▪ 6,000,000 gal / month of feedstock (=250,000 gal * 24 operating days per month)
Product Calculations:	
▪ 30% volume reduction during composting for maturation ▪ ▪30% further volume reduction when screened	▪ 32,000 cy of chips on pad in 90 days ▪ 22,400 cy of compost / 90 days (after 30% reduction for maturation) ▪ 15,680 cy of finished compost / 90 days (after additional 30% reduction for screening of mature compost) ▪ 5,227 cy finished compost / month ▪ 62,720 cy finished compost / year ▪ 29,792 tons of finished compost / year (assuming a finished compost unit weight of 950 lb / cy) ▪ 2,483 tons of finished compost / month ▪ 83 tons of finished compost / calendar day

Assumptions: 7.44 lb / gallon feedstock
950 lb / cy compost
0.25 ton / cy chips
24 operating days / month
12 months / year

Conversion Factors: 2,000 lb / ton
7.48 gal / cf

The operator will visually examine the feedstock during transfer and processing to remove visual un-compostable material (unauthorized materials). Coarse straining may be used to remove non compostable materials in liquid raw material.

The Facility will not accept household wastes, source-separated recycling, or related materials.

18.4 Receiving/Tipping Process

18.4.1 Feedstock

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Sheet 3). The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event that liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front end-loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, it will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

18.5 Processing

18.5.1 Material Processing

Feedstocks will be applied to the windrows using a vacuum truck or equivalent equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Once tilled, the windrows will be monitored to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting. Measurements of nitrogen and carbon ratios will be monitored daily.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content will be evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

18.6 Post-Processing

After the monitoring period, the final GSS product will be placed in a stockpile on the lined processing area for a curing period of at least 60 days. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches. Each batch will be tested for maturity and final product parameters as described in Section 35.4 in Part IV of this application and will then be assigned a final product grade as described in Section 35.4.2 in Part IV of this application.

Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (Waste Grade compost) will be disposed off-site at an authorized municipal solid waste facility.

Cured compost meeting either Grade 1 or Grade 2 maturity parameters will be processed through a ½-inch screen to remove over-sized material in the post-processing area outside the lined composting pad. Over-sized material separated during screening will be returned to the windrows to be re-composted.

18.7 Product Distribution

18.7.1 Compost

Compost ~~is currently~~**will be** sold only in bulk form. At some point in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a front-end loader. The Facility anticipates producing approximately 62,700 cubic yards annually of Grade 1 compost material at peak production (produced from 2,700 tons per month of wood chips and ~~up to~~ 22,300 tons per ~~year~~ **month** of incoming liquid feedstock). The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. **The intended final use of the Grade 1 composted material will be as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and labeled as not for use at residences or child-care facilities.** Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and the disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site). The product parameters for each grade of compost are described in Part IV of this application.

The OIC will supervise the delivery of bulking material, directing them to the appropriate storage area. The bulking material will be inventoried daily to ensure that the amount needed to cover or process feedstock is on hand. Record inspections and volume of bulking material will be recorded on the weekly log.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of vouchers. A voucher will be provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

1. *For Grade I Compost*: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

   For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

2. *Feedstocks from which the compost was derived (grease trap waste, etc.).* Feedstocks will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.)

18.8 Sanitation

18.8.1 Run-on and Run-off Control

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the site. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward a stormwater retention pond on the west side of the bermed area to collect run-off from the composting area**, designated the compost pad retention pond**. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office). This centralized location will aid stormwater monitoring without increasing run-off north of the site. This will also improve stormwater management as pre-construction run-off from this property was routed through the residential property to the north.

Secondary containment surrounding the liquid feedstock tanks will allow stormwater to be monitored prior to being repurposed. ~~Pending inspection, a~~**A**ccumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the ~~stormwater~~ **compost pad** retention pond.

18.8.2 Cleaning Equipment and Connections

SouthWaste intends to install at least one potable, non-public supply water well to supply water to the office and maintenance building. The water well plumbing will be equipped with multiple connections to distribute water to support the composting process. These water connections will be equipped with a back flow check valve to prevent cross contamination. One connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will be used periodically to remove residuals not removed with the more conservative cleaning methods. The operator may hire a contracting company to perform the pressure washing, as needed.

18.9 Non Hazardous Waste Storage and Disposal

18.9.1 Non-Hazardous Waste

Solid waste will be stored in a dumpster. Non-hazardous wastes will be transported and disposed of at a permitted landfill on an as needed basis.

18.9.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system, but in the unlikely event that hazardous wastes are generated, the OIC will apply for a "One-Time Waste Shipment" registration. Hazardous waste will be transported and disposed of at a permitted hazardous waste facility.

Section 19. Endangered Species Protection

DBS&A contracted W&M Environmental Group, LLC **(W&M)** to conduct a biological assessment (BA) for the Facility. **The BA was prepared by a qualified biologist in accordance with standard procedures of the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department (TPWD). W&M's qualifications are presented in Section 8.0 of the BA and a letter dated May 20, 2016 affirming W&M's qualification is included in Appendix F.** The BA included review of multiple records, site reconnaissance, and interviews with agency representatives to identify whether the proposed activity associated with the composting permit/operations would have an effect on state or federally listed threatened, endangered, or candidate species or critical habitat. The BA evaluated the potential effects of the proposed action (i.e., construction and operation of the Sealy Composting Facility) on listed and candidate species and listed and proposed critical habitats to determine whether any such species or habitat are likely to be adversely affected by the action, in accordance with the requirements of the Endangered Species Act (ESA) and Title 30 of Texas Administrative Code TAC §330 (municipal solid waste [MSW] permits). The BA was used to determine whether formal consultation (with state and federal wildlife agencies) or conference is necessary. The BA is to be reviewed by state agencies and does not require a full National Environmental Policy Act (NEPA)-compliant review. The BA reported that none of the listed or candidate species with current or historical ranges near the Facility would be negatively affected by the proposed project and no critical habitat for listed or candidate species would be impacted by the proposed development. The BA report is included as Appendix F.

The BA ~~has been~~ **was** submitted to the ~~Texas Parks and Wildlife Department (~~TPWD~~)~~ Wildlife Habitat Assessment Program for their review and approval. ~~The TPWD received the BA on November 2, 2015 and has indicated a 45-day review period.~~ The results of the BA are summarized on the TPWD Review Request Form in Appendix A of the BA report (Appendix F). **The TPWD received the BA on November 2, 2015. On December 11, 2015, the TPWD Wildlife Habitat Assessment Program indicated that based on the project description, they do not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources. The cover page of the BA (Appendix F) includes the TPWD-signed acknowledgement stamp.**

The Facility is designed to limit the alteration or modification of a potential habitat. To prevent alteration or adverse modifications of a potential habitat and/or endangering an encountered endangered species, the following precautions will be applied during construction:

- Trees and natural vegetation will be maintained as practical.
- Construction workers will be trained to identify endangered species.
- If an endangered species is encountered during a construction activity, and the construction activity endangers it, that construction activity will cease, the owner will be notified, and mitigation will be developed.
- If trees and vegetation must be removed for fire protection and/or safety, the removal will avoid the migration or nesting times of known species.

- During Facility operations, trees and vegetation will only be removed if they pose a fire, vector, or safety concern. The Facility will manage trees and vegetation to prevent potential fires and control vectors in a manner that will not alter or adversely modify any potential habitat.

Section 20. Surface Water Protection Plan

20.1 Run-On and Run-Off Management System

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the Facility. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward ~~a stormwater~~ **the compost pad** retention pond on the west side of the bermed area to collect run-off from the composting area. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office).

The composting process is performed and managed so that leachate should not be produced by the application of feedstocks. However, in the event that leachate is produced by direct rainfall, it will be contained within the processing area by the engineered composite liner system and ~~stormwater~~ **compost pad** retention pond. Details of the berms, composite liner system, and retention pond that provide run-on and run-off control for the processing area are included in the Drawings section.

The ~~GSS processing area stormwater~~ **compost pad** retention pond was sized to contain a 25-year, 24-hour rainfall event on the composting pad. In addition to the minimum capacity needed to contain this design storm (approximately 2.5 million gallons), the 3-acre ~~stormwater~~ **compost pad** retention pond has more than 5 million gallons of additional surplus capacity. Given the nature of the Facility's setting (i.e., net evaporative based on mean precipitation and evaporation data), the pond is not anticipated to accumulate significant volumes of water. However, the pond has been designed to maintain sufficient capacity to handle a series of larger rainfall events. ~~If it does become necessary to remove liquids from the pond to maintain capacity, an enhanced evaporation unit (e.g., Turbomist Model S30L or equivalent) will be installed at the northwest corner of the stormwater retention pond. These units throw water into the air to produce water droplets, which significantly increases the net evaporation rate over a static pond water surface. Up to 115,000 gallons can be pumped aloft by a single unit, which can eliminate 30 to 70 percent of the pumped water volume, depending on current environmental conditions. This translates to removal of 1 to 2.5 million gallons per month.~~ Pond liquids will also be used as needed to adjust the moisture content of composting materials. Evaporation and the use of pond liquids in the composting process are the primary means of maintaining adequate capacity in the pond. If this approach is inadequate to maintain capacity, then water will be pumped from the pond and trucked to a permitted off-site treatment facility.

Currently on-site drainage includes three primary drainage reaches (Figure 10). On the west side of the site, stormwater flow is directed off-site to the northwest to natural drainage features located on adjacent properties and then to an unnamed tributary to the Brazos River. Run-off from the central portion of the property travels to the north through existing residential property prior to discharging to the same unnamed tributary to the Brazos River. The eastern portion of the property drains to an on-site, man-made ~~stock~~ **stormwater** pond along the eastern property boundary.

Following construction of the Facility, stormwater outside of the GSS processing area will either be collected in a single ditch along the north property boundary or allowed to drain to the existing stormwater pond (Figure 11). The northern portion of the site will be regraded to direct all stormwater from west to east to a single discharge point located near the Facility access gate. This centralized location will aid stormwater monitoring without increasing run-off north of the site (due to a reduction in contributing acreage, the peak flow decreased by nearly 18 percent). This will also improve stormwater management by re-routing run-off around the existing residential property to the north. Run-off from the eastern portion of the property will continue to be directed to the on-site stormwater pond. An overflow culvert will be added under the Facility access road to direct stormwater into the ditch along the north property line.

Run-off from the ditch will be directed through a 12-inch-diameter corrugated high density polyethylene (CHDPE) culvert system and riprap outfall structure to existing drainage ways. The proposed locations of the stormwater collection ditch and outfall structures are shown on the drainage plan drawing (Sheet 6). Cross sections of the ditches and details of the riprap outfall structures are also provided in the Drawings section. Stormwater calculations are provided in Appendix I. The riprap outfall structures will separate and trap suspended material while allowing controlled discharge of stormwater.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Riprap outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed before the material accumulates to a depth equal to one-fourth the outlet height.

Chipped and shredded wood materials are used for temporary erosion control as needed outside the lined and bermed GSS processing area. In addition, the elevated railway and roadway upgradient from the site will minimize run-on, reducing potential erosion of on-site surfaces. Within the GSS processing area, the composite liner system includes base coarse and filter fabric designed to reduce erosion of materials above the geomembrane.

20.2 Drainage Calculations

The compost pad retention pond sizing calculations are presented in Appendix I. The required minimum volume of the pond was determined using the Natural Resources Conservation Service Curve Number method and the 25-year, 24-hour design storm. This precipitation amount was determined based on the United States Geological Survey (USGS) Depth-Duration Frequency Atlas for Texas published in 2004 in cooperation with Texas Department of Transportation (TXDOT) (USGS, 2004). The retention pond volume was then increased to handle a series of larger rainfall events.

As specified in the TxDOT Bridge Division Hydraulic Manual (TxDOT, 2011), drainage calculations for determination of peak run-off using the Rational Method are also presented in Appendix I for both pre-construction and post-construction conditions. The 25-year design storm most similar to the time of concentration was used to determine peak flow. The self-contained GSS processing area reduced the area contributing run-off to the point of concentration; therefore, construction of the Facility is not expected to impact downgradient properties.

20.3 Erosion Control

Erosion and stormwater controls consist of earthen berms constructed around the perimeter of the processing area and along the western and northern Facility boundaries. In addition, one primary stormwater collection ditch will be used in conjunction with existing drainage features to collect and control run-off from the areas of the Facility lying outside the lined and bermed GSS processing area. These features have been designed to reduce stormwater flow velocities to minimize erosion and scour.

Given the physical and chemical nature of the materials stored in these areas (i.e., wood chips, brush, and mature compost), these materials are not anticipated to be capable of generating leachate that contains dissolved chemicals of concern. However, there is some potential that stormwater run-off may suspend particles of mature compost or wood chips. The stormwater collection features outside the processing area are designed to collect and control both stormwater and any entrained and suspended particulates, and to control the migration of suspended particulates beyond the Facility boundaries.

20.4 Drainage Maps and Plans

Pre- and post-construction on-site drainage maps are provided as Figures 10 and 11. Plan and profile drawings of the Facility GSS processing area and **compost pad** retention pond are included as Sheets 4 and 5 in the Drawings section. Cross sections of proposed stormwater collection ditches and rock outfall structures are also provided in the Drawings. There are no areas of the property that lie within the 100-year flood plain or contain wetlands. Wetlands features are shown in a U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) map in Figure 6. According to the NWI map, the site is not located in a NWI area.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

Section 21. Geological Report

The geologic/hydrogeologic report was prepared by Beronica Lee-Brand, a State of Texas Licensed Professional Geoscientist (TX PG #10465). The following sections discuss the general geologic and hydrogeologic conditions in the vicinity/region of the property and also site-specific conditions beneath the proposed Facility from data collected during the subsurface investigation.

