

**SOAH DOCKET NO. 582-15-2082
TCEQ DOCKET NO. 2015-0069-MSW**

**APPLICATION OF § BEFORE THE STATE OFFICE
130 ENVIRONMENTAL PARK, LLC §
FOR PROPOSED § OF
PERMIT NO. 2383 §
§ ADMINISTRATIVE HEARINGS**

**130 ENVIRONMENTAL PARK, LLC'S EXCEPTIONS TO
THE ADMINISTRATIVE LAW JUDGES'
PROPOSAL FOR DECISION**

**TO THE COMMISSIONERS OF THE TEXAS COMMISSION ON ENVIRONMENTAL
QUALITY:**

COMES NOW 130 Environmental Park, LLC (130 Environmental Park or 130EP) and, pursuant to 30 TAC §80.257(a), files these exceptions to the Administrative Law Judges' (ALJs) Proposal for Decision (PFD) in the above-captioned matter. The ALJs have generally done an excellent job of evaluating many varied issues addressed by the evidence and briefing in this matter and have found in favor of 130 Environmental Park's permit application and the Executive Director's Draft Permit on nearly all of them. The ALJs have also identified certain alleged "deficiencies" and areas of "concern". Significantly, the ALJs conclude that a permit based on 130 Environmental Park's application (the Application) should be granted. Their Proposed Order would that grant 130 Environmental Park's Application and issue the permit, with certain changes that the ALJs recommend.¹ Because 130 Environmental Park proved compliance with all legal and regulatory requirements, its permit application to construct and operate the 130 Environmental Park Landfill (Landfill) should be granted by the Commission.

**I.
ARGUMENT**

**A. THE ITEMS IDENTIFIED AS "DEFICIENCIES" IN THE APPLICATION
SATISFY THE APPLICABLE REQUIREMENTS**

There are literally hundreds of statutory and regulatory standards that apply to the permitting of a municipal solid waste facility in Texas. In the PFD, the ALJs concluded that 130EP has satisfied the vast majority of these standards. The ALJs identified (at pages 1-2 of the PFD) only three requirements that they believe were not fully addressed in 130EP's permit application: (1) Plum Creek Conservation District's easement on the Hunter Tract not being included on the list of adjacent landowners in the Application, (2) 130EP did not obtain ED approval of its boring plan before initiating the drilling of soil borings, and (3) 130EP did not obtain a floodplain development permit from Caldwell County. Also in the PFD, in considering these issues, the ALJs concluded that (1) "the Application discussed the [Plum Creek Conservation District] easement and the Site

¹ PFD, p.2.

21 Reservoir, and the District conceded it had actual notice of the Application and participated fully in the hearing” (PFD p. 12)²; (2) “the evidence shows that there have been situations in the past in which an applicant has drilled borings prior to receiving approval from the ED for the boring plan... Likewise, in this case, the evidence shows that although the ED asked for additional information and clarification from BME regarding the borings drilled and the samples taken from the borings, the ED ultimately did approve the boring plan and did not require BME to redrill any borings” (PFD p. 65); and (3) the permit special provision recommended by the ED and included in the Draft Permit (requiring that 130EP must provide the ED with a floodplain development permit before construction may commence) is “a reasonable accommodation that will not cause any harm or threat to the environment, given that construction cannot begin until 130EP obtains the required permit” (PFD pp. 179-180; Special Provision IX.A at Ex. ED-SO-8 p. 72).

In his exceptions to the PFD, the ED “respectfully recommends that the Commission find that none of the deficiencies noted by the ALJs are a substantive deficiency which would justify denying the application.” (ED’s Exceptions, at p. 2).

130EP agrees that these are not issues that would justify denying its Application. 130EP respectfully excepts to the PFDs’ characterization of these three issues as “deficiencies” based on the above discussion and, as set out more fully below, because none of these three issues identified a failure to comply with applicable rule requirements.

1. The Application Accurately Identifies all Property Owners Identified in the Caldwell County Appraisal District Records and Therefore Satisfies the TCEQ Rules and is Not a Deficiency in the Application.

In the PFD, at page 7, the ALJs correctly identified the two TCEQ rules that are applicable to the “adjacent and potentially affected landowners’ list” to be included with a municipal solid waste facility permit application: 30 TAC §281.5 and 30 TAC §330.59.³ These rule provisions specify

² In the PFD, the ALJs specifically refer to a discussion in the Application regarding the Site 21 Reservoir and a facility site plan in the Application that shows the District’s easement inundation area in relation to the proposed permit boundary and landfill unit (130EP-1 at pp. 42 and 48). In addition, the Application includes other discussions of and drawings showing the Site 21 Reservoir and dam, including at 130EP-1 pp. 58-63, 88, 106, 109, 111, 117-121, 123, 124, 131, 141-143, 148, 152, various pages in the Wetlands Documentation at 130EP-1 pp. 198-679, various pages in the Endangered or Threatened Species Documentation at 130EP-1 pp. 681-756, various pages in the Cultural Resources Survey at 130EP-1 pp. 758-809, 130EP-1 pp. 832-833, and various pages in the Facility Surface Water Drainage Report at 130EP-2 pp. 47-468. Also, the ALJs stated that they “cannot conclude that operation of the Facility as set out in the Application will impair or injure the District’s property rights in its easement.” (PFD p. 12).

³ 30 TAC §281.5 provides:

Except as provided by §305.48 of this title (relating to Additional Contents of Applications for Wastewater Discharge Permits), applications for wastewater discharge including subsurface area drip dispersal systems, underground injection, municipal solid waste, radioactive material, hazardous waste and industrial solid waste management permits must include:

- (1) complete application form(s), signed and notarized, and appropriate copies provided;
- (2) the payment of fees, if applicable;
- (3) the verified legal status of the applicant;

that an application must include “a list of adjacent and potentially affected landowners and their addresses along with a map locating the property owned by these persons.”

The ALJs then assert that the landowners’ list is deficient because it does not include Plum Creek Conservation District. However, the Plum Creek Conservation District is not a “landowner”: as the ALJs correctly point out (on page 7 of the PFD), “the Hunter Tract is subject to an easement owned by the District for use of the Site 21 Reservoir” (emphasis added). The District owns only an easement; it is not a “landowner”.