21.1 Regional and Local Geology/Hydrogeology

According to the Bureau of Economic Geology, Geologic Atlas of Texas, Seguin Sheet (1974), the property is located within the Beaumont Clay Formation (Pleistocene) and is surrounded by Quaternary-age lithology. A portion of that sheet, showing the location of the property, is provided as the geologic map for this application (Figure 12). The Oligocene-aged sediments make up the base of the Gulf Coast Aquifer in Texas and include the Tertiary rocks into the Frio Formation, the Anahuac Formation, and the Catahoula Tuff or Sandstone (early Miocene); the Oakville Sandstone and the Fleming formation (mid- to late-Miocene); the Goliad Sand (Pliocene); the Willis Sand, Lissie Formation, and the Beaumont Clay (Pleistocene); and the alluvium (Holocene) (Baker, 1979). A regional stratigraphic column showing hydrostratigraphic divisions for corresponding stratigraphic units is provided on Figure 13 (Baker, 1979).

The Gulf Coast Aquifer is a major aquifer that underlies the Facility; no minor aquifer underlies the Facility. The Chicot Aquifer is the shallowest unit of the Gulf Coast Aquifer. The Gulf Coast Aquifer forms an irregularly shaped belt that parallels the Texas coastline and extends northeastward to the Louisiana border. Groundwater quality in the Gulf Coast Aquifer is generally good northeast of the San Antonio River but declines to the southwest. There are multiple water wells within a half mile of the Facility completed in the Gulf Coast Aquifer, as discussed in Section 21.4. The well reports and boring logs presented in the Environmental Data Resources (EDR) half mile and mile radius water well report indicate alternating clay and sands down to over 200 feet (Appendix G).

Locally and regionally, the Beaumont Formation sand bodies are isolated in floodplain muds and lack the interconnected sand bodies that exist in the Lissie Formation; because of this, the Beaumont Formation provides a measurable amount of protection to water level change by hydraulically isolating shallow wells completed within the Beaumont Formation [e.g., wells screened less than 200 feet below ground surface (ft bgs)] from the underlying Lissie Formation (Young, 2015).

21.2 Subsurface Soil Investigation

As described in Section 21.1, the Beaumont Formation is found at the surface at the Facility. The Beaumont is composed of clay-rich sediments transected by sandy fluvial and deltaic-distributary channels (Young, 2012). The Geologic Atlas of Texas (GAT sheet) (Fisher, 1974) described the Beaumont Formation as clay, silt, and sand with concretions of calcium carbonate, iron oxide, and iron-manganese oxides common in zones of weathering with a thickness of about 100 feet. Two subunits are distinguished in the Seguin Sheet: (1) dominantly clay and mud of low permeability; and (2) dominantly clayey sand and silt of low to moderate permeability.

As part of this permit application, a boring plan was prepared by DBS&A on July 22, 2015 and revised on October 14, 2015 in accordance with Title 30 of the TAC, Chapter 332.47 (30 TAC 332.47), specifically, Part (6)(B)(iv) of 30 TAC 332.47 (DBS&A, 2015). On October 26, 2015, the boring plan was approved by the TCEQ (Tracking Number 19844155). The approved boring plan is included as Appendix J.

The data acquired from the subsurface investigation were used to support the completion of this Geologic/Hydrogeologic evaluation, including design and installation of required piezometers [proposed Part (6)(B)(v)], completion of a groundwater investigation report [proposed Part (6)(B)(v)], and development of a groundwater monitor system [proposed Part (6)(C)(ii)].

The subsurface investigation was conducted on two occasions during September and October 2015. As part of the investigation, five soil borings were installed at the Facility using hollow-stem auger drilling methods. Each boring was logged in order to characterize soils, collect geotechnical samples, and characterize the shallow groundwater-bearing unit encountered below the property.

Currently, the western portion of the property contains thick grasses and large pecan trees, and the east side of the Facility contains plowed fields. Soil borings SB-1 and SB-4 were installed in the western portion of the Facility and SB-2, SB-3, and SB-5 were installed on the eastern portion of the Facility. The borings were located at the boundaries of the proposed composting pad and were converted to 2-inch-diameter monitoring wells for future groundwater monitoring locations. Sheet 3 illustrates the surveyed locations of the monitoring wells.

The borings were advanced using 8¼-inch-outer diameter hollow stem augers. A 5-foot, 3-inch-diameter core barrel was advanced inside of the augers to allow for continuous sampling, and a 2.5-foot, 3-inch-diameter Shelby tube was advanced in front of the augers to allow the collection of geotechnical samples. Soil cores were inspected by the DBS&A geologist and screened for the presence of hydrocarbons using a photoionization detector (PID) with an 11.2-electron volt lamp. There were no elevated PID responses for any interval of any boring. During the field exploration activities, the DBS&A geologist recorded detailed soil descriptions using the Unified Soil Classification System, including the symbol, soil type, color, texture, grain size, sorting, plasticity, and moisture content. Soil borings SB-1 and SB-5 were continuously logged using the core barrel sampler. SB-2 was continuously logged down to 10 feet and then logged by observing the soil cuttings at surface as the augers were advanced to desired depth. SB-3 and SB-4 were logged using soil cuttings only.

Organic soil with sand was encountered at each boring ranging from 1 to 1.5 ft bgs. Below the organic soils, silty and lean clays of low to moderate permeability were logged to a depth of 6 feet at SB-1, 9 feet at SB-2, 15 feet at SB-3, 15 feet at SB-4, and 12 feet at SB-5. Silty and poorly graded sands with silt and gravel were encountered at each boring below the silty and lean clays. At each boring, sands extended down to 85 feet in SB-1, 82 feet in SB-2, 81 feet in SB-3, 83 feet in SB-4, and 82 feet in SB-5. Below the sands, a clay with gravel layer was encountered followed by a stiff, waxy clay at each boring. A claystone was encountered at 87.5 feet in SB-5. Cross sections using the information from each boring and depicting the generalized strata are presented on Figure 14. Boring logs are provided in Appendix K. Based on the information obtained from the soil borings, DBS&A confirms that the Facility overlies the Beaumont Formation as shown by the alternating fine grained clays, silts, sands, and some gravel. The evaluation of the five soil borings indicated no underlying hydraulically interconnected aquifers below the Facility. A discussion of the confining unit identified at the Facility is provided in the Section 21.3 and 21.5.

21.3 Groundwater Investigation

Following soil boring installation and sampling, each boring was completed as a permanent above-grade monitoring well (SB-1/MW-1 through SB-5/MW-5). MW-1, MW-2, MW-3, and MW-4 were screened from 45 to 65 ft bgs. MW-5 was screened from 49 to 69 ft bgs. Well completion diagrams are included on the boring logs provided in Appendix K. The wells were completed with 20 feet of 2-inch-diameter, 0.010-inch slotted polyvinyl chloride (PVC) screen, and sufficient 2-inch-diameter PVC riser pipe to extend from the top of the well screen to approximately 3 feet above the ground surface. The well screen was set to straddle the top of the saturated zone, extending at least 15 feet below the observed saturated zone. A graded clean silica sand filter pack was emplaced in the annulus of the screened interval from the total depth of the soil boring to approximately 2 feet above the top of the screened interval. A hydrated bentonite seal was placed above the sand filter pack.

On October 16, 2015, static water levels from ground surface were measured at 48.00 ft bgs at MW-1, 51.48 ft bgs at MW-2, 58.17 ft bgs at MW-3, 49.83 ft bgs at MW-4, and 56.75 ft bgs at MW-5. The average groundwater gradient at the Facility is 0.00086 feet per foot and flow is to the south (Figure 15). In preparing the boring plan for this Facility, surrounding water well reports were reviewed and a generalized cross section was prepared (Figure 16). Based on the generalized cross section A to A', it appears that there are multiple confining clay units below the shallow groundwater bearing unit at the Facility. As shown in Table 9, the surrounding wells are screened at much deeper depths than the on-site monitoring wells, but static water levels range from 30 to 95 ft bgs, indicating a shallow confined groundwater bearing unit. This is consistent with the Beaumont Formation description in Section 21.1 having isolated sand bodies in flood plain muds. The geotechnical sample results are discussed in Section 21.5.

The groundwater data collected from the Facility to date and in the future will be used to establish and present the groundwater flow characteristics at the site, including groundwater elevation, groundwater gradient, direction, flow characteristics, and most likely pathway(s) for potential pollutant migration.

Table 9. Surrounding Well Information

Well ID	Distance to Site Boundary (mile)	Well Depth (ft bgs)	Static Water Level (ft bgs)	Confining Clay Interval (ft bgs)	Screen Interval (ft bgs)
228635	0.49	200	66	101-163	166-186
113203	0.22	307	95	98-120	287-307
8(5)	0.06	160	60	80-110	140-160
53981	0.04	368	70	92-150	379-389
82106	0.16	271	55	105-125	217-267
284690	0.4	216	30	80-100	205-215
66168AA	0.61	143	55	83-134	135-143

21.4 Surrounding Water Wells

Well data for wells within one mile of the site were aggregated from various sources by EDR and presented in the Texas Water Well Report (2015a) and the Texas Oil & Gas Report (2015b). Additional research was conducted by DBS&A personnel using the TWDB's Water Data Interactive viewer to expand the search radius slightly to encompass an area one mile from the site boundary, rather than the site center. Some older wells found in the TWDB groundwater database are identified by an eight-digit well identification (ID) that corresponds to the specific State Well Grid number in which the well is located and the order in which the well was cataloged. Other wells are identified by a five- or six-digit State of Texas Well Report Tracking Number. All other wells have either incomplete well IDs or no ID associated with them and were assigned map IDs by EDR. The present use of groundwater withdrawn from aquifers in the vicinity of the Facility is domestic, irrigation, industrial, and public supply.

There are no active oil or gas wells within the investigative area, although three dry holes and one canceled location were identified by EDR during their records search (EDR, 2015b). These four locations are greater than 0.5 mile from the site.

There are 38 water wells identified by EDR and DBS&A personnel within the investigative area; 22 of the wells are within 0.5 mile of the site, but all are more than 500 feet from the site (EDR, 2015a; TWDB, 2015). Table 10 presents the wells within 1 mile of the site found during the records search.

Geographic coordinates for Map ID 53981 indicate that the well is less than 500 feet from the site. However, these coordinates lack precision, and site visits have not revealed the presence of a well indicated on the map. It is likely that this well is located closer to the building owned by Vital Link.

Geographic coordinates for Map ID 8(5) are not recorded on the well log. The location by street address, as plotted by EDR, is in the middle of I-10. It is highly unlikely that there is a domestic well at that location, and it is safe to assume that the well, if it exists, is greater than 500 feet from the site.

Field observations have not observed any wells within 500 feet of the site.

Table 10. Wells within 1 Mile

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
1	82106[1]	Pencco	0.16	29.776667	–96.072222	135	271	55	I
2	8(1)[1]	David & Terri Windsor	0.13	NR	NR	NR	194	30	D
3	37049[1]	Vital Link	0.25	29.774242	–96.070847	NR	389	70	P
4	53981[1]	Vital Link	0.04	29.774167	–96.074722	NR	368	70	I
5	8(3)[1]	Vital Link	0.18	29.775425	–96.071541	NR	401	81	P
6	6616807[1]	Rendrag, Inc.	0.13	29.774443	–96.072777	150	248	54	I
7	8(5)[1]	Bob Young	0.06	NR	NR	NR	160	60	D

Table 10. Wells within 1 Mile (continued)

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
8	6616808[1]	Steve Silva	0.23	29.771943	–96.073054	150	78	46	D
9	6616809[1]	Frank Lezak	0.26	29.771943	–96.072221	151	86	35	D
10	U1[1]	I. Zapolac	0.28	NR	NR	NR	80	53	D
11	8(4)[1]	James Ford	0.23	NR	NR	NR	274	NR	D
12	24756[1]	AEM	0.12	29.773056	–96.08	NR	163	52	D
13	6616806[1]	Frank Kucera	0.13	29.773054	–96.081110	150	50	NR	D
14	113203[1]	Adan Chavez	0.22	29.771944	–96.080833	NR	307	95	D
15	38315[1]	Al Konvicka	0.29	29.770556	–96.079444	NR	143	67	D
16	6616804[1]	NR	0.75	29.788055	–96.076110	126	NR	26.55	S
17	396529[1]	Frank Ehon	0.73	29.787222	–96.074167	132	180	35	D
18	175239[1]	Val Eschenberg	0.7	29.786944	–96.074167	NR	167	34	D
19	8(6)[1]	Cliff Jones	0.76	NR	NR	NR	216	27	D
20	66168AA[1]	John Scheffer	0.61	NR	NR	NR	143	55	D
21	284690[1]	Brian Bro	0.4	29.779444	–96.068887	NR	216	30	Ir
22	274817[1]	Brian Bro	0.39	29.774167	–96.068333	NR	218	80	Ir
23	6616811[1]	Vick Boyd	0.49	29.773888	–96.066943	140	300	NR	D
24	6616801[3]	V. L. Boyd	0.84	29.772777	–96.061111	142	100	46.3	U
25	6616802[3]	V. L. Boyd	0.93	29.776388	–96.059444	130	300	38.15	D
26	6616810[1]	Johnny Wells	0.40	29.771666	–96.069443	150	257	52.2	D
27	8(7)[1]	Joseph Manak	0.57	NR	NR	NR	92	50	D
28	66168A[1]	Donald Hamil	0.66	NR	NR	NR	88	48	D
29	8(2)[1]	Adela Hundl	0.82	NR	NR	NR	96	52	D
30	175236[1]	Larry and Cindy Siska	0.65	29.765278	–96.079722	NR	200	64	D
31	66168CC[1]	Charles Mlcak	0.41	NR	NR	NR	86	48	D
32	228635[1]	Larry Siska	0.49	29.767778	–96.081667	NR	200	66	D
33	96325[1]	Apex Stone LLC	0.33	29.773889	–96.085833	NR	240	60	I
34	6616702[1]	Ronnie Ross	0.83	29.774721	–96.094166	150	98	48	D
35	66168K[1]	George Smith	0.65	NR	NR	NR	78	50	D
36	209680[1]	Jose Benitez	0.77	29.782222	–96.091111	NR	220	83	D
37	322099[1]	Jose Arriaga	0.83	29.783056	–96.091111	167	228	91	D
38	10070[1]	Debbie Thomas	0.78	29.785278	–96.088611	NR	140	55	D
39	1[2]	NA - dry hole	0.73	29.7853	–96.0680	—	—	—	—
40	2[2]	NA - dry hole	0.6	29.7737	–96.0650	—	—	—	—
41	3[2]	NA - dry hole	0.77	29.7729	–96.0622	—	—	—	—
42	4[2]	NA - canceled	0.55	29.7712	–96.0667	—	—	—	—

[a] D = Domestic
I = Industrial
P = Public Supply
Ir = Irrigation
S = Stock
U = Unused

Sources: [1] EDR Texas Water Well Report, 2015
[2] EDR Texas Oil & Gas Report, 2015
[3] TWDB Water Data Interactive, 2015

NR = Not reported
NA = Not applicable
— = No well

21.5 Geotechnical Study

During the subsurface investigation, DBS&A personnel advanced Shelby tubes for the collection of geotechnical samples at six intervals. The samples were submitted to the DBS&A Soil Testing and Research Laboratory in Albuquerque, New Mexico and were analyzed for dry bulk density (ASTM D7263), moisture content (ASTM D7263, ASTM D2216), calculated porosity (ASTM D7263), saturated hydraulic conductivity (ASTM D 2434), falling head rising tail (ASTM D5084), particle size analysis, USCS (ASTM) Classification (ASTM D422, ASTM D2487), USDA Classification (ASTM D422, USDA Soil Textural Triangle), Atterberg Limits (ASTM D4318), and visual-manual description (ASTM D2488). Geotechnical reports for samples obtained during the subsurface investigation include tabulated results and are provided in Appendix L.

Undisturbed geotechnical samples could not be collected from the base of soil borings SB-1 and SB-5 due to the center drill rod locking up from flowing sands at SB-1 and the extremely hard nature of the claystone encountered at 87.5 ft bgs at SB-5. However, clay was observed as it adhered to the last hollow stem auger advanced at both locations. At each boring, the clay was described as dry to moist clay with gravel with medium plasticity. The clay and claystone encountered at the terminal depth of the borings are consistent with the information presented in the generalized cross section (Figure 16); this observation confirms the clay confining unit of the uppermost aquifer. In addition, two disturbed bottom samples were collected at soil boring SB-5 from the 84-85 feet and 85-87.5 feet depth intervals. These samples were submitted to the laboratory and analyzed for the geotechnical parameters listed above. Based on the geotechnical laboratory report, the two SB-5 bottom samples indicate very low saturated hydraulic conductivities, which further confirms the aquiclude encountered within the uppermost aquifer. Results of the saturated hydraulic conductivities are summarized in Table 11.

Table 11. Saturated Hydraulic Conductivities

		Method of Analysis	
Sample Identification	K_{sat} (cm/s)	Constant Head Flexible Wall	Falling Head Flexible Wall
SB-1 (6'-8.5') Horizontal	7.3×10^{-3}	X	
SB-1 (12'-14.5') Vertical	1.8×10^{-2}	X	
SB-2 (6'-8.5') Horizontal	1.1×10^{-5}		X
SB-4 (3'-5.5') Horizontal	3.3×10^{-7}		X
SB-5 (6'-8.5') Horizontal	3.37×10^{-7}		X
SB-5 (12'-14.5') Vertical	3.68×10^{-6}		X
SB-5 (84'-85') Disturbed	6.42×10^{-9}		X
SB-5 (85'-87.5') Disturbed	4.08×10^{-9}		X

21.6 Active Geologic Processes

There are no differential subsidence or active geologic processes within ½ mile of the site including faults and/or subsidence in the area of the Facility. The nearest fault is approximately 15 miles northeast of the Facility. Faults are noted on the geologic map (Figure 12), as presented in the GAT sheet prepared by the Bureau of Economic Geology digital data set. Active faults are not known to exist within ½ mile of the property; therefore, the Facility is not required to investigate for unknown faults. There are no areas experiencing withdrawal of crude oil, natural gas, sulfur, etc., or significant amounts of groundwater; therefore, the possibility of differential subsidence or faulting investigation is not required.

Section 22. Groundwater Protection Plan

The Facility has been designed and will be constructed and operated to protect groundwater from impact from the Facility operations. The groundwater protection measures in place include a composite geomembrane liner system underlying the GSS processing area, management practices used in the composting process, and a groundwater monitoring system. Protection of the groundwater includes perched water or shallow surface infiltration.

22.1 Liner and Pad System

Composting and processing operations will be performed within an area constructed specifically for this purpose. To reduce the potential for run-off from the lined area, he composting area will be surrounded on all sides by earthen berms. These berms will also reduce the potential for run-on to the composting pad, minimizing the potential presence of liquids above the liner. Three ramps will be constructed to allow access to the processing pad by vehicles and equipment. The ramps will be elevated above the surrounding ground surface, further preventing run-on to the pad. The composting pad has been designed to slope away from the ramps and toward the stormwater retention pond, preventing run-off from the pad.

A composite liner system will be constructed under the compost pad ~~and stormwater~~ retention pond to provide an equivalent hydraulic conductivity of 1 x 10^{-7} centimeters per second (cm/s) or less. The subgrade will be excavated at least 6 inches below the liner and re-compacted to provide a uniformly compacted finished surface. The liner will include 2 feet of compacted, on-site clay soils, placed in 6-inch lifts, under a 40-mil double-textured HDPE liner. Protective soil over the liner will include 1 foot of on-site sandy soils and a minimum 6-inch layer of base-coarse. A 10-ounce nonwoven geotextile will be installed between the sand and base-coarse to provide soil stability and filtration capacity between the two materials. The fabric will also be a visual warning to scour and will help preserve the life of the underlying geomembrane.

Based on the DBS&A soils testing laboratory report (Appendix L), soil samples representative of on-site clay soils consist of more than 30 percent passing a number 200 sieve and have a liquid limit greater than 30 and a plasticity index greater than 15 as required in TAC 330.339.

22.2 Liner Quality Control Plan

In order to document the construction of the composite liner and subgrade, a Liner Quality Control Plan has been developed as the basis for the type and rate of quality control testing performance for the Liner Evaluation Report (LER) as required in 30 TAC §330.341of this title. This report will include an evaluation of both the soil and geomembrane components of the liner system and will be prepared in accordance with the approved Liner Quality Control Plan. The Liner Quality Control Plan is provided in Appendix M.

All field sampling and testing, both during construction and after completion of the lining, will be performed by, or under the direct supervision of, a qualified professional experienced in geotechnical engineering and/or engineering geology. All liners will have continuous on-site inspection during construction by the professional of record, or his designated representative.

All quality control testing of soil liners will be performed during the construction of the liner. Under no circumstance will any quality control field or laboratory testing be undertaken after completion of liner construction, except for that testing which is required of the final constructed lift, confirmation of liner thickness, or cover material thickness.

All soil testing and evaluation of either in situ soil or constructed soil liners will be complete prior to installing the leachate collection system or, if a leachate collection system is not required, prior to adding the 1 foot of protective cover on the evaluation area.

Soil and liner density will be expressed as a percentage of the maximum dry density and at the corresponding optimum moisture content specified as appropriate by a licensed professional engineer experienced in geotechnical engineering. Upon testing in either the laboratory or at a test pad in the field, the compacted soils must demonstrate a coefficient of permeability no greater than 1×10^{-7} cm/s.

Unless alternative construction procedures have prior written approval by the executive director, all constructed soil liners will be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining.

22.3 Management Practices

Composting operations will be performed to minimize the potential for uncontained free liquids on or off the pad. In the absence of free liquids, the potential for contaminant transport from the composting operations is minimized. Management practices that either contain or minimize free liquids include:

- Containment of all liquid feedstocks in steel, aboveground storage tanks, placed within a bermed spill control area.
- Limitation of feedstock application rates to avoid free liquid formation on the GSS composting pad or approved non-GSS waste composting areas.
- Use of highly sorptive bulking material (i.e., shredded wood and brush).
- The prompt mixing of windrows after feedstock application to maximize absorption of the feedstock liquids.
- Containment of rain falling directly on the GSS composting pad within a lined retention pond.

22.4 Groundwater Monitor System

The groundwater monitoring system is designed to reasonably assure detection of any contamination of the groundwater before it migrates beyond the boundaries of the site. The groundwater monitoring system consists of the five monitoring wells that were installed during the subsurface/groundwater investigation described in Section 21. The groundwater monitoring wells were installed around the perimeter of the processing area (Sheet 3), providing up-, cross-, and downgradient locations, and are screened within the uppermost water-bearing zone observed during drilling and logging activities. Given the construction and placement of the monitoring wells, if groundwater impact were to occur from composting operations, the well system will reasonably assure its detection.

A groundwater sampling program has been developed and is discussed in the Sampling and Monitoring section in Part IV of this application.

Section 23. Facility Closure Plan and Financial Assurance

23.1 Closure Plan Requirements

The following timeline will be used to implement the final closure plan:

1. 90 days prior to the initiation of closure activities, the Operator will:
    a. Submit written notification to TCEQ of the intent to close the Facility and place this notice of intent in the operating record.
    b. Provide a public notice for final closure in the newspaper(s) of largest circulation in the vicinity of the Facility. This notice will provide the name, address, and physical location of the Facility, the permit number, and the last date of intended receipt of waste.
2. 10 days prior to final closure, the Operator will:
    a. Submit a certification of final closure to the TCEQ for approval.
3. Upon TCEQ approval of closure plan certification and date, the Operator will:
    a. Make available an adequate number of copies of the approved final closure plan for public access and review.
    b. Post a minimum of one sign at the main entrance and all other frequently used points of access for the Facility notifying all persons who may use the Facility or site of the date of closing for the Facility and the prohibition against further receipt of waste materials after the stated date.
4. Date of closure, the Operator will:
    a. Terminate operations.

b. Install suitable barriers at all gates to adequately prevent the unauthorized dumping of solid waste at the closed Facility.

5. 180 from date of closure the, Operator will

   a. Complete final closure activities for the Facility in accordance with the approved final closure plan unless additional time is approved in writing by TCEQ.

   b. Submit, if required, a request to the Executive Director for an extension for the completion of final closure activities. The request will include all applicable documentation necessary to demonstrate that final closure will take longer than 180 days, and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the site.

6. 9 days after completion of all final closure activities the Owner will submit to the TCEQ, for review and approval:

   a. A closure report and certification, signed and sealed by an independent Texas Licensed Professional Engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submission will include all applicable documentation necessary for certification of final closure.

   b. Certification and request for post closure maintenance variance.

   c. Request a voluntary revocation of the Facility permit.

7. Upon TCEQ approval of the final closure certification, the approved certification will be placed in the operating record.

23.2 Operation Termination Requirements

The following steps will be taken to terminate operations.

1. Place barriers to prevent access for disposal of solid wastes at the Facility;

2. Cease accepting all solid waste deliveries;

3. Process materials on hand;

4. Deliver products on hand to vendors or customers;

5. Terminate all operations; and

6. Engage the services of a qualified Texas Licensed Professional Engineer, who will:

   a. Inspect the site for signs of possible releases and review past release records;

   b. Implement a sampling and analysis plan;

   c. Implement a site cleanup or mitigation plan;

d. Certify removal and disposal of residual materials, decontamination of equipment and processing/storage areas, and mitigation results;

e. Prepare or review and seal the closure report; and

f. Submit a signed and sealed certification verifying that final closure has been completed in accordance with the approved final closure plan.

23.3 Procedure for Closure of Facility by Operator

After operation termination, the closure of the Facility would be conducted by the Operator in the following sequence.

23.3.1 Removal

The Operator will process material on hand and mitigate residual materials with the following protocol:

1. Empty liquid feedstock storage tanks;
2. Remove sludge from storage/tanks;
3. Remove materials and equipment from GSS processing and bulk material storage areas;
4. Sample and analyze soil and groundwater in accordance with the closure sampling and analysis plan (CSAP) presented in Section 23.4;
5. Transport liquid and/or sludge to a TCEQ-approved disposal or recycling facility; and
6. Dispose or recycle chemicals in storage based on manufacturers' recommendations or results of analytical characterization in accordance with the CSAP.

23.3.2 Decontamination

1. Power wash tanks, hard plumbed pipes, and exposed equipment with a surfactant/water solution;
2. Circulate the surfactant/water solution through piping and ancillary equipment;
3. Rinse decontaminated units and areas, as necessary, with a power wash unit containing water until all surfactant/water solution and residuals are removed;
4. Collect wash waters and any remaining materials and place in appropriate transport containers;
5. Sample and analyze wash down waters and any remaining materials in accordance with the CSAP; and
6. Transport material(s) to an authorized disposal or re-use facility.

23.4 Closure Sampling and Analysis Plan

The following is a preliminary CSAP based on proposed operations and chemical use.

23.4.1 Sampling

23.4.1.1 Residual Materials

Representative composite grab samples will be collected for wash water and residual materials.

Eight to ten individual grab samples will be collected from each matrix to prepare a composite sample of each matrix.

Each matrix composite sample will be analyzed as describe in the CSAP, as appropriate.

23.4.1.2 Chemicals in Storage

Safety Data Sheets (SDS) will be used to characterize chemicals in storage at the time of closure. To characterize chemicals lacking SDS sheets, samples will be collected and analyzed.

23.4.1.3 Soil and Groundwater

Soil and groundwater will be sampled based on evidence of releases and/or visual impacts to soil and groundwater using the following scenarios:

No release evident scenario. If no releases are evident, the following sampling protocol will be implemented:

1. Collect a minimum of four surface soil samples from native material at a minimum depth of 1 foot bgs from the GSS processing area;
2. Check for visual impacts at minimum depth; and
3. If visual impacts are absent, then sampling is concluded.