In addition, TCEQ specifies the source of the information for the landowners’ list: real property appraisal records. 30 TAC §330.59(c)(3)(B) states, “Property and mineral interest owners’ names and mailing addresses derived from the real property appraisal records as listed on the date that the application is filed will comply with this paragraph” and TCEQ’s, Part I Application form (TCEQ-0650, at *Ex. 130EP-1 p. 23*) specifies, “Provide the property, easement holders’, and mineral interest owners’ names and mailing addresses derived from the real property appraisal records as listed on the date that the application is filed.” (emphasis added).⁴ The uncontroverted

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- (4) the signature of the applicant, checked against agency requirements;
 - (5) the attachment of technical reports and supporting data required by the application;
 - (6) a list of adjacent and potentially affected landowners and their addresses along with a map locating the property owned by these persons; and
 - (7) any other information as the executive director or the commission may reasonably require.
- (emphasis added)

30 TAC §330.59(a)(1) provides:

Part I of the application consists of information that is required regardless of the type of facility involved. All items required by this section, §281.5 of this title (relating to Application for Wastewater Discharge, Underground Injection, Municipal Solid Waste, Radioactive Material, Hazardous Waste, and Industrial Solid Waste Management Permits) and §305.45 of this title (relating to Contents of Application for Permit) must be submitted.

30 TAC §330.59(c)(3) provides:

Land ownership map with accompanying landowners list.

(A) These maps shall comply with the requirements in §281.5 of this title by locating the property owned by adjacent and potentially affected landowners. The maps should show all property ownership within 1/4 mile of the facility, and all mineral interest ownership under the facility.

(B) The adjacent and potentially affected landowners’ list shall be keyed to the land ownership maps and shall give each property owner’s name and mailing address. The list shall comply with the requirements of §281.5 of this title, and shall include all property owners within 1/4 mile of the facility, and all mineral interest ownership under the facility. Property and mineral interest owners’ names and mailing addresses derived from the real property appraisal records as listed on the date that the application is filed will comply with this paragraph. Notice of an application is not defective if property owners or mineral interest owners did not receive notice because they were not listed in the real property appraisal records. The list shall also be provided in electronic form. (emphasis added)

⁴ The statutory provision regarding notice of a hearing concerning an application for a solid waste facility permit specifies this same source of information. Health & Safety Code §361.081(a) requires that

evidence in the record, at page 47 of the Application in Exhibit 130EP-1, specifically states “A Land Ownership Map and Land Owners List are included in Appendix IB and reflect current property ownership within 1/4-mile of the proposed facility boundary as shown in the records of the Caldwell County Appraisal District.” The list in Appendix IB of the Application (at *Ex. 130EP-1 p. 66*), which also states that Caldwell County Appraisal District records is the source of the information on the list, does not include the District or its easement. Because neither the District nor its Site 21 easement are included in the applicable real property appraisal records, the District was not required to be included on the landowners’ list in the Application.

2. The Approval of the Soil Boring Plan after Borings Have Been Drilled is Consistent with Prior Commission Interpretation and Practice and is not a Deficiency in the Application.

The fact that soil borings at the site proposed for the 130 Environmental Park Landfill were drilled prior to the ED’s approval of the soil boring plan is, as the ED states in his exceptions, not “a substantive deficiency which would justify denying the application.” *ED’s Exceptions at p. 3*. As the ALJs acknowledged in the PFD, “the evidence shows that there have been situations in the past in which an applicant has drilled borings prior to receiving approval from the ED for the boring plan, and...the ED ultimately did approve the boring plan and did not require [130EP] to redrill any borings.” *PFD at p. 65*. The evidence shows that the potential consequence of drilling soil borings before obtaining ED approval of the boring plan is the possibility that the ED will require additional soil borings. Exhibit Protestants’ 34 is a copy of the ED’s October 10, 2013 letter approving the soil boring plan for the 130 Environmental Park site. It states, “Although this plan appears to comply with the MSW regulations concerning site investigations, additional soil borings and piezometers could be required if the data generated by this SBP is inconclusive.” *Ex. Protestants’ 34 at p. 1*. Similarly, in a September 29, 2015 email, Mr. Chance Goodin (Manager of TCEQ’s Municipal Solid Waste Permits Section) stated:

If a prospective applicant executes a soil boring plan before the plan is approved, the applicant does so with the risk that the investigation does not comply with the criteria of §330.63(e)(4), and that it may not have yielded the required information and may not be conclusive. Upon review of a permit application that uses information from a subsurface investigation that did not receive prior approval, it could be determined that additional borings will be needed.

Ex. 130EP-23.⁵

notice be mailed to

each residential or business address located within one-half mile of a new solid waste management facility and to each owner of real property located within one-half mile of a new solid waste management facility listed in the real property appraisal records of the appraisal district in which the solid waste management facility is sought to be permitted...

(emphasis added)

⁵ At the hearing, the ALJs sustained a hearsay objection to Exhibit 130EP-23. As urged at that time, 130EP respectfully asserts that Exhibit 130EP-23 is admissible under the hearsay exception in Texas Rules of Evidence 803(8)(A) (Public Records and Reports. Records, reports, statements, or data compilations, in any form, of public offices or agencies, setting forth: (A) the activities of the office or agency). 130EP respectfully requests that the Commission admit Exhibit 130EP-23 into the record or, in the alternative, that

John Michael Snyder, P.G. is the professional geoscientist who supervised all geology and hydrogeology field work for 130EP; he also prepared and sealed the Geology Report in the Application.⁶ As the ALJs described in the PFD, Mr. Snyder testified that drilling soil borings prior to receiving approval of a boring plan from the ED is a common scenario that he has encountered “many times” in the past. Mr. Snyder also testified that, in those other situations, as in this case, the ED ultimately approved the boring plans, even though the work was done prior to approval or even submission of the plans. *Testimony of John Michael Snyder, P.G., Tr. at 436 and 439.* Mr. Snyder opined that regardless of prior approval, if the borings are appropriately and properly done, the ED will allow an applicant to use them, and the rule requiring prior approval is essentially unenforceable and has not been enforced, because the only remedy could be to require an applicant to redrill a boring for which an appropriate boring already exists. To Mr. Snyder’s knowledge, TCEQ has never required the redrilling of a boring completed prior to the ED’s approval of a soil boring plan. *Testimony of John Michael Snyder, P.G., Tr. at 457.*

TCEQ has, many times, allowed the use in municipal solid waste permit applications of soil borings completed prior to the ED’s approval of a soil boring plan, and has approved many permit applications in which that was the case, including for the following facilities:⁷

Ellis County Disposal Landfill, Permit MSW-1745B
Iowa Park Landfill, Permit MSW-1571A
Long Point Landfill, Permit MSW-2270
TASWA Landfill, Permit MSW-2290
Blue Ridge Landfill, Permit MSW-1505A
City of Wichita Falls Landfill, Permit MSW-1428A

the Commission take official notice of the exhibit and/or the TCEQ policy and precedent set out in the exhibit.

⁶ Mr. Snyder obtained a Master of Science degree in Geology from the University of Texas at Arlington in 1977 and completed post-graduate hydrogeology work at Oklahoma State University in 1990. His is a registered Professional Geoscientist in the State of Texas and a Certified Professional Geologist by the American Institute of Professional Geologists, with specialties in Environmental Geology, Hydrogeology, and Petroleum Geology. He has practiced as a professional geoscientist for over 40 years in Texas. In his practice, Mr. Snyder is responsible for performing subsurface characterizations of geology and groundwater, primarily on MSW landfill projects, and has worked on over 100 such projects in his career. From 1990 until 1992, Mr. Snyder worked as a Senior Geologist in the permitting branch of the Municipal Solid Waste Program for the Texas Department of Health. In that capacity, he reviewed solid waste permit applications, represented the State of Texas in public meetings and public hearings, participated in development of rules regulating municipal solid waste and landfills, and served on the Subtitle D transition team when the Solid Waste Program was transferred to the Texas Water Commission. *Ex. Snyder-1 pp.4-9.*

⁷ Attachment 1 hereto is copies of documentation from TCEQ records showing that soil borings for these facilities were drilled prior to ED approval of the respective boring plan. 130EP respectfully requests that the Commission take judicial notice of: (a) this documentation, (b) TCEQ’s approval of each of the listed permit applications above, and (c) TCEQ’s policy, practice, and precedent of allowing the use in MSW permit applications of soil borings completed prior to the ED’s approval of a soil boring plan and approving many permit applications in which that was the case.

Sprint Fort Bend County Landfill, Permit MSW-1797A
Delta Waste Landfill, Permit MSW-2344
Sunset Farms Landfill, Permit MSW-1447A
La Gloria Landfill, Permit MSW-2348
IESI Weatherford Landfill, Permit MSW-47A
Galveston County Landfill, Permit MSW-1149B
New Boston Landfill, Permit MSW-576C

3. A Floodplain Development Permit is not Required and its Absence is Not a Deficiency.

TCEQ's municipal solid waste rule provision at 30 TAC §330.63(c)(2)(D) provides:

[F]or construction in a floodplain, submit, where applicable:

- (i) approval from the governmental entity with jurisdiction under Texas Water Code, §16.236, as implemented by Chapter 301 of this title (relating to Levee Improvement Districts, District Plans of Reclamation, and Levees and Other Improvements);
- (ii) a floodplain development permit from the city, county, or other agency with jurisdiction over the proposed improvements;
- (iii) a Conditional Letter of Map Amendment from FEMA; and
- (iv) a Corps of Engineers Section 404 Specification of Disposal Sites for Dredged or Fill Material permit for construction of all necessary improvements.

This provision requires the submission to TCEQ of approval from another regulatory entity for a municipal solid waste management unit (i.e., a landfill, transfer station, etc.) that is proposed to be constructed in a floodplain, not for non-waste management improvements such as a roadway. The "floodplains" location restriction in the municipal solid waste rules⁸ addresses and allows "solid waste management units" and "solid waste storage and processing facilities" to be constructed within a 100-year floodplain only in certain circumstances and subject to certain conditions. Where such a unit or facility is proposed to be constructed in a floodplain, 30 TAC §330.63(c)(2)(D) requires the submission to TCEQ of applicable authorizations from another regulatory entity. As

⁸ 30 TAC §330.547 provides:

- (a) No solid waste disposal operations shall be permitted in areas that are located in a 100-year floodway as defined by the Federal Emergency Management Administration.
- (b) New municipal solid waste management units, existing municipal solid waste units, and lateral expansions located in 100-year floodplains shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.
- (c) Municipal solid waste storage and processing facilities shall be located outside of the 100-year floodplain unless the owner or operator can demonstrate that the facility is designed and will operate to prevent washout during a 100-year storm event, or obtains a conditional letter of map amendment from the Federal Emergency Management Administration administrator.

confirmed by proposed Findings of Fact 288 and 289 in the ALJs' proposed order,⁹ the 130 Environmental Park facility will not include the construction in a floodplain of any municipal solid waste management unit or solid waste storage or processing facility. As a result, 30 TAC §330.63(c)(2)(D) does not require the submission to TCEQ of a construction authorization from another regulatory entity.

130EP does not object to a final permit including Special Provision IX.A from the draft permit, as recommended by the ED:

Before physical construction may commence, the permittee must provide the executive director with a floodplain development permit from the city, county, or other agency with jurisdiction over improvements authorized by this permit.

As recognized by the ALJs in their proposed Finding of Fact 223, 130EP has obtained approval from the U.S. Army Corps of Engineers (by way of Nationwide Permit No. 14) for construction of the 130 Environmental Park entrance road/access road at the locations where that roadway will cross floodplains associated with streams on the Hunter Tract. *See also, 130EP-1 at pp.199-269, and Ex. Marusak-1 at pp.8-9.* To the extent those roadway crossings may require a floodplain development permit from another entity with jurisdiction, 130EP agrees with the ALJs that the recommended special provision would be "a reasonable accommodation that will not cause any harm or threat to the environment, given that construction cannot begin until 130EP obtains the required permit." *PFD at pp. 79-180.* TCEQ's use of this sort of special provision is not unusual or uncommon, and allowing submission of a floodplain development approval after the application process has "become a fairly standard practice" for TCEQ. *Testimony of TCEQ Engineer Steven Odil, P.E. at Tr. pp. 1985-1987; Testimony of Kenneth Welch, P.E. at Tr. pp. 1181-1183.*

B. THE ALJS' RECOMMENDED CHANGES TO THE DRAFT PERMIT ARE NOT SUPPORTED BY THE RECORD, ARE INCONSISTENT WITH PRIOR COMMISSION INTERPRETATION AND PRACTICE, AND SHOULD NOT BE ACCEPTED BY THE COMMISSION.