Release evident or visual impact scenario. If a release is evident or visual impacts are present, the following sampling protocol will be implemented:

1. Collect samples based on evidence of past releases or visual impact observations;
2. Collect subsurface and groundwater samples based on the presence of visual impacts;
3. Sample at 1 foot intervals until visual impact is no longer evident;
4. Conduct analyses described in the CSAP; and
5. Conduct additional analyses based on the nature of chemicals stored in the vicinity of the release.

23.4.2 Analysis

Wash water and residual materials samples, at a minimum, will be analyzed for pH, hazardous metals as defined by the Resource Conservation and Recovery Act (RCRA), and total petroleum hydrocarbons using methods approved by TCEQ or U.S. Environmental Protection Agency. A Laboratory certified to analyze RCRA metals and total petroleum will be used to analyze samples off-site.

23.5 Reporting

The following will be submitted to TCEQ within 10 days of final closure activities:

- Closure report;
- Certification verifying that final closure has been completed in accordance with the approved final closure plan;
- Certification that the Facility is not subject to post-closure care maintenance requirements for MSW management units and request for variance; and
- Request for voluntary revocation of the Facility permit

A qualified Texas Professional Engineer will prepare or review and sign and seal the closure report and certifications. The closure report and certification will include all applicable documentation necessary to demonstrate that closure of the Facility, with no post-closure maintenance, is sufficient to protect human health and the environment and complies with the approved closure plan.

23.6 Procedure for Closure of Facility by an Independent Third Party

The closure of the Facility would be conducted by an independent third party in the following sequence, if required:

1. Characterize contents in the liquid feedstock s tanks, processing equipment, and processing areas.
2. Remove and transport liquid and solids to an appropriate disposal or recycling facility.
3. Characterize sludge from tank bottoms and equipment and transport to an authorized off-site waste disposal facility.
4. Pressure wash empty tanks, hard plumbed pipes, and other equipment with a surfactant/water solution.
5. Decontaminate piping and equipment by circulating the surfactant/water solution through the piping and ancillary equipment.
6. Rinse the tanks and equipment, as necessary, using a pressure washer until all surfactant and residuals are removed.
7. Characterize wash water and transfer to an appropriate transport container for disposal or recycling at an off-site facility.

8. Characterize and dispose or recycle remaining chemicals and equipment at the Facility.
9. Observe the site for signs of possible releases.
10. Sample and analyze soil and groundwater as described in the CSAP.
11. Prepare closure report for submission to TCEQ. The closure report must be prepared or reviewed and sealed by a qualified professional engineer.

The development of an independent third party closure plan should not be construed as the Operator's authorization for voluntary third party closure.

23.7 Financial Assurance

The closure cost estimate included as Appendix N was prepared under the direction of a qualified professional engineer licensed in the State of Texas who has affixed the Professional Engineer's Seal to the cost estimate. The current cost of the anticipated closure is estimated to be $393,981.

In accordance with 30 TAC §37.31, financial assurance documentation will be submitted to the TCEQ at least 60 days after the permit is signed by the executive director or commission.

The operator will review and adjust the Facility's closure cost annually to compensate for inflation. The closure cost will be verified that the current active areas match the areas on which the closure cost estimates are based. If for some reason, the closure cost estimate changes (either increases or decreases) at any time during the life of the Facility, changes to the final closure plan and financial assurance will be made and detailed justification will be provided to the TCEQ. Changes to the closure cost estimate and the financial assurance may be made under a permit modification. Within 10 days prior to final closure, the Operator will submit a certification of final closure to the TCEQ for approval.

References

Ashworth, J.B. and J. Hopkins. 1995. *Aquifers of Texas*. Texas Water Development Board Report 345, November 1995.

Baker, E.T., Jr. 1979. *Stratigraphic and hydrogeologic framework of part of the coastal plain of Texas.* Texas Department of Water Resources Report 236, July 1979.

Daniel B. Stephens & Associates, Inc. 2015. *Revised boring plan for proposed permit application for SouthWaste Disposal, LLC., Sealy Facility; Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas*. Prepared for Texas Commission on Environmental Quality. October 14, 2015.

Environmental Data Resources (EDR). 2015a. *The EDR TX water well report: Proposed Sealy Composting Facility*. September 30, 2015.

EDR. 2015b. *The EDR TX oil & gas report: Proposed Sealy Composting Facility*. September 30, 2015.

Fisher, W.L. 1974. Geologic Atlas of Texas, Seguin Sheet. University of Texas-Austin, Bureau of Economic Geology.

Texas Department of Transportation (TxDOT). 2011. *Hydraulic design manual, rainfall intensity-duration-frequency coefficients for Texas counties*. October 2011.

Texas Water Development Board (TWDB). 2006. *Report 365: Aquifers of the Gulf Coast of Texas*. February 2006.

TWDB. 2015. Water data interactive groundwater data viewer. <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer> Accessed October 2015.

U.S. Geological Survey. 2004. *Atlas of depth-duration frequency of precipitation annual maxima for Texas*. June 2004.

W&M Environmental Group, LLC. 2015. *Biological assessment: Proposed Sealy Compost Facility*. October 30, 2015.

Wurbs, R.A. and W.P. James. 2002. *Water resources engineering.* Prentice-Hall. 2002. 838 p.

Young, S.C. 2015. *Investigation of declining water levels in shallow wells located near Lissie, Texas*. Prepared for Coastal Bend Groundwater Conservation District. Intera Geoscience & Engineering Solutions, Austin, Texas. February 2015.

Young, S.C., Ewing, T. Hamlin, S., Baker, E., and D. Lupton. 2012. *Updating the hydrogeologic framework for the northern portion of the Gulf Coast Aquifer.* Texas Water Development Board Unnumbered Report. June 2012.

Part IV

Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a Composting Facility

PART IV

Application Submittal Date: November 16, 2015

Revised: May 27, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN:	603436114
Owner/Operator:	SouthWaste Disposal, LLC.
Address:	9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024
Telephone:	866-413-9494
Email:	tcox@southwaste.com
Fed Tax ID:	203596390

Preparer Information

Firm:	Daniel B. Stephens & Associates, Inc. **(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)**
Preparer:	Benjamin Camacho
Engineer:	Thomas Golden, P.E.
Address:	4030 West Braker Lane, Suite 325, Austin, Texas 78759
Telephone:	800-933-3105
Email(s):	bcamacho@dbstephens.com & tgolden@dbstephens.com

Table of Contents

Part IV Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a composting facility. This document provides guidance from the design engineer to site management and operating personnel in sufficient detail to enable day-to-day operations in a manner consistent with the engineer's design.

Section 24. Personnel 55
24.1 Operator in Charge 55
24.1.1 Training 55
24.1.2 Duties 55
24.2 Laborers 55

Section 25. Equipment 56
25.1 Equipment Type, Function, Inspection, and Maintenance 56

Section 26. Production Processes ..... ~~57~~**56**
26.1 Control of Unloading for Unauthorized Materials ..... ~~57~~**56**
26.2 Material Processing 57
26.2.1 Liquids 57
26.2.2 Solids 58
26.2.3 Composting 58
26.3 Waste Storage and Disposal 59
26.3.1 Non-Hazardous Waste 59
26.3.2 Hazardous Wastes 59
26.4 Product Distribution ..... ~~59~~**60**

Section 27. Alternate Disposal 60
27.1 Non Standard Products 60

Section 28. Pollution Prevention Plan 60
28.1 Unauthorized Material 60
28.2 Sanitation and Litter 61
28.2.1 Facility Generated Wastes 61
28.2.2 Storage Requirements ..... ~~61~~**62**
28.2.3 Materials along the Route to the Facility 62
28.2.4 Work Area Sanitation 62
28.2.5 Employee Sanitation Facilities 62
28.2.6 Control of Windblown Material 62
28.2.7 Road Maintenance ..... ~~62~~**63**
28.3 Ventilation and Odor Control 63
28.4 Overloading and Breakdown 63
28.4.1 Design Capacity 63
28.4.2 Equipment Failures ..... ~~63~~**64**
28.4.3 Back Up Processing or Disposal 64
28.5 Final Product Use 64

Section 29. Vector Control Plan ..... ~~64~~**65**
29.1 Inspection and Monitoring ..... ~~64~~**65**
29.2 Facility Program Evaluation ..... ~~65~~**66**

29.3 Records and Documents ~~65~~**66**

Section 30. Security ~~66~~**67**
30.1 Facility Access ~~66~~**67**

Section 31. Emergency Action Plan ~~67~~**68**
31.1 Spills ~~67~~**68**
31.2 Fire ~~67~~**68**
31.3 Medical ~~67~~**68**
31.4 Adverse Weather ~~67~~**68**
31.5 Health and Safety Training ~~68~~**69**

Section 32. Fire Prevention and Control Plan ~~68~~**69**
32.1 Fire Response ~~68~~**69**
32.2 Fire Prevention ~~68~~**70**
32.3 Fire Control ~~69~~**71**
32.4 Staff Training ~~70~~**71**

Section 33. Spill Containment and Contingency Plan ~~70~~**72**
33.1 Leak Detection ~~70~~**72**
33.1.1 Storage Tanks ~~70~~**72**
33.1.2 Liner ~~71~~**72**
33.2 Spill Prevention and Control ~~71~~**72**
33.2.1 Receiving and Liquid Feedstock Transfers ~~71~~**72**
33.2.2 Sanitation ~~71~~**72**
33.3 Spill Emergency Actions ~~71~~**73**

Section 34. Recordkeeping and Reporting Requirements ~~72~~**73**
34.1 Recordkeeping ~~72~~**73**
34.2 Signatory ~~73~~**74**
34.3 Reporting Requirements ~~73~~**75**
34.3.1 Documentation and Reporting of Final Product Testing ~~73~~**75**
34.3.2 Annual Reporting ~~74~~**75**

Section 35. Sampling and Monitoring ~~74~~**76**
35.1 Facility Inspections ~~74~~**76**
35.1.1 Inspection Locations and Procedures ~~74~~**76**
35.1.2 Reporting Requirements ~~75~~**76**
35.2 Odor Audit/Investigation ~~75~~**77**
35.3 Compost ~~76~~**78**
35.3.1 Sampling and Analysis for Maturity ~~76~~**78**
35.3.2 Sampling and Analysis of Final Product ~~77~~**79**
35.4 Groundwater ~~79~~**80**
35.4.1 Background Samples ~~79~~**80**
35.4.2 Annual Samples ~~80~~**81**
35.4.3 Analytical Methods ~~80~~**82**
35.5 Data Precision and Accuracy ~~80~~**82**
35.6 Documentation ~~80~~**82**
35.7 Reporting Requirements ~~81~~**82**

Section 36. Quality Assurance and Quality Control ~~82~~**83**
36.1 Sampling, Monitoring, and Inspection ~~82~~**83**

36.1.1 Records Control .... ~~82~~**83**
36.1.2 Matrix Spikes and Matrix Spike Duplicates .... ~~82~~**84**
36.1.3 Method Blanks .... ~~83~~**84**
36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates .... ~~83~~**85**
36.1.5 Surrogates .... ~~83~~**85**
36.1.6 Data Reduction, Evaluation, and Review .... ~~84~~**85**
36.1.7 Matrix Interferences and Sample Dilutions .... ~~84~~**85**
36.1.8 Chain of Custody .... ~~84~~**86**
36.1.9 Sample Collection and Preparation .... ~~85~~**87**
36.1.10 Analytical Method Detection Limits and Method Performance .... ~~86~~**87**
36.1.11 Instrument and Equipment Calibration and Frequency .... ~~86~~**88**
36.1.12 Laboratory Case Narrative .... ~~87~~**89**
36.2 Final Product Compost QA/QC .... ~~88~~**90**

References .... ~~89~~**90**

List of Tables

Table 12. MSW Disposal Limits 61

Table 14. Facility Inspections .... ~~74~~**76**

Table 15. Final Product Analytical Requirements and Standards .... ~~77~~**79**

Table 16. Groundwater Sampling Parameters .... ~~79~~**81**

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality

°F	Fahrenheit degrees
FM	Farm to Market Road
FOG	fats, oil, and grease
ft	feet
gpm	gallons per minute
GTW	grease trap wastes
hp	horse power
in	inch(es)
kips	kilo pounds per inch
LCN	laboratory case narrative
MCL	maximum contaminate level
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OIC	Operator In Charge
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance and Quality Control Plan
RCRA	Resource Conservation and Recovery Act
ROM	reduction in organic matter
SDS	safety data sheet
SC-SM	silty, clayey sand
SIC	Standard Classification

SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
TCLP	toxic characteristic leaching procedure
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TWDB	Texas Water Development Board
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 24. Personnel

24.1 Operator in Charge

The operator in charge (OIC) will be present at the Facility when visitors or transporters are present. Deliveries will be scheduled by the OIC.

24.1.1 Training

The following training program will be developed for each OIC at the Facility:

- Identification of material sources and characteristics and manifests;
- Composting operations management of the windrows and feedstock;
- Sampling, inspection, and monitoring;
- Heavy equipment operation;
- Emergency response actions of this plan; and
- Waste acceptance and handling.

24.1.2 Duties

The OIC will be responsible for, at least, the following (new responsibilities will be added to this list as needed):

- Perform day to day operations;
- Schedule waste acceptance and processing;
- Train and supervise staff;
- Implement and supervise emergency response actions and spill clean-up;
- Implement safety and security;
- Complete manifests and return the generator copy, as required, within the stipulated time frame; and
- Sample and monitor feedstocks and products.

24.2 Laborers

Laborers will work under the supervision of the OIC. Laborers will perform day-to-day operations under the supervision of the OIC. A training program for laborers will be developed to include the following:

- Day to day operations;
- Composting operations, including operating equipment, mixing, and tilling;
- Spill reporting;
- Security and safety procedures;
- Pollution prevention;
- Emergency response actions;
- Proper use of chemicals;
- Personal protection equipment; and
- Heavy equipment operation.