1. The Permit Boundary Should Not Be Expanded to Include the Access Road and Screening Berm as it would be Contrary to Commission Rule, Inconsistent with Prior Agency Interpretation and Practice, and is Not Necessary for Enforceability of the Permit.

130EP respectfully excepts to the ALJs' recommendation that the Facility permit boundary be expanded beyond that set out in the Application. The ALJs recommend that the Commission issue the Draft Permit with two changes related to improvements that are shown in the Application as being located outside the permit boundary:¹⁰

1. The Permit Boundary should include the entire length of the access road from the entrance at US 183 to the entrance of the Facility at the Permit Boundary.

⁹ Proposed Finding of Fact 289 provides, "The proposed municipal solid waste management units at the Facility will not be located in a 100-year floodplain." Proposed Finding of Fact 288 provides, "Waste processing and/or storage units at the Facility will not be located in a 100-year floodplain."

¹⁰ Proposal for Decision, p. 2.

2. The Permit Boundary should include the entire screening berm.

As an initial matter, 130EP would point out that opponents of the 130 Environmental Park Landfill project are not seeking to have the Commission consider these permit boundary issues in a consistent and fair manner. The opponents generally, and specifically TJFA, L.P.¹¹, likely have significantly different reasons to want the Commission to expand the permit boundary of the 130 Environmental Park facility, as they urged to the ALJs and as the ALJs have recommended, including the desire for the Commission to issue an order that could be subject to judicial appeal on the grounds that it exceeds TCEQ's authority¹² and/or, as pointed out by the ED in his exceptions, that creates notice issues by expanding the finally approved permit boundary beyond that set out in 130EP's permit application.

The ALJs recommendation that the entire length of the access road should be included within the Permit Boundary is based, in part, on their consideration of the text set out under the heading "Facilities Authorized" in the Draft Permit:

All waste disposal activities authorized by this permit are to be confined to the Type I landfill which shall include security fencing, a gatehouse, scales, a paved entrance road, all-weather access roads, soil stockpiles, landfill gas monitoring and collection system, leachate collection system, groundwater monitoring system, liner system, solid waste disposal area, and other improvements.¹³

However, neither the access road nor the screening berm are "waste disposal activities". The interpretation of the Executive Director and the Commission regarding applicable rules has consistently been that such facilities are not required to be within the boundary of a permitted area

During the evidentiary hearing, Mr. Steven Odil, P.E., the TCEQ's Permit Engineer who reviewed the Application and determined that it was technically complete, testified regarding improvements located outside of permit boundaries. He testified that he has reviewed approximately 27 original applications and major amendments for permits and registrations, and approximately 150 modifications. *Ex. ED-SO-1, p.3*. He testified that permits have been approved for landfills with the access road outside of the permit boundary numerous times. *Tr. p.1920.1/12-16*. In his opinion, appurtenances required for the landfill, such as the gate house and scales, should be included within the permit boundary, but access roads need not be. *Tr. p.1920,1/24-p.1921,1/4*.

There are many examples of municipal solid waste landfills that have improvements authorized by permit that are outside of the permit boundary. Two are particularly illustrative.

¹¹ TJFA is closely affiliated with Texas Disposal Systems (a solid waste collection and disposal entity that owns and operates a landfill in Crocddmore, only a few miles from the proposed 130 Environmental Park facility) by way of Mr. Bob Gregory's positions as an owner and past president of TJFA and the current president of TDS. Preliminary Hearing Testimony of Dennis Hobbs at pp. 30-34.

¹² TAC §50.117 (Commission Actions) provides, in part: "The commission may grant or deny an application in whole or in part". A Commission order on an application that grants more than was sought in an application (larger permitted area, for instance) would be subject to judicial challenge on this basis.

¹³ Draft Permit, Ex. ED-SO-8, p. 38.

The permit for the IESI Jacksboro Landfill was issued by the Commission by Permit on January 5, 2010. Item III.F. of the permit for the Jacksboro Landfill provides the following:

F. Facilities Authorized

The permittee is authorized to operate a Type I municipal solid waste landfill that utilizes a combination of a sector below-grade-excavation fill and aerial fill of the municipal solid waste landfill subject to the limitations contained herein. All waste disposal activities subject to permitting are to be confined to the following facilities, which shall include disposal units, structures, appurtenances, or improvements: *access roads*, dikes, *berms* and temporary drainage channels, permanent drainage structures, detention ponds, landfill gas management system, contaminated water management system, final cover, groundwater monitoring system, landfill liner system, and other improvements.¹⁴

The Jacksboro Landfill includes an access road that extends approximately 1½ miles beyond the permit boundary, with approximately half of that length across property owned by the applicant and half of the length across property subject to an easement.¹⁵

The North Texas Municipal Water District owns and operates the NTMWD 121 Regional Disposal Facility located in Collin County (121 RDF). The 121 RDF obtained approval of a modification to its facility permit (MSW-2294) on June 15, 2009 to revise screening berms that were previously authorized to be located outside of the permit boundary.¹⁶ The Site Development Plan modification approved by TCEQ includes screening berms (shown by location and cross-section) that are located outside of the permit boundary.¹⁷

Mr. Odil testified that the TCEQ has jurisdiction to enforce the requirements for construction of the access road, control of mud accumulations on the access road, and other permit requirements outside of the permit boundary. *Tr. p.1923,1/16-19*. The TCEQ has the ability to enforce anything that the permit requires, even if it is outside the permit boundary. *Tr. p.1923,1/25-p.1924,1/5*. TCEQ is authorized to enforce the provisions of any permit it issues. *Water Code Sec. 7.002*. A permit issued by TCEQ based on the Application and the draft permit (including special provisions) is enforceable.

30 TAC §330.153. (Site Access Roads) provides the following regarding site access roads:

(a) All-weather roads must be provided from the facility to access public roads and within the facility to the unloading area(s) designated for wet-weather operation. Tracked mud and associated debris at the access to the facility on the public roadway must be removed at least once per day on days when mud and associated debris are being tracked onto the public roadway. The

¹⁴ IESI Jacksboro Landfill (Attachment 2), p. 4 (emphasis added).

¹⁵ See Attachment 3, Part III, Site Development Plan, Attachment 1, Site Layout Plans.

¹⁶ See Attachment 4, Modification to Municipal Solid Waste Permit No. 2294, North Texas Municipal Solid Waste Permit No. 2294, North Texas Municipal Water District NTMWD 121 Regional Disposal Facility.

¹⁷ See Attachment 5, NTMWD 121 RDF Modification Request.

methods for controlling mud and associated debris tracked onto public roadways must be specified in the site operating plan.

(c) All on-site and other access roadways must be maintained in a clean and safe condition. Litter and any other debris must be picked up at least daily and taken to the working face. Access roadways must be regraded to minimize depressions, ruts, and potholes. The frequency of regrading must be specified in the site operating plan.
(emphasis added)

This rule clearly contemplates entrance/access roads both within and outside of the permit boundary. 30 TAC §330.153(a) references both roads from the facility to public roads and roads within the facility. 30 TAC §330.153(c) provides that both on-site and other access roadways must be maintained in a clean and safe condition.

The Commission's rules, and the interpretation and implementation of the rules by both the Commission and the Executive Director has been to authorize in a permit non-waste disposal improvements, including entrance roads leading to solid waste facilities and screening berms, located outside of the permit boundary. 130 Environmental Park requests that the Commission reject the ALJs recommendation that the permit boundary be revised to include the entirety of both the entrance/access road and the screening berm at the 130 Environmental Park Landfill.

2. The Waste Acceptance and Operating Hours Provided in the Application and the Draft Permit are Appropriate. Restricting the Hours to those listed in 30 TAC §330.135 would be Contrary to the Intention of the Rule and would be Inconsistent with Prior Commission Interpretation and Practice.

130EP respectfully excepts to the ALJs' recommendation that the operating hours for the proposed 130 Environmental Park Landfill facility be revised from the hours set in the Application (waste acceptance from 3:00 a.m. to 5:00 p.m. [14 hours] on Monday through Friday and from 5:00 a.m. to 12:00 p.m. [7 hours] on Saturday, and other operating hours 24 hours per day, seven days per week).

ALJs Recommendation

In the PFD, the ALJs recommend that the Facility be required to adhere to the operating hours set forth in 30 TAC § 330.135, being 7:00 a.m. to 7:00 p.m., Monday through Friday for waste acceptance and 5:00 a.m. to 9:00 p.m. for material transportation and heavy equipment operation.¹⁸ The ALJs assert that there are residences within very short distances to various portions of the Facility, noise from heavy equipment operation could be incompatible with those residents, and, although the Application meets the requirements of the TCEQ's municipal solid waste rules for screening and buffer zones, that this does not eliminate the potential for noise and odors to impact nearby residents.¹⁹ The ALJs cite to a decision of the Commission in the permitting of Waste Management's Austin Community Landfill (ACL)²⁰ and make their recommendation based on

¹⁸ PFD, p. 187.

¹⁹ PFD, p. 188.

²⁰ An Order Granting the Application of Waste Management of Texas, Inc. for Type I MSW Permit No. 249D;

their conclusion that 130EP had the burden of proof here to show that operating hours beyond those set forth in 30 TAC §330.135 are appropriate, and that 130EP did not meet that burden.²¹

Protestants Motivation

As with their efforts to convince the ALJs to recommend that the permit boundary for the 130 Environmental Park facility be expanded beyond that requested in the Application, opponents of the project are, yet again, not seeking to have the Commission's operating hours rule applied in a consistent and fair manner. The opponents generally, and specifically TJFA, L.P.²², likely have significantly different reasons to want the Commission to limit the operating hours of the 130 Environmental Park facility as they urged to the ALJs and as the ALJs have recommended, including the desire to (1) encourage the Commission to issue an order that could be subject to judicial appeal on the ground that it exceeds TCEQ's authority and/or creates notice issues by incorporating waste acceptance hours that extend later into the evening than 130EP's designated hours, and/or (2) limit the efficiency of operations and the ability of 130EP's landfill to effectively compete in a competitive industry and market that includes TDS's nearby landfill.²³

Referred Issue v Direct Referral

The ALJs reliance on the ACL case is misplaced. In that case, the permit application was referred to SOAH on specified issues. The relevant issue referred to SOAH was "Whether the Landfill's Operational Hours are Appropriate."²⁴ 130 Environmental Park's Application was a direct referral to SOAH. As such, the issue is whether the application complies with applicable statutory and regulatory requirements.²⁵ As discussed below, and as pointed out by the ED in his exceptions, there is no statutory or regulatory requirement that an applicant for a municipal solid waste landfill permit must justify or make a showing of appropriateness of intended facility operating hours.

Applicable Requirements

The applicable regulation is 30 TAC §330.135, which provides:

A site operating plan must specify the waste acceptance hours and the facility operating hours when materials will be transported on or off site, and the hours

TCEQ Docket No. 2006-0612-MSW, Order at FoF 210 (Mar. 15, 2010).

²¹ PFD, p. 188.

²² TJFA is closely affiliated with Texas Disposal Systems (a solid waste collection and disposal entity that owns and operates a landfill in Creedmore, only a few miles from the proposed 130 Environmental Park facility) by way of Mr. Bob Gregory's positions as an owner and past president of TJFA and the current president of TDS. Preliminary Hearing Testimony of Dennis Hobbs at pp. 30-34.

²³ Testimony of B. Jeffrey Hobby at Ex. Hobby-1 p. 6.

²⁴ An Order Granting the Application of Waste Management of Texas, Inc. for Type I MSW Permit No. 249D; TCEQ Docket No. 2006-0612 MSW, Order at FoF 210 (Mar. 15, 2010). The issue "Whether the Landfill's Operational Hours are Appropriate" was also the referred issue in the Application of BFI Waste Systems of North America, LLC, for Type I MSW Permit No. 1447A (BFI Sunset Farms). See, An Order Granting in Part the Application of BFI Waste Systems of North America, LLC, for Type I MSW Permit No. 1447A; SOAH Docket No. 582-08-2178; TCEQ Docket No. 2007-1774-MSW.