Section 25. Equipment

25.1 Equipment Type, Function, Inspection, and Maintenance

The primary pieces of equipment used in the composting process are front-end loader(s), a self-propelled tiller, vacuum truck(s), aboveground storage tanks, a mobile chipper/grinder, and a mechanical screen. At least one of each piece of equipment is required to perform the composting process.

The aboveground storage tanks will be used to store liquid feedstocks until needed in the composting process. Bulking material will either delivered to the Facility already chipped and shredded from off-property sources, or it may be brought to the Facility in raw form and chipped and shredded on the property. A chipper/grinder will be present at the Facility to produce bulking material before it is placed on the processing areas. The front-end loader will be used to build and maintain the stockpiles and windrows and to move compost materials within the processing area. Vacuum trucks, or equivalent, will be used to apply feedstock to the windrows. The self-propelled tiller will be used to mix the bulking material and feedstocks within the windrows. The mechanical screen will be brought to the Facility on an as-needed basis to remove undesirable and oversized material from the mature compost.

Equipment will be inspected according to the standards outlined in Table 7, included in Part III, Section 18.2 of this application. Additional inspection and maintenance will be added to Table 7 as equipment is added.

Inspection, repairs, and maintenance records will be maintained in a weekly log.

Section 26. Production Processes

26.1 Control of Unloading for Unauthorized Materials

Only the designated feedstocks will be accepted at the Facility. The following will be implemented to control the unloading of un-compostable material (unauthorized materials):

- Feedstock will be received by authorized transport vehicles only.
- A sign will be placed at the property entrance that indicates the type of facility, permit number, standard hours of operation, and allowable feedstocks.
- Delivery trucks entering the property are inspected by the OIC for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are refused. In the event that unprocessable, prohibited, or unauthorized materials is discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized municipal solid waste facility.
- Coarse straining may be used to remove non compostable materials in liquid feed stock.
- Manifests or Bill of Lading are examined for each load to ensure that they describe the load's waste source, contents, and volumes.
- The OIC will confirm that all haulers have the appropriate licenses or registrations.

26.2 Material Processing

26.2.1 Liquids

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). The estimated quantities of grease trap, septage, and dairy/food (including meat and fish) wastes to be received are 225,000, 12,500, and 12,500 gallons per operating day, respectively.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. **The maximum amount of feedstock stored on-site at any one time will not exceed 252,000 gallons (the combined capacity of the storage tanks).** No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front-end loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

26.2.2 Solids

The OIC will supervise the delivery of bulking material and chemicals and will direct deliveries to the appropriate storage area. Bulking material will be inventoried daily to ensure an adequate amount is on-site to cover or process the feedstock. **Record inspections and volume of bulking material will be recorded on the weekly log.**

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the property. **An estimated 111 tons of chipped bulking material will be received daily. The maximum amount of bulking material stored on-site at any one time will not exceed 8,000 tons.** Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Figure 2). A chipper/grinder will be present at the property to chip and grind raw bulk material. The grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

- Bulking materials
  - Remove solids from the dewaterer onto the intermediate transfer station where it is inspected for un-compostable material.
  - Divert un-compostable material to the waste storage area.
  - Load compostable material with bulking material in composter or moved to the Feed stock storage area for accumulation.
  - Cover solids with bulking material if there is a potential for odor production.
- Receiving solids
  - Receiving solids are materials with less than 50 percent moisture and bulking materials. Receiving solids will be stored in the feedstock holding area.
  - Cover solids that may attract vectors or produce orders with bulking material and process within 72 hours.
  - Limit materials that have a potential for spontaneous combustion to storage depth of 4 feet.
  - Load solids and bulking material into the in-vessel composter at 40 percent moisture.

26.2.3 Composting

Feedstocks will be applied to the windrows using a vacuum truck, or equivalent, equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material. **Feedstock and bulking material will not exceed the capacities described above. The maximum and average time the feedstock and bulking material will remain on the composting pad is 90 days. The maximum and average processing time will be 90 days, the time required for a compost windrow to reach maturity.**

Once tilled, the windrows will be monitored and measurements will be taken daily to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content is evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the **compost pad** retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

26.3 Waste Storage and Disposal

26.3.1 Non-Hazardous Waste

Non-hazardous solid wastes will be stored in a dumpster near the maintenance shop area. Non-hazardous wastes will be transported and disposed of at a permitted landfill on a minimally weekly basis, more often to prevent nuisance conditions.

26.3.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system. In the unlikely event that hazardous material does accumulate at the Facility, a "One-Time Waste Shipment" registration will be applied for. Hazardous waste will be segregated from non-hazardous waste and transported and disposed at a permitted hazardous waste facility.

26.4 Product Distribution

Under the proposed variance, storage of finished Grade 1 or Grade 2 compost (not Waste Grade) will be placed on an unlined portion of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 35.3.1 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished material is intended for use in landscaping, vegetable gardens, and similar uses; therefore storage on the unlined ground should not present any potential for damage or impact to groundwater resources.

Currently, compost will be sold only in bulk form. At some time in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a font-end loader. The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. **The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted MSW facility or sold only to commercial users and labeled as not for use at residences or child-care facilities.** Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site).

Section 27. Alternate Disposal

27.1 Non Standard Products

Compost that does not meet the compost Grade 1 or Grade 2 standards will be transported to and disposed of at a permitted landfill.

Compost characterized as hazardous waste will be transported to and disposed of at a permitted hazardous waste facility.

Non-compostable material will be transported to a permitted landfill.

Section 28. Pollution Prevention Plan

28.1 Unauthorized Material

The control of unauthorized material entering the Facility will be enforced by implementing the following:

- At least one employee will be on-site during receiving hours to inspect each delivery of feedstock or bulking agents to ensure that no unauthorized or prohibited material is incorporated into the feedstock.
- Waste unloading will be confined to designated areas, and signs will be maintained that indicate where vehicles unload.
- Traffic will be directed to use only gravel roads. Gates will be locked when not accepting waste. Transporters' licenses will be checked at the Facility entrance.
- Solid waste that will cause or may cause problems in maintaining full and continuous compliance will not be accepted.
- Unloading of waste in unauthorized areas will be prohibited.
- Waste deposited in an unauthorized area will immediately be removed and disposed of properly. Prohibited waste will immediately be returned to the transporter or generator of the waste.

28.2 Sanitation and Litter

28.2.1 Facility Generated Wastes

Non-compostable material, plastics, and metal aggregate found in the feedstock will be transferred to the waste holding area and transferred to a permitted municipal solid waste (MSW) landfill. Wastes will be limited to 1.5 percent of dry weight of solids.

The dumpster will be emptied at an interval that would prevent nuisance conditions but at least weekly. ~~Wastewaters~~**Septage** generated by ~~a~~ **the F**acility**'s septic tank during routine septic maintenance and cleaning** will be processed as feedstock.

~~Chemicals used during w~~**W**ashing activities **will be performed using freshwater and** will not interfere with the feedstock processing, feedstock application, or final compost grade.

~~Sludge~~ **The Facility's septic sludge** will be recycled and processed as feedstock.

Septic sludge ~~Nonstandard sludge and composts~~ passing the Paint Filter Liquids Test, (United States Environmental Protection Agency (EPA) method 9095) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846, September 1986) ~~are~~ **is** acceptable at MSW landfills. If for some reason **septic sludge**~~nonstandard sludge and composts~~**cannot be processed as feedstock** ~~are being disposed of at an off-site permitted landfill~~, the **sludge**~~waste~~ will be screened using a Paint Filter Liquids

Test **prior to disposal at an off-site permitted landfill**. ~~Additionally~~**In addition to the Paint Filter Liquids Test**, ~~the nonstandard sludge and composts~~**sludge disposed at an off-site MSW facility** will not exceed the standards presented in Table 12.

Table 12. MSW Disposal Limits

Contaminant	Total Limit (mg/Kg)	TCLP Limit (mg/L)
Benzene	10	0.5
Lead	30	1.5
Total petroleum hydrocarbons (TPH)	1,500	NA

mg/Kg = Milligrams per kilogram
TCLP = Toxicity characteristics leaching procedure'
mg/L = Milligrams per liter

Septic ~~S~~sludges ~~and composts~~ exceeding these limits will not be disposed in MSW landfills. ~~Nonstandard~~ **Septic** sludges and composts that are non-hazardous will be disposed at a MSW landfill with dedicated Class 1 solid waste cells. Sludges and composts that are characterized as a hazardous waste will be sent to an authorized treatment, storage, or disposal facility for further processing or disposal.

28.2.2 Storage Requirements

Non-hazardous solid waste will be stored in covered dumpsters.

Liquid feedstock will be pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas.

Haulers and generators will be responsible for storage and transportation of waste in a safe manner prior to delivery to the Facility.

28.2.3 Materials along the Route to the Facility

Vehicles hauling liquid feedstock to the Facility will consist of an enclosed tank hold to effectively secure the load to prevent the escape of any part of the load by blowing or spilling. Vehicles hauling bulking material will be equipped with a tarpaulin, net, or other means to effectively secure the load.

Signs will be posted to direct materials to proper storage areas and to prohibit unauthorized materials or disposal.

Offenders will be reported to proper law enforcement officers or the TCEQ. Surcharges will be charged for unauthorized dumping.

28.2.4 Work Area Sanitation

Potable water will be provided to the Facility. Water connections will be provided with a back flow check valve to prevent cross contamination. This connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will periodically be used to remove residuals not removed with the more conservative cleaning methods. The owner/operator may hire a contracting company to perform the pressure washing, as needed.

28.2.5 Employee Sanitation Facilities

Potable water and sanitary facilities will be supplied for employees and visitors.

28.2.6 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material used at the Facility consists of chipped and shredded wood and vegetative matter that is not susceptible to being windblown. The Facility does not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows is not performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and well-tuned and serviced at manufacturers' recommended service schedules.

Windblown material and litter will be collected and placed in a waste container as necessary, and at least once per day on days that the Facility is in operation.

28.2.7 Road Maintenance

If applicable, the county road servicing the Facility will be swept as needed.

On-site roads and paved areas will be repaired and graded to minimize depressions, ruts, and potholes. On-site roads and paved areas will be watered to control dust.

28.3 Ventilation and Odor Control

An odor audit will be completed daily. If detected odors are creating a nuisance, then an odor investigation will be conducted. The protocol for the audit and investigation is detailed in Section 35.2.

Odors will be minimized through the use of best management practices (BMPs), including:

- Storing liquid feedstocks in enclosed aboveground storage tanks;
- Suspending application of feedstocks during high winds;
- Using adequate bulking material, and
- Turning or tilling bulking material immediately after feedstocks are applied.

If the odor investigation indicates that the compost is the source of the odor, turning rates for the compost will be increased and, if needed, production method modifications will be made, such as adding a layer of bulking material on top of the composted material.

Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the Facility OIC will suspend odor-producing operations until the nuisance is abated.

28.4 Overloading and Breakdown

28.4.1 Design Capacity

The design capacity of a processing will not be exceeded during operation. The Facility will not accumulate waste in quantities that cannot be processed within a time frame that will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional waste will not be received until the adverse conditions are abated.

28.4.2 Equipment Failures

Equipment that has failed will be promptly repaired to minimize disruption of normal operations. The necessary equipment to perform normal operations is commonly available for rent. In the event that any piece of equipment cannot be repaired in a timely fashion, the necessary equipment will be rented from a local supplier. In addition, the surplus tankage volume on-site would typically allow the continued acceptance and storage of feedstocks during equipment down time.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the Facility will restrict the receiving of waste. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated waste from the Facility and transport it to an approved backup processing or disposal facility.

The OIC will refuse wastes or divert wastes to a permitted landfill or processing/disposal facility if processing or disposal procedures for the waste becomes inoperable for periods exceeding 24 hours or if the volume of feedstock within the storage tanks approaches maximum capacity.

28.4.3 Back Up Processing or Disposal

Backup processing facilities include landfills permitted to take liquid wastes and wastewater treatment systems that accept the typical wastes accepted at the Facility. A list of wastewater treatment plants (Wets), MSW processing facilities, and landfills that will accept wastes will be maintained at the Facility.

28.5 Final Product Use

The anticipated final product grade of all compost is Grade 1. The intended final use of the Grade I composted materials is as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed at a permitted MSW facility, or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of a voucher provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

- **For Grade I Compost: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."**
- **For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."**
- **Feedstocks from which the compost was derived (grease trap waste, etc.) will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.) The label will identify one or more of the following general descriptions of feedstock:**
    - **Source-separated organic materials;**
    - **Source-separated meat, fish, or greases;**
    - **Municipal sewage sludge; or**
    - **Grease trap waste.**

Section 29. Vector Control Plan

This Facility controls vectors that include rodents, insects, birds, scavenging animals, bacteria, and viruses through the following vector control (VC) program.

The locations in or around the Facility where vectors maybe problematic are feedstock storage, processed material storage, final product storage, and surrounding landscapes.

29.1 Inspection and Monitoring

Weekly inspections: The OIC or designee will perform an inspection weekly to identify problems and corrective actions needed to prevent and/or manage vector infestations. The OIC will plan and schedule corrective actions.

For current, recent, or likely vector infestations, a weekly monitoring program to detect vector infestations may be implemented as follows:

- Rodents: Baited rodent traps will be placed at the maintenance shop and office and will be checked and emptied as needed.
- Insects: Sticky cardboard monitors will be used to monitor for ants and cockroaches at the maintenance shop and office, as needed.
- All other vectors: Weekly monitoring by visual inspection will be performed by designated staff indoors and outdoors.
- Vector identification: When vectors are detected, the specific identification of the vector will be obtained using professional resources, as needed. The OIC will consult with professional resources to determine methods that will control vectors without impacting the quality of the final products.