²⁵ 30 TAC §55.210.

when heavy equipment may operate. The waste acceptance hours of a municipal solid waste facility may be any time between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, unless otherwise approved in the authorization for the facility. Waste acceptance hours within the 7:00 a.m. to 7:00 p.m. weekday span do not require other specific approval. Transportation of materials and heavy equipment operation must not be conducted between the hours of 9:00 p.m. to 5:00 a.m., unless otherwise approved in the authorization for the facility. Operating hours for other activities do not require specific approval.

The Application complies with 30 TAC §330.135 by specifying the Facility's waste acceptance hours and other operating hours when materials will be transported on or off site and heavy equipment may operate. Section 8.3 of the Site Operating Plan provides:

8.3 Hours of Operation

130 Environmental Park is authorized to accept waste from public and private haulers from 3:00 a.m. to 5:00 p.m. (14 hours) on Monday through Friday and from 5:00 a.m. to 12:00 p.m. (7 hours) on Saturday. 130 Environmental Park will post the hours for waste acceptance from private and public waste haulers on the site entrance sign. 130 Environmental Park may be open other hours, as may be required to provide solid waste disposal services for special events, inclement weather, emergencies and other circumstances. 130 Environmental Park will notify the TCEQ regional office and will record waste acceptance hours outside of posted hours in the site operating record.

130 Environmental Park is authorized for site operations 24 hours per day, seven days per week. Site operations include construction, earthmoving, monitoring, transportation of construction materials, heavy equipment operation, and other non-waste acceptance operations.

130 Environmental Park will be closed to waste acceptance on Sunday.

Ex. 130EP-5, pp.138-139.

In addition, 30 TAC §330.61(h) requires that the Application provide specific information regarding land uses within one mile of the facility:

- (1) if available, a published zoning map for the facility and within two miles of the facility for the county or counties in which the facility is or will be located. If the site requires approval as a nonconforming use or a special permit from the local government having jurisdiction, a copy of such approval shall be submitted;
- (2) information about the character of surrounding land uses within one mile of the proposed facility;
- (3) information about growth trends within five miles of the facility with directions of major development;
- (4) the proximity to residences and other uses (e.g., schools, churches, cemeteries, historic structures and sites, archaeologically significant sites, sites having exceptional aesthetic quality, etc.) within one mile of the facility. The owner

or operator shall provide the approximate number of residences and commercial establishments within one mile of the proposed facility including the distances and directions to the nearest residences and commercial establishments. Population density and proximity to residences and other uses described in this paragraph may be considered for assessment of compatibility;

(5) a description and discussion of all known wells within 500 feet of the proposed facility. Well density may be considered for assessment of compatibility; and

(6) any other information requested by the executive director.

The Facts

In addition to providing all of the required information in the Application as declared technically complete, 130 Environmental Park provided an updated land use report at the evidentiary hearing. Significant evidence included:

- Within one mile of the Site, 234 acres (5.3%) are used as single-family residences. There are 143 residences located within one mile of the Site.²⁶
- The nearest residence to the proposed facility is on Homannville Trail, estimated to be approximately 185 feet west of the facility boundary, and approximately 345 feet from the landfill footprint.²⁷
- There are no churches, daycare centers, schools, or sites having exceptional aesthetic quality within one mile of the facility boundary.²⁸

While only 5.3% of the area within one mile of the Site is used for single-family residences (143 units on a total of 234 acres--a sparsely developed average of more than 1.6 acres per residence), 93.1% of the area within one-mile of the Site is open and agricultural. Ex. Worrall-3, p.4. The remaining 1.6% of the area within one-mile of the Site is comprised of water bodies and commercial/industrial uses. 94.7% of the area within one mile of the Site (4,144 acres) is non-residential uses.

130 Environmental Park presented Mr. John Worrall as an expert witness on land use compatibility. Mr. Worrall has worked on over 30 landfill land use compatibility projects in a career of over 30 years. He has done more of these projects than anyone else. He has provided expert testimony in over a dozen contested case hearings before the State Office of Administrative Hearings regarding land use analyses for municipal solid waste landfill permit applications. He has testified on all aspects of land use compatibility (zoning, growth trends, proximity, land use, etc.) visual analysis, and mitigation through the design, phasing, buffering and screening of solid waste facilities.²⁹

Mr. Worrall testified that the “location, siting and design of the 130 Environmental Park Landfill all contribute to an excellent situation in terms of land use compatibility.” He testified that of all

²⁶ Ex. Worrall-3, p.4,6.

²⁷ Ex. Worrall-3, p.6.

²⁸ Ex. Worrall-3, pp. 4,6.

²⁹ Ex. Worrall-1, pp. 4-5

of the landfills and landfill proposals he has worked on or evaluated, the proposed 130 Environmental Park Landfill is one of the best in terms of land use compatibility.³⁰

Mr. Worrall testified that the 130 Environmental Park Landfill is compatible with existing and anticipated uses because:

As to existing uses on adjacent properties, the proposed 130 Environmental Park Landfill will have extensive buffers, far exceeding TCEQ standards. In fact, on the south and west, this site exceeds any landfill project I have seen in terms of buffer. Existing topography, naturally occurring tree lines and the vegetated landscaping plan will further limit the visibility of the facility. In terms of land use within one mile, the area is sparsely populated and yet has excellent regional transportation access that will nevertheless not impact local properties. Moreover, there are no churches, daycare centers, schools, cemeteries or sites having exceptional aesthetic quality within one mile of the facility.³¹

This evidence was undisputed throughout the hearing.

Reasonable projections of the volume of traffic expected to be generated by the Facility on access roads within one mile of the proposed Facility are set out in the Traffic Impact Analysis (TIA).³² Vehicles traveling to and from the Facility will consist of waste route collection trucks, waste transfer trucks, small waste load vehicles, recycling trucks, miscellaneous trucks, and passenger cars.³³ The number of vehicles traveling to and from the Facility on a daily basis is projected to increase each year from the time the Facility begins operations (Year 1) until the time the 130 Environmental Park Landfill reaches capacity (estimated to be Year 44).³⁴

The projected numbers of each type of vehicles traveling to and from the Facility on a on a daily basis in Year 1/Year 44 are: waste route collection trucks (110/216), waste transfer trucks (15/29), small waste load vehicles (25/49), recycling trucks (40/78), miscellaneous trucks (4/8) and passenger cars (40/79). The total projected number of vehicles traveling to and from the Facility on a daily basis is 234 in Year 1 and 459 in Year 44.³⁵

The projected numbers of each type of vehicles traveling to and from the Facility on an hourly basis in Year 1 are set forth in the Application in the Appendix to Section II.C.³⁶ The vehicles that will be access the site between 2:00 a.m. and 7:00 a.m. are as follows:

³⁰ *Ex. Worrall-1*, p.3.