Vectors will be controlled through the use of BMPs, including:

- No storage or acceptance of unapproved wastes;
- The immediate incorporation of feedstocks into the bulking material or their storage in steel storage tanks until they are used;
- The use of a selected group of microbes, fungi, yeast, molds, and enzymes in the composting process that accelerate decomposition rate of the feedstocks and that also deter the reproduction of flies and fly larvae;
- A 25-foot vegetative buffer surrounding the processing area will be mowed to reduce habitat of vectors.
- Along with sanitation and maintenance actions to eliminate food, water, shelter, and entryways for vectors, traps will be used to reduce vectors when practicable and effective.
- The maintenance of a temperature of at least 55 degrees centigrade in composting materials which discourages pathogen growth; and
- The immediate cleanup of spills.

29.2 Facility Program Evaluation

The Facility VC plan will be evaluated every at least once a year. The OIC will consult with professional resources to evaluate the effectiveness of the VC program and to develop improvements as needed.

The Facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the Facility or contract with a professional service provider. **The Facility will not apply fungicides, herbicides, insecticides, or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents, or on the Hazardous Substance List as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Facility will also not**

incorporate pesticides into feedstocks, in-process materials, or processed materials. ~~Pesticides~~ **Authorized fungicides, herbicides, insecticides, or other pesticides** would be applied in accordance with manufacturers' instructions and in conformance with applicable federal, state, and local regulations.

29.3 Records and Documents

A weekly log will be kept on file by the OIC, or designee, and will include:

- Vector inspection results;
- Applications of pesticides, including type, brand, and purposes; and
- Vector activity sightings, including identification of the vector (if known), number seen, other evidence (such as animal droppings), date, time, and location.

Section 30. Security

30.1 Facility Access

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials, and scavenging. The following measures will be implemented:

- Unauthorized access will be prohibited.
- The Facility will be enclosed with fencing and vehicle access will be controlled through a locked entry gate.
- No trespassing and notification signs will be maintained around the perimeter of the Facility.
- All truck traffic must proceed directly to the material unloading area and supervised by the on-site staff.
- **The facility will have a sign at the entrance indicating the type of facility, the permit number, hours of operation, and the allowable feedstocks.**
- Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5-miles per hour. Parking will be allowed only in designated areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance, and all vehicles will be closely monitored.
- The Facility business hours are Monday through Saturday, 7:00 a.m. to 6:00 p.m. During these times, the Facility is open to sell compost. Feedstock receiving, off-loading, loading, and processing preparation will be limited to **7:30 a.m. to 5:30 p.m. during the**

months of September through March and 7:00 a.m. to 7:00 p.m. during the months of March through September.~~daylight hours~~. Composting operations will sometimes be performed outside those hours as required by weather or other factors.

- Security lighting will be provided in the vicinity of the Facility entrance and office trailers.
- The entrance/exit gates will be secured when the Facility is not operational. After-hours access will be allowed only with prior arrangement with the Facility manager.
- Security personnel will be present on-site outside of operating hours. Security personnel will be made aware of the site hazards and will be provided the list of emergency contact information.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and will be noted in the Facility weekly log.
- Facility personnel will coordinate with local law enforcement officials (i.e., police/sheriff, highway patrol, emergency medical corps units, fire department, and utility emergency teams) in the event of any emergency situation.

Section 31. Emergency Action Plan

The following plans will be implemented in each emergency.

31.1 Spills

Spills at the Facility will follow steps outlined in the Spill Containment and Contingency Plan described in Section 33.

31.2 Fire

The OIC or designee will perform the following:

- Attend to the immediate safety of personnel and visitors.
- Call 911 and report any fires. All staff will carry cellular phones which will be used to contact emergency assistance.
- If the fire is small and localized, control the spread of the fire.
- If needed, use a loader, bull dozer, or other earth moving equipment to create a fire break or extinguish small fires with dirt.
- The local fire response has equipment and experience to fight rural fires.

31.3 Medical

The OIC or designee will perform the following:

- See to the immediate safety of the injured person(s), personnel, and visitors.
- If the injury is not critical and only requires first aid, first aid will be applied.
- Call 911 and report the medical emergency, if needed. All staff will carry cellular phones which will be used to contact emergency assistance.
- MSDS sheets will be provided in the event of a chemical exposure.

31.4 Adverse Weather

Adverse weather includes tornados, lightening, and high wind conditions. In the event of adverse weather conditions, the OIC will perform the following:

- Receive advance notification from the local weather station as to the extent and nature of the impending weather emergency.
- Relay emergency actions required to staff and visitors.

31.5 Health and Safety Training

Facility personnel will be trained in the Facility's health and safety plan to include required OSHA training. The OIC will assess training needs and develop a training program to meet regulatory requirements.

Section 32. Fire Prevention and Control Plan

32.1 Fire Response

The Sealy Fire Department and San Felipe- Frydek Volunteer Fire Department will receive Tier I reports that list the amount and types of stored materials on a facility map, annually. Additionally, SouthWaste will provide these departments with a description of the nature of the Facility and its location, as well as a copy of this Fire Prevention and Control Plan.

Staff will attempt to control small fires using rural firefighting techniques. Staff will call 911 if the fire is too large to control.

Staff may install fire breaks during fires to reduce off-site migration of the fire. Fire breaks generally consist of plowed areas around fire perimeter or perimeter fencing.

Equipment for staff response to fires consists of fire extinguishers, area soil, and front-end loader.

In the event of a fire with visible flames, SouthWaste will immediately notify the local fire department. Emergency contact information is provided in Table 13.

Table 13. Emergency Contact Information

Agency	Emergency Phone Number	Non-Emergency Phone Number
Sealy Fire Department 1207 Highway 90 W Sealy, TX 77474	911	(979) 885-2222
San Felipe- Frydek Vol. Fire Department 15023 Fm 1458 Rd Sealy, TX 77474	911	(979) 885-7081
Austin County Sherriff 417 N. Chesley St. Bellville, TX 77418	911	979-865-3111

32.2 Fire Prevention

The Facility is not located within a city limit; therefore, local city fire codes do not apply. Austin County follows the guidelines set forth by the State Fire Marshal's Office. The National Fire Protection Association Life Safety Code (NFPA 101) is the adopted inspection standard of the State Fire Marshal's Office. The State Fire Marshal utilizes other NFPA fire codes for guidance in assessing and directing remediation of fire hazards in other than occupied buildings. This Fire Prevention and Control Plan is intended to comply with the requirements of the NFPA fire code.

Non-hazardous materials handled by the Facility do not typically pose fire hazards but staff must stay alert for signs of fire such as smoke, steam, or excessive heat. As a cooperative rural community, adjacent agricultural operations will stay alert to signs of fire to assist neighboring operations in the control of fires.

Fire prevention techniques include:

- Equipment will be regularly cleaned to remove combustible waste and caked material which can cause overheating and increase fire potential.
- Smoking will not be permitted near material management areas. Designated smoking areas at the office will be equipped with proper disposal containers.
- No smoking signs will be placed near material management areas.
- The presence of the earthen berms surrounding the processing area will inhibit the spread of fire to or from the composting material.
- Fire lanes will be maintained around the Facility, including feedstock storage tanks and processing areas.

- The potential for fires within the composting material will be limited by the maintenance of a moisture content near 60 percent.
- Vegetation within 25 feet of the processing and storage areas will be watered and mowed as much as practicable.
- As required by the 2003 International Fire Code, bulking material storage piles and compost material piles will not exceed 25 feet in height, 150 feet in width, or 250 feet in length.
- All storage piles will be accessible by fire-fighting equipment via access roads.
- Sufficient ABC type fire extinguishers are located on-site.
- Staff will be alert to signs of fire such as smoke, heat, or odors.
- Fire extinguishers are visually inspected monthly by staff with an annual inspection/maintenance completed by a State licensed fire protection contractor.
- Compost materials that may generate heat will be turned periodically to reduce internal temperature.

32.3 Fire Control

Water will be available for firefighting from a potable well water source. Additionally, water for firefighting will be obtained from the Facility's **compost pad** retention pond.

The local fire department has vehicles specifically outfitted to pump water, including carrying a water reservoir and using drafting and water tenders to obtain further supply typically used in a rural area.

Rural firefighting techniques that include fire breaks and other firefighting techniques will be applied. Equipment available on-site for the use in firefighting will include:

- Fire extinguishers;
- **Compost pad** ~~R~~retention pond, pump, and hoses;
- Vacuum truck, or equivalent; and
- Front-end loader.

In the event of a smoldering fire (i.e., evidenced by smoke but with no visible flames), the vacuum truck, or equivalent, can be filled using water from either the **compost pad** retention pond or the municipal water supply, and then can spray the water directly on the fire and surrounding combustible materials. The front-end loader will be used, as necessary, to physically separate any smoldering or burning materials from other combustible materials. After the fire is extinguished, the front-end loader will be used to break apart the burnt material to allow the material in the interior of the pile or windrow to be saturated with water to prevent re-ignition or smoldering.

Firefighting equipment is readily available for small fires. For fires too large for the Facility staff to handle, the county has an emergency response system that responds to fires. The jurisdictional fire department will respond to fires that cannot be controlled by staff.

32.4 Staff Training

All staff will be trained in fire prevention, to recognize signs of fire, and to inspect equipment. Staff will be trained to properly use fire extinguishers and emergency evacuation procedures.

The OIC will have additional training in fire break construction and fire buffer maintenance to prevent off-site fire migration.

The local fire department will be called in the event the fire is too large for staff to control.

Section 33. Spill Containment and Contingency Plan

Storage and processing areas are designed to control and contain spills or contaminated water from leaving the Facility. The design is sufficient to control and contain a worst case spill or release **from the largest tank volume within the liquid feedstock storage area** ~~for~~ **and** precipitation from a 25-year, 24-hour storm. **Secondary containment calculations are provided in Appendix I.**

33.1 Leak Detection

33.1.1 Storage Tanks

A ~~weekly~~ **daily** inspection of liquid feedstock storage tanks for leaks or spills will be performed. Accumulated stormwater within the secondary containment berm surrounding the storage tanks will be ~~inspected for contamination and~~ pumped out and sprayed onto the composting pad.

33.1.2 Liner

The geomembrane liner will be periodically inspected for cracks to prevent pollutant transport. Repairs will be made within two weeks. Damaged areas identified throughout the synthetic liner will be replaced or repaired in accordance with the Liner Quality Control Plan (Appendix M). Repairs for the clay liner include rewetting and packing the surface layer to a depth of 6 inches.

33.2 Spill Prevention and Control

Spill prevention and control have been developed for receiving and transfer areas. The following discusses each measure for each area. When a spill is discovered, the emergency action plan for spills will be followed.

33.2.1 Receiving and Liquid Feedstock Transfers

Liquid feedstock will be pumped into the liquid feedstock storage tank unless it is being directly sprayed onto the composting pad. Liquid waste haulers are directed to the designated unloading area located near the storage tanks.

Liquid feedstock within the storage tanks will be routinely measured to determine the volume stored within each tank. An attendant monitors transfer hoses for leaks and spills.

The tanks will be contained in the secondary containment system and daily inspection will be performed to check for leaks and spills. Spills will be cleaned up by vacuuming liquids and transferring the material into the liquid feedstock storage tanks. Residual solids will be excavated and disposed off-site to a permitted MSW landfill.

~~Stormwater is inspected for evidence of contamination. If the~~ **Accumulated** stormwater ~~is determined to be contaminated, the water~~ is pumped **out and** ~~into the liquid feedstock storage tank~~ **sprayed onto the compost pad** for processing. ~~If the stormwater is determined to not be contaminated, the stormwater is discharged into the stormwater drainage system in a manner that will prevent erosion and flooding.~~

33.2.2 Sanitation

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Wash-water will be collected and diverted to the liquid feedstock storage tanks for processing. The OIC will monitor the clean-up and collection procedures for leaks and spills. Spills will be cleaned up and liquids will either be applied to the windrows **or**~~,~~ diverted to the liquid feedstock storage tank**.**~~, or discharged to the stormwater retention pond.~~

33.3 Spill Emergency Actions

The emergency action plan procedures in the event of a spill **occurrence outside the composting pad** are:

- Liquid spills will consist of the following actions:
  - If spill is outside secondary containment, then earthen berms or spill booms will be utilized in order to contain the spill.
  - If feedstock spills, the reclaimed material will be returned to the liquid feedstock storage tanks.
  - If fuel and chemical spills, the material will be remediated and disposed of to provide the most effective mitigation.
- Solid spills**, primarily in the form of sludge,** will consist of the following actions:
  - Solids will be protected from stormwater incursion

  - **Using the front-end loader,** ~~S~~solids will be ~~remediated~~ **collected, transported, and applied** ~~and disposed of to provide the most effective mitigation~~**to the composting pad**.

- **Upon completion of remedial activities, the** ~~Spills will be~~ **area of the spill will be assessed for signs of impact.** ~~remediated to background levels of soil and groundwater or appropriate regulatory assessment levels.~~

- Reportable quantities will be reported as required by federal, state, or local rules or regulations.

Section 34. Recordkeeping and Reporting Requirements

34.1 Recordkeeping

A copy of the permit, the approved permit application, and any other required plans or other related document will be maintained at the Facility at all times during construction.

After completion of construction, an as-built set of construction plans and specifications will be maintained at the Facility. The plans will be made available for inspection by agency representatives or other interested parties. These documents will be considered a part of the operating record for the Facility.

The OIC will promptly record and retain, in an operating record, the following information:

- All location-restriction demonstrations;
- Inspection records and training procedures;
- Closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- All cost estimates and financial assurance documentation relating to financial assurance for closure;
- Copies of all correspondence and responses relating to the operation of the Facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- All documents, manifests, shipping documents, trip tickets, involving special waste;
- Any other document(s) as specified by the approved authority or by the executive director; and
- Record retention provisions for trip tickets as required by 30 TAC §312.145.

The following records will be maintained on-site permanently, or until facility closure:

- TCEQ facility operating permit;

- Sampling plan and procedures;
- Staff training and certification records;
- Maturity protocol test results; and
- Annual groundwater sampling results.

Records will be maintained on-site and available for inspection by the executive director for a period consisting of the two most recent calendar years of the following:

- A log of abnormal events at the Facility, including, but not limited to, hazardous constituents uncovered, fires, explosions, process disruptions, extended equipment failures, injuries, and weather damage; and
- Results of monthly final product testing report. Documentation of final product testing will be maintained for a period of three years after the final product is shipped off-site or after facility closure.

Copies of the annual reports will be kept on-site for a period of five years following submittal to the TCEQ.

34.2 Signatory

For signatories to reports, the following conditions apply:

- **The owner or operator will sign all reports and other information requested by the executive director as described in §305.44(a) or by a duly authorized representative of the owner or operator.**
- **If an authorization is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of 30 TAC §330.219(c) must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.**
- ~~An Officer of the Corporation will sign all reports and other information requested by the executive director.~~
- Any person signing a report will make the certification in accordance with 30 TAC §305.44(b).

34.3 Reporting Requirements

All plans described in the site operating plan presented above will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director.

The Facility will retain all information contained within the operating record and the different plans required for the Facility for the life of the Facility.

34.3.1 Documentation and Reporting of Final Product Testing

Final product documentation maintained will include:

- Batch numbers identifying the final product sampling batch;
- Quantities, types, and sources of feedstocks received and the dates received (this information is typically documented on the manifest form that accompanies each delivery of feedstock);
- **The quantity of final product and final product standard code assigned;**
- **The final product grade or permit number of the disposal facility receiving the final product if it is not Grade 1 or Grade 2 compost**~~Quantity and final product grade assigned or the permit number of the disposal facility receiving the final product~~;
- Date of sampling; and
- Analytical results used to characterize the final product including laboratory quality assurance and quality control (QA/QC) data and chain-of-custody documentation.

A monthly final product testing report will be submitted to the TCEQ within two months after the end of the reporting period. The monthly final product testing report will include the above information for each batch of final product sampled that month.

34.3.2 Annual Reporting

An annual report will be prepared and submitted to the TCEQ. The annual report will provide the following information for the year of the report:

- Documentation of compost input and output quantities;
- Description of the end-product distribution;
- All results of any required compost laboratory testing; and
- Groundwater sampling results.

Annual reports will be prepared and submitted to the TCEQ not later than 45 days following the calendar year.

Section 35. Sampling and Monitoring

35.1 Facility Inspections

35.1.1 Inspection Locations and Procedures

The Facility will be inspected for the items listed in Table 14.

35.1.2 Reporting Requirements

Inspections logs will be maintained in Facility records. Noncompliance items will be reported if required to TCEQ.

35.2 Odor Audit/Investigation

Matrix and Location. Monitoring will be conducted along the route to and from the Facility, at the gate, and at the Facility. Particular attention should be paid to odors that are detected beyond the 50-foot buffer of the Facility.

Purpose. The purpose of the audit is to determine the cause of the odor and corrective actions and as a preventive measure for nuisance conditions.

Table 14. Facility Inspections

Item	Task	Frequency
Fence/gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown material or waste	Check working area, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily
Facility access road	Inspect Facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed.	Daily
Facility signs	Inspect all Facility signs for damage, general location, and accuracy of posted information.	Weekly
Run off or pooled water	Inspect all areas that are exposed to stormwater for erosion or pooling. Inspect all areas for liquids pooled on the composting pad and storage areas. Clean up within 2 weeks. Repair or redesign as necessary.	Weekly
Unauthorized entry	Inspect for signs of unauthorized entry of humans and animals. Make repairs or review security plan.	Weekly
Equipment	Inspect loader, excavator, chipper/grinder, and transfer trucks for leaks, and operation efficiency. Repair as needed.	Weekly
Geomembrane liner	Inspect weekly for cracks. Repair as needed. Wet Clay liner periodically to prevent cracking. Re-compact if crack compromises the integrity of the liner. Patch material can be used as specified by the manufacturer for the synthetic liner.	
Seepage in and around the composting facility.	Inspect areas around the liners for seepage. Makes repairs as needed.	Weekly

Frequencies. A daily audit will be performed during operations hours. A frequency, intensity, duration, and offensiveness (FIDO) (TCEQ, 2007) inspection will be performed if an odor is detected.

Collection Procedures. If an odor is detected, the OIC will perform an odor investigation:

1. Locate and assess the odor
    a. Describe the intensity and offensiveness of any odors observed using the TCEQ Odor Log, which can be downloaded for the TCEQ website at http://www.tceq.texas.gov/assets/public/compliance/odor-log-public.pdf

b. Describe any physical effects experienced by the investigator which are indicative of adverse effects upon health (burning eyes, nose, throat, headache, vomiting, etc.)

c. Determine and document the extent of the odor plume. Document on a map of the vicinity the odor survey route, the time the investigator was at each location, and the odor observations at each location. This survey should include upwind and downwind observations at least.

2. Locate the source(s) of the odor.

3. Locate the specific cause of the odor (i.e., the specific compound, equipment, or process emitting the odor, and the reason(s), such as a plant upset).

4. Document estimates of wind speed and direction, temperature, humidity, precipitation, and sky cover.

5. If odors have been detected at the same location at other times, document a comparison of the current observations with the prior observations.

6. Correct or initiate procedures for odor control and eliminate nuisance conditions. Nuisance conditions exist if "an odor has been emitted in such concentration and duration as to be injurious to or adversely affect human health, welfare, animal life, vegetation, or property, or interfere with normal use and enjoyment of animal life, vegetation, or property."

FIDO results will be maintained in Facility records. Corrective actions will be maintained in the Facility records.

35.3 Compost

Compost will have visual inspections and lab analysis as required by TCEQ Compost rules 30 TAC §332.71. Two types of sampling and analysis will be performed; sampling and analysis for maturity and sampling and analysis for final product grading.

35.3.1 Sampling and Analysis for Maturity

At the completion of the composting process, a maturity protocol will be developed by SouthWaste to measure the potential for biological activity in the composted materials. Maturity protocol testing will be performed during the first 18 months after permit issuance.

Development of the maturity protocol will include sampling to measure the reduction of organic matter (ROM) in composting material from the time it is initially mixed until it is mature. The ROM will be calculated using the Loss-on-Ignition Organic Matter (LOI) method. To address seasonal variations in compost feedstock during maturity protocol development, four sets of maturity protocol samples will be collected and analyzed as follows:

1. Sample 1 batch when initially mixed during the <u>first quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.

2. Sample 1 batch when initially mixed during the <u>second quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
3. Sample 1 batch when initially mixed during the <u>third quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
4. Sample 1 batch when initially mixed during the <u>fourth quarter</u> of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.

The results of the ROM analysis of the initially mixed samples will be compared to the ROM results of the 60-day, 120-day, and 180-day samples. Compost will be considered "mature," when the reduction of organic matter from the initially mixed material is between 40 and 60 percent. Compost will be considered cured when the reduction of organic matter from the initially mixed material is greater than 60 percent.

The maturity testing sampling results will be evaluated to establish a typical baseline organic matter content for initial mixes, a typical baseline organic matter content for cured compost, and an estimated composting duration necessary to achieve cured compost. This information will be used to develop recommended maturity testing methods and frequencies to allow the classification of compost into maturity grades, and the identification of materials that are stable but not mature. This will constitute the maturity protocol. The maturity protocol will be submitted to the TCEQ for review and approval, as well as for any future revision. Once approved, the maturing protocol will be used to classify all future compost.

Maturity protocol testing and the maturity testing results for final products for classification will be documented and maintained as described in Section 35.3.1.

35.3.2 Sampling and Analysis of Final Product

In addition to maturity testing, all batches of final product will be analyzed for the parameters listed in Table 15. **The executive director may at any time request that additional parameters be tested.**

Table 15. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total Metals			
As	SW-846, Method 6020	≤ 10 mg/kg	≤ 41 mg/kg [a]
Cd	SW-846, Method 6020	≤ 16 mg/kg	≤ 39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤ 180 mg/kg	≤ 1,200 mg/kg [a]
Cu	SW-846, Method 6020	≤ 1,020 mg/kg	≤ 1,500 mg/kg [a]
Pb	SW-846, Method 6020	≤ 300 mg/kg	≤ 300 mg/kg [a]
Hg	SW-846, Method 7470	≤ 11 mg/kg	≤ 17 mg/kg [a]
Mo	SW-846, Method 6020	≤ 75 mg/kg	≤ 75 mg/kg [a]
Ni	SW-846, Method 6020	≤ 160 mg/kg	≤ 420 mg/kg [a]
Se	SW-846, Method 6020	≤ 36 mg/kg	≤ 36 mg/kg [a]
Zn	SW-846, Method 6020	≤ 2,190 mg/kg	≤ 2,800 mg/kg [a]
Pathogens			
Salmonella	Standard Methods for the	< 3 MPN per 4 grams total	No Value

	Examination of Water and Wastewater, Water Pollution Control Federation	solids or meets PFRP	
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
Other Parameters			
Maturity / Stability	Maturity Protocol (see Section 35.3.1)	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis **(Recommended Test Methods for the Examination of Composts and Composting, Composting Council, 1995)**	1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media	5.0 to 8.51	5.0 to 8.5 1
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/cm	10 mmhos/cm
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost which is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.
[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

A final product grade will be assigned prior to sale based on the standards listed in Table 15 above. The following paragraphs describe sample collection and analyses requirements for final products.

The following paragraphs describe sample collection and analyses requirements for final products.

Collection. At a minimum, one sample will be collected either for every 3,000 cubic yards of final product, or one sample will be collected monthly, whichever is more frequent. Each sample will consist of nine grab samples which will be collected as follows:

- Three grab samples will be collected from the base of the windrow or stockpile, at least 12 inches into the pile at ground level.
- Three grab samples will be collected from the exposed surface of the windrow or stockpile.
- Three grab samples will be collected from a depth of 2 feet from the exposed surface of the windrow or stockpile.

The nine grab samples will be combined and thoroughly mixed to form a composite. A single sample will be collected and analyzed from the composited sample material.

After one year of final product testing, a request for an alternative testing frequency may be submitted to the TCEQ in accordance with 30 TAC §332.71 (f)(3).

Sample Analysis. Final product samples will be analyzed for the parameters and by the methods listed in Table 15, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury, and will meet the other applicable standards presented in Table 15. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

35.4 Groundwater

After completion of the following analysis, an original and two copies of each analysis will be sent to the executive director and a copy will be maintained on-site.

35.4.1 Background Samples

Four background groundwater samples of the monitor well will be provided to TCEQ within 24 months from the date of the issuance of the permit.

Background levels will be established from samples collected from each well at least once during each of the four calendar quarters: January to March; April to June; July to September; and October to December. Samples from any monitoring well will not be collected for at least 45 days fo11owing the collection of the previous sample from that well, unless that new sample is intended as a replacement. At least one sample per well will be collected and submitted to a laboratory for analysis within 60 days of permit issuance.

Background groundwater samples will be analyzed for the laboratory and field parameters listed in Table 16.

Table 16. Groundwater Sampling Parameters

Sampling Parameter	Background Sampling	Annual Sampling	Method
Heavy metals			
Arsenic	X		EPA 6020
Barium	X		EPA 6020
Cadmium	X		EPA 6020
Chromium	X		EPA 6020
Copper	X		EPA 6020
Iron	X	X	EPA 6020
Lead	X		EPA 6020
Mercury	X		EPA 7470A
Selenium	X		EPA 6020
Zinc	X		EPA 6020
Other parameters			
Calcium	X		EPA 6020
Magnesium	X		EPA 6020
Manganese	X	X	EPA 6020

Sodium	X		EPA 6020
Carbonate	X		SM2320B
Bicarbonate	X		SM2320B
Sulfate	X		EPA 300
Fluoride	X		EPA 300
Nitrate (as N)	X		EPA 300
Total Dissolved Solids	X	X	SM2540C
Phenolphthalein Alkalinity as CaCo3	X		SM2320B
Alkalinity as CaCo3	X		SM2320B
Hardness as CaCo3	X		SM2340B
pH	X	X	In-field measurement
Specific Conductance	X		In-field measurement
Anion-Cation Balance	X		Calculated based on anion/cation lab data
Total Organic Carbon (4 replicates will be collected per sample)	X	X	ASTM D2974/EPA 415.1
Chloride	X	X	EPA 300

Background sampling results will be reported to the TCEQ as discussed in Section 36.1.12.

35.4.2 Annual Samples

Following the completion of background groundwater sampling described in Section 35.4.1, each groundwater monitoring well will be sampled annually. Depth to groundwater and pH will be measured and documented each time a monitoring well is sampled. Annual groundwater samples will be analyzed for total organic carbon (4 replicates per sample), iron, manganese, chloride, and total dissolved solids. Analytical methods for these parameters will be the same as those used for background sampling (Table 16).

35.4.3 Analytical Methods

The analytical methods are noted in Table 16 conform to TCEQ and U. S. Environmental Protection Agency (EPA) approved testing methods. The practical quantitation limits for the constituents of concern will be set by standard methods or detection limits, whichever is lower. The detection limits will be below the maximum contaminant level values or as low as practicably feasible.

The quantitation limits will be set and reviewed with the contract laboratory. The review of limits will take place at least annually or when a new contract laboratory is used.

35.5 Data Precision and Accuracy

Data precision and accuracy will comply with the methods used for each matrix and parameter. The contract laboratory will document the data precision and accuracy requirements and any deviations.

35.6 Documentation

Field conditions and analysis will be documented on the chain of custody for each sampling event. Laboratory analysis procedures, QA/QC, and any deviations will be documented in the Laboratory Case Narrative.

35.7 Reporting Requirements

Sample analytical results will be reported to the TCEQ in a data package that contains, at a minimum, the analytical test reports documenting the analytical results and methods for each sample and analyte. The test reports will include the method-required quality control information needed to evaluate the analytical results of sampling and analysis with comparison to quality control standards and corrective action upon failure.