³¹ *Ex. Worrall-1*, pp.5-6

³² *Ex. 130EP-1 pp.168-175 and 195-196*; Testimony of B. Jeffery Hobby at *Ex. Hobby-1* p.5/1.5-8.

³³ *Ex. 130EP-1* pp.195-196.

³⁴ *Ex. 130EP-1* pp.195-196; *Ex. 130EP-3*, pp.52-54.

³⁵ *Ex. 130EP-1* pp.195-196.

³⁶ *Ex. 130EP-1*, p.195.

Estimated Number of Incoming Vehicles	2-3* a.m.	3-4 a.m.	4-5 a.m.	5-6 a.m.	6-7 a.m.
Route Trucks	0	7	8	7	5
Transfer Trucks	0	2	0	2	1
Passenger Cars	5	0	0	0	0
Recycling Pass. Cars	3	0	0	0	0
Recycling Trucks	0	2	3	2	2

*5 arriving passenger cars and 3 arriving recycling passenger cars in this hour are assumed to be employees who depart during the 9th hour after arrival.

The 27 route trucks expected to access the site between 3 a.m. and 7 a.m. constitute 24.5% of the daily-estimated 110 route trucks. The 5 transfer trucks accessing the site between 3 a.m. and 7 a.m. constitute 33.3% of the daily-estimated 15 transfer trucks. The 9 recycling trucks accessing the site between 3 a.m. and 7 a.m. constitute 22.5% of the daily-estimated recycling trucks.

Mr. B. Jeffery Hobby is an engineer who has been involved with the municipal solid waste (MSW) industry in Texas for more than 25 years, with development of the market for solid waste disposal services having been at least a part of his responsibilities for more than 20 years and a primary part of his business since 1998.³⁷ Mr. Hobby reviewed the portions of the Application related to incoming waste acceptance rates and traffic expected to be generated at the facility, as described above.³⁸ He testified that the Application satisfies the requirements in TCEQ's MSW rules regarding waste acceptance rates and that the estimates and projections used in the Application for waste acceptance rates expected to be generated by the facility are reasonable.³⁹ No other witness testified regarding the reasonableness of the waste acceptance estimations or the hours in which those vehicles would be accessing the Facility. The only evidence in the record regarding the reasonableness of the acceptance of waste between 3:00 a.m. and 7:00 a.m. is that it is reasonable. That evidence establishes the anticipated demand for and reasonable expectation of incoming volumes of waste to the Facility during the waste acceptance hours set out in the Application.

The Rule

The ED takes the position, in his exceptions in this case and in at least one other case,⁴⁰ that 30 TAC §330.135 (and its predecessor 30 TAC §330.118) means that an applicant may designate

³⁷ *Ex. Hobby-1*, pp.3-4.

³⁸ *Ex. Hobby-1*, p.4.

³⁹ *Ex. Hobby-1*, p.4-5.

⁴⁰ Executive Director's Exceptions to Proposal for Decision (ED's Exceptions); Application by Post Oak Clean Green for Type I Municipal Solid Waste Disposal Permit No. 2378; SOAH Docket No. 582-15-2498;TCEQ Docket No. 2012-0905-MSW (Post Oak Application), p. 8.

facility operating hours without having to provide justification in a permit application to exceed the hours set out in the rule, but that the Commission may restrict the operating hours based on potential impacts on the community and the applicant's need for the proposed hours. The ED's interpretation and practice has been (and continues to be) that an applicant is not required to include justification in an application to exceed the operating hours specified in the rule.⁴¹ As stated by the ED in his exceptions in the Post Oak case referenced by the ALJs⁴², the ALJs' suggested interpretation "would result in a significant change in how operating hours are approved, and have been approved, in applications for new facilities and amendments for existing facilities."⁴³

In 2004 the TCEQ conducted major rulemaking revising to the Chapter 330 Municipal Solid Waste rules (MSW Rules), which included adopting amendments to 30 TAC §330.118(a). In that rulemaking, the Commission received comments requesting that language be added to require "...that a variance from the operating hours designated in the rule should only be granted on a showing of good cause"⁴⁴ The rule was not changed in response to this comment or comments that a variance from the operating hours designated in the rule should only be granted on a showing of good cause and that 24-hour operation should not be authorized in a populated area.⁴⁵ The Commission determined that adding a requirement to show good cause would not add any objective criteria for making a determination. The Commission stated that it "will continue to make these decisions on a case-by-case basis considering the potential impact on surrounding communities. The Commission can consider whether a facility is located in a residential area, downtown area, or rural area under existing rules. No changes have been made in response to these comments."⁴⁶

In the preamble to its 2006 rulemaking for the MSW Rules, the Commission discussed the issue of whether the operating hours rule should be amended to specify the circumstances that would justify authorization for 24/7 operations. At that time, the Commission was rewriting and re-codifying all of the Municipal Solid Waste Site Operating Plan rules. The Commission stated that it "... needs to retain flexibility to continue authorizing operating hours on a case-by-case basis considering the potential impacts on surrounding communities."⁴⁷ As discussed herein, the ED and the Commission interpret the rule to mean that an applicant may specify operating hours that exceed the hours referenced in the rule, and that the Commission will generally approve those hours unless the ED or Commission is aware of information to justify restricting the proposed hours.

⁴¹ ED's Exceptions, Post Oak Application, p. 8.

⁴² See PFD, p.186, fn. 754.

⁴³ ED's Exceptions, Post Oak Application, p. 8.

⁴⁴ 29 Tex. Reg. 11070, November 26, 2004.

⁴⁵ 29 Tex. Reg. 11070, November 26, 2004.

⁴⁶ 29 Tex. Reg. 11070, November 26, 2004.

⁴⁷ 31 Tex. Reg. 2564-2565 (March 24, 2006) (Attachment B).