SouthWaste will ensure that the results of each test analysis carried out by the laboratory will be reported:

- Accurately, clearly, unambiguously, and objectively, and in accordance with any specific instruction in the test method, work plan, permit, or program.
- In a test report and include all the information required for TCEQ submission and necessary for the interpretation of the test results and all information required by the method used, project quality objectives, or permit.
- Unless otherwise specified by project objectives, all analytical results reported for sludge, compost, soil, and sediment samples will be reported on a dry weight basis with the percent solids (or percent moisture) also reported on the test reports, to allow back calculation of the result to a wet weight basis.
- Includes at least the following information, unless the laboratory has valid reasons for not doing so:
  - A title (e.g., "test report");
  - The name and address of the laboratory or facility and the location where the test and calibrations were carried out;
  - Unique identification of the test report, and on each page an identification in order to ensure that the page is recognized as a part of the test report;
  - Name and address of the owner;
  - Identification of the analytical method used;
  - Dates of measurements, as well as the report date;
  - Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;
  - The test results and units of measurement;
  - The names, functions, and signatures or equivalent identification of persons authorizing the test report; and

- Where necessary for the interpretation of the test results, a laboratory case narrative as described below.

Section 36. Quality Assurance and Quality Control

36.1 Sampling, Monitoring, and Inspection

A sampling QA/QC program has been developed and will be periodically revised to reflect analysis and contract laboratory QA/QC requirements. The contracts laboratory will be periodically reviewed to ensure the standards in this chapter and future standards are met.

The QA/QC program establishes field and laboratory sampling and analysis procedures for all tested analytes to ensure proper collection preparation and analysis of representative samples. The QA/QC program also evaluates completeness, correctness, and conformance or compliance of a specific data set against method, procedural, or contractual requirements.

To achieve accuracy (correctness) and completeness, the owner adopts acceptable data quality standards and ensures that all sample collection, preparation and analyses, and data management activities are conducted in accordance with the standards. These activities will be reviewed regularly to ensure compliance with the standards. QC checks must be performed and corrective action taken when indicated.

36.1.1 Records Control

The OIC will ensure that all QA/QC records are legible and stored and maintained in such a way that they are readily retrievable and stored in an acceptable environment to prevent damage, deterioration, or loss. At a minimum, analytical records retention will meet a five-year record retention schedule.

36.1.2 Matrix Spikes and Matrix Spike Duplicates

The OIC will ensure that:

- The data package will include matrix spikes and matrix spike duplicate sample recovery percentages and relative percent differences for each matrix and analyte.
- The subset will include analytes representative of the chemical properties of the project analytes of concern, if analytes are not specified for a project only a subset of the project analytes are evaluated with matrix spikes and matrix spike duplicates.
- Each matrix spike and matrix spike duplicate test report will include the following:
    - Spike concentration added to the sample;
    - Measured concentration of the analyte in the unspiked sample;
    - Measured concentration of the analyte in both the matrix spike and matrix spike duplicate;

- Calculated percentage matrix spike/matrix spike duplicate recoveries and relative percent difference; and
- Laboratory and/or method quality control limits (acceptance criteria) for both matrix spike/matrix spike duplicate recovery and relative percent difference.

- The data set will include the laboratory batch number and the laboratory identification number of the sample spiked.
- The laboratory will perform matrix spikes at a minimum frequency of one out of every 20 samples per matrix type, except for analytes for which spiking solutions are not available (e.g., total dissolved solids, total volatile solids, total solids, pH, color, temperature, or dissolved oxygen).

When results of the matrix spikes and matrix spike duplicate are outside of the acceptable limits, The OIC will arrange for the laboratory to check other quality control results (e.g., laboratory control sample), and, if appropriate, have the laboratory qualify the results or use another analytical method. The results of the matrix spikes and matrix spike duplicate are sample and matrix- specific and may not normally be used to determine the validity of the entire batch of samples.

36.1.3 Method Blanks

The OIC will ensure that the laboratory reprocess any sample associated with the contaminated blank that exceeds a concentration greater than one-tenth of the measured concentration of any sample in the associated batch or exceeds the concentration present in the samples and is greater than one-tenth of a specified regulatory limit for analysis or the results reported with appropriate data-qualifying codes and submitted in the data package. These are minimum criteria to be used in cases where blank acceptance criteria are not defined in the referenced methodology used for analysis.

36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates

The laboratory control sample and laboratory control sample duplicate are composed of a sample matrix that is free from analytes of interest and spiked with known amounts of analytes or material containing known and verified amounts of analyses. The laboratory control sample and laboratory control sample duplicate are used to establish intra-laboratory or analyst-specific precision and accuracy of certain parts of the analytical methodology.

The OIC will ensure that the laboratory:

- Analyzes laboratory control samples at a minimum of 1 each per batch of 20 samples or less, per matrix type, except for analytes for which spiking solutions are not available. A laboratory control sample duplicate will be processed with the batch where needed to demonstrate precision.
- Calculate the results of the laboratory control sample to assess precision based on the recovery percentages of the analytes of interest within the analytical methodology.

36.1.5 Surrogates

The OIC will have the laboratory review the surrogate recoveries used to measure method efficiency. The laboratory can, with qualifications, estimate the overall method efficiency.

36.1.6 Data Reduction, Evaluation, and Review

The OIC will ensure that a data reviewer consider the project data quality objectives to determine if the sample test results meet the project needs with regard to completeness, representativeness, and accuracy (bias and precision).

The OIC will review all data prior to submittal for commission review. The data review will include examination of the quality control results and other supporting data, including any data review by the laboratory, and will identify any potential impacts such as bias on the quality of the data using qualifiers in the test reports tied to explanations in footnotes and in the laboratory case narrative.

The criteria used to evaluate each quality control parameter will be defined in the OIC's sampling and analysis plan, project quality objectives, and/or other reference(s) of documented analytical laboratory or method criteria.

The OIC will ensure that the recordkeeping system allow historical reconstruction of all laboratory activities used in the data reduction, validation, and review of the analytical data.

36.1.7 Matrix Interferences and Sample Dilutions

The OIC will ensure that the laboratory:

- Documents and reports problems and anomalies observed during analysis that might have an impact on the quality of the data. The laboratory must document any evidence of matrix interference or any situation where the analysis is out of control (quality control results outside of laboratory or method limits), as well as the measures taken to eliminate or reduce the interference or corrective action to bring the analysis back into control.
- Uses the smallest dilution factor needed to overcome or minimize a problem of matrix interference or to bring an analysis back into control

36.1.8 Chain of Custody

Chain of custody forms are used to document custody of the samples during collection, transport, and initial receipt of samples at the analytical laboratory. A laboratory may also use chain of custody forms to document the movement and analysis of samples within the laboratory.

The Operator will ensure that the laboratory:

- Submit all data packages with completed field chain of custody forms and other documentation, including the following:
    - Field sample identification;

- Date and time of sample collection;
- Preservation type;
- Analytical methods requested and/or analytes requested;
- Signatures of all personnel with custody prior to receipt by the laboratory;
- Signature of laboratory personnel taking custody samples; and
- Date and time of custody transfers.

- Document if samples are received outside of the recommended holding times for a particular analyte or method.
- Record, upon receipt, the condition of the sample, including any abnormalities or departures from standard conditions as prescribed in the relevant test method.
- Have procedures for checking the chemical preservation using readily available techniques prior to or during sample preparation or analysis.
- Store samples according to the conditions specified by preservation protocols.

All samples that require thermal preservation will be considered acceptable if the arrival temperature is either within 2 degrees Celsius (°C) of the required temperature or the method specified range. For samples requiring thermal preservation to 4°C, a temperature ranging from just above the freezing temperature of water to 6°C will be acceptable.

36.1.9 Sample Collection and Preparation

The OIC will:

- Collect adequate sample volumes for all analytical needs for subsequent testing or analyses, when possible.
- Base sampling plans, whenever reasonable, on appropriate statistical methods. Sampling procedures should describe the selection, sampling plan, collection, and preparation of a sample or samples from a waste or medium.
- Collect representative samples of the waste or medium. The concentration of the analyses of interest, the types of analyses, and the sample media will determine the sample volume requirements.
- Ensure that the method and federal regulatory program requirements for these sample management aspects be followed for all methods of testing and, if violated, have the data flagged and qualified.
- Ensure that field personnel have procedures for recording relevant characteristics and other data relating to the sampling operations that form part of the testing or measurement that is undertaken.

- Ensure that chain of custody records and field notes include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant), diagrams, or other equivalent means to identify the sampling location, and all associated sample identification numbers.

36.1.10 Analytical Method Detection Limits and Method Performance

The OIC will ensure that:

- The laboratory determines detection limits by the protocol in the mandated test method or applicable federal or state regulation.

- The laboratory uses a test method that provides a detection limit that is appropriate and relevant for the intended use of the data and establishes procedures to relate method detection limits with the practical quantitation limits.

- All samples are analyzed according to methods specified by TCEQ or U.S. EPA programs.

- If the protocol for determining detection limits is not specified in the test method, the selection of a procedure must reflect instrument limitations and the intended application of the test method. Whenever possible, analytical methods must have method detection levels that are one-fifth to one-third of the regulatory action level.

- It reviews all quality control data within the data package subject to compliance with the TCEQ and federal programs which will include information regarding precision, bias, and accuracy.

- Data with quality control results outside of the quality control limits should be flagged in the data package with explanation of problems encountered by the laboratory and the corrective action(s) attempted to resolve the analytical problems.

- The laboratory documents all corrective action associated with the analysis and maintains all records.

Failure to meet the quality control goals in accordance with the data quality standards of the study does not necessarily mean the data are unusable.

36.1.11 Instrument and Equipment Calibration and Frequency

The OIC will ensure that:

- The laboratory maintain equipment in proper working order and calibrate equipment and devices that may not be the actual test instrument, but are necessary to support laboratory operations and measurements as often as recommended by the manufacturer, using National Institute of Standards and Technology (NIST) traceable references when available, over the entire range of their use. These include, but are not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, and temperature measuring devices. Calibration results will be within the specifications required for each application or measurement for which this equipment is used.

- The laboratory will maintain records of corrective actions implemented to correct all measurements.
- Standards used for the calibration of field instruments are, when available, traceable to certified standards or reference material.
- The laboratory equipment is calibrated or standardized against NIST traceable reference materials and standards.
- Documentation of the certificate of analysis and traceability of the standards and reagents is maintained by field or laboratory personnel.
- Calibration of field instruments and equipment is performed at approved intervals as specified by the manufacturer or more frequently as conditions dictate. Calibrations may also be performed at the start and completion of each test run.
- Records of calibration, repair, or replacement are filed and maintained by the designated field staff.
- Calibration and standardization of laboratory equipment are based on procedures described in each contract laboratory quality assurance plan or standard operating procedure.
- Records of calibration, repair, or replacement are filed and maintained by the designated laboratory personnel performing quality control activities in accordance with manufacturer requirements.
- Calibration records are filed and maintained at the laboratory location where the work is performed and subject to commission review during a quality assurance audit.

36.1.12 Laboratory Case Narrative

The OIC will ensure that the laboratory case narrative:

- Explains each failed precision and accuracy measurement determined to be outside of the laboratory and/or method control limits, and the effect of the failure on the results (positive or negative bias) when reporting QC results (precision and accuracy).
- States the exact number of samples, identification numbers, testing parameters, and sample matrix, as well as the name(s) of the laboratory(ies) involved in the analysis.
- Includes a statement of the test objective regarding the samples.
- Identifies the applicable QA/QC samples that require special attention by the reviewer, including field, trip, and laboratory blank(s); duplicate(s); field spike(s); QA audit sample(s); and laboratory control samples.

- Includes an acknowledgment and reference to current standards regarding sample holding, extraction, and analytical times along with a statement explaining whether the standards were met.
- Describes the extent of the delay and, if possible, provides an estimate of the bias within the data if samples are not analyzed within the prescribed holding times.
- Includes a statement that the laboratory conducting the analyses for environmental decision making have a QA program run by a QA officer to include the following:
  - System audits of field and/or laboratory operations using field surrogate samples;
  - Instrument calibration check samples used to determine the accuracy of the instrumentation;
  - Blind spikes of blanks, where the concentration of the blind spike is known only to the QA officer;
  - Verification of calibration accuracy via calibration check standard;
  - Internal surrogate spikes for determination of analytical extraction recovery; and
  - Overall assessment of the data quality based upon the reported QC data.
- Includes all QC results included in each data set that affect the quality of the data.
- Describes the bias within each data set as either positive or negative, when QC results are outside the method established and/or data quality objectives of the Facility groundwater sampling and analysis plan.
- Presents clearly the precision and accuracy determinations with all results calculated.
- Explains each failed precision and accuracy measurement determined to be outside of the method control limits and the effect of the failure on the results.
- Includes a review with comments that identify the problems associated with the sample results and explains the limitations on data usability.
- Includes a statement on the estimated uncertainty of analytical results of the samples involved and/or within the QC of the analytical method of the permit, project, and/or program required analytical recoveries information, when appropriate and/or requested.
- Includes all deviations from, additions to, or exclusions from the test method, and information on specific test conditions.
- Includes a statement of compliance/noncompliance with requirements and/or specifications, where relevant (e.g., holding times, dilutions).

36.2 Final Product Compost QA/QC

Quality control and assurance procedures will include careful examination of feedstocks. Final compost will be tested and inspected as described in "Test Methods for the Examination of Composting and Compost," US Composting Council [http://compostingcouncil.org].

References

Texas Commission on Environmental Quality (TCEQ). 2007. *Odor complaint investigation procedures*. September 18, 2007.

U. S. Environmental Protection Agency (EPA). *Test methods for evaluating solid wastes, physical/chemical methods.* September 1986. <http://www3.epa.gov/epawaste/hazard/testmethods/index.htm>.