Other Facilities and Operating Hours

Since the adoption of 30 TAC §330.118 in 2004 and recodification of the rule as 30 TAC §330.135 in 2006, the interpretation and practice of Commission and the Executive Director has been that an applicant has not been required to include justification in an application for designated operating hours that exceed those set out in the rule. Following is a summary of a number of Type I Municipal Solid Waste facilities located within the Capital Area Council of Governments area and the Alamo Area Council of Governments area that have received approval of site operating plan modifications or permit amendments implementing 30 TAC §330.118 (2004) or §330.135 (2006). These areas were selected because they are/were generally within the service area from which the 130 Environmental Park Facility is expected to receive waste.

Waste Management Coval Gardens (Approved June 29, 2006)

The Commission approved Waste Management's application for a permit amendment providing for the following waste acceptance and operating hours⁴⁸:

Waste acceptance	Seven days per week, 24 hours per day
Transport materials on and off site, operate heavy equipment	Seven days per week, 24 hours per day
Operating	Seven days per week, 24 hours per day

The Site Operating Plan provides:

The permitted operating hours reflect commercial waste collection demands that include municipal waste collection during off-peak traffic hours early in the morning and in the evening.

BFI Tessman Road (Approved July 27, 2006)

The Executive Director approved BFI's application for approval of a modification of its permit to come into compliance with the then new 2006 Site Operating Plan requirements. The approved modification provides the following waste acceptance and operating hours⁴⁹:

Waste acceptance	Monday through Friday, 5:00 a.m. - 3:00 p.m. Saturday 7:00 a.m. - 3:00 p.m.
Operating	Monday through Friday, 4:00 a.m. - 9:00 p.m. Saturday 5:00 a.m. - 5:00 p.m.

Texas Disposal Systems (Approved February 14, 2007)

The Executive Director approved Texas Disposal Systems Landfill's application for approval of a modification of its permit to come into compliance with the then new 2006 Site Operating Plan requirements. The modification approved the following waste acceptance and operating hours⁵⁰:

⁴⁸ TCEQ MSW Permit No. 2093B, Section II.A.

⁴⁹ TCEQ Permit MSW 1410C Site Operating Plan Modification Approval, July 27, 2006.

⁵⁰ TCEQ Permit MSW 2123 Site Operating Plan Modification Approval, February 14, 2007.

Acceptance of waste (commercial sources)	Monday through Saturday, 24 hours per day
Acceptance of waste (public sources)	Monday through Saturday, 7:00 a.m. - 7:00 p.m.
Operations	Seven days per week, 24 hours per day

The Site Operating Plan, Section K-7 Operating Hours §330.118 does not provide any explanation for the waste acceptance or operating hours.⁵¹

Waste Management Mesquite Creek Landfill (Approved October 1, 2008)

The Commission approved Waste Management's application for a permit amendment that included the following waste acceptance and operating hours.⁵²

Acceptance of waste	Monday through Friday, 4:00 a.m. - 8:00 p.m. Saturday 4:00 - 3:00
Transportation of materials on and off site and operation of heavy equipment	Monday through Friday, 4:00 a.m. - 9:00 p.m. Sunday 5:00 a.m. - 9:00 p.m.
Other activities	Seven days per week, 24 hours per day

BFI Sunset Farms Permit No. 1447B (Approved September 14, 2009)

The Commission approved BFI Sunset Farms' application for permit amendment that provides for the following waste acceptance and operating hours⁵³:

Acceptance of waste	Seven days per week, 24 hours per day
Operations	Seven days per week, 24 hours per day

Land Use Factors

Residential Growth	Substantial - 524 new residences between 2004 and 2008 ⁵⁴
Residential Use within 1-mile	11% ⁵⁵
School/Daycare within 1-mile	1 School

⁵¹ Texas Disposal Systems Landfill, Inc. Site Operating Plan Permit Modification request, TCEQ Permit No. 2123 Site Development Plan, Part IV, Section K-7 (approved February 14, 2007).

⁵² TCEQ MSW Permit No. 66B, Section II.A; An Order Granting the Application for Permit No. MSW-66B to Waste Management of Texas, Inc., TCEQ Docket No. 2006-1931-MSW, SOAH Docket No. 582-07-0863 (Mesquite Creek Order), FoF 19, 95.

⁵³ An Order Granting in Part the Application of BFI Waste Systems of North America, LLC, for Type I MSW Permit No. 1447A; SOAH Docket No. 582-08-2178; TCEQ Docket No. 2007-1774-MSW (Sunset Farms Order), Permit Section II.A.

⁵⁴ Sunset Farms Order, FoF 352.

⁵⁵ Sunset Farms Order, FoF 350.

	1 Daycare ⁵⁶
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Austin Community Landfill (Approved March 15, 2010)

The Commission approved Waste Management's application for a permit amendment that provides for the following waste acceptance and operating hours⁵⁷:

Acceptance of waste	Sunday, 9:00 p.m. through Saturday, 7:00 p.m. Sunday, 7:00 a.m. through 4:00 p.m.
Operations	Sunday, 9:00 p.m. through Saturday, 7:00 p.m. Sunday, 7:00 a.m. through 4:00 p.m.

Land Use Factors

Residences 1-mile	1477 ⁵⁸
Residential Use within 1-mile	10.0% ⁵⁹
School/Daycare within 1-mile	One School One Daycare ⁶⁰
Waste Authorized	Municipal, community, commercial, institutional, and recreational activities. ⁶¹

Williamson County Landfill (Approved August 28, 2013)

The Commission approved Williamson County's application for permit amendment that provides for the following waste acceptance and operating hours⁶²:

Acceptance of waste	Monday through Friday, 5:00 a.m. - 8:00 p.m. Saturday, 6:00 a.m. - 4:00 p.m.
Operate heavy equipment, transport materials to and from facility	Monday through Friday, 5:00 a.m. - 8:00 p.m. Saturday, 6:00 a.m. - 4:00 p.m.
Operating hours (other activities)	Not specified

⁵⁶ Sunset Farms Order, FoF 359.

⁵⁷ An Order Granting the Application of Waste Management of Texas, Inc., for Type I MSW Permit No. 249D; SOAH Docket No. 582-08-2186; TCEQ Docket No. 2006-0612-MSW (ACL Order), Permit Section IIA.

⁵⁸ ACL Order, FoF 182.

⁵⁹ ACL Order, FoF 180.

⁶⁰ ACL Order, FoF 183.

⁶¹ ACL Order, Permit Section II.B.

⁶² An Order Granting the Application for Permit No. MSW-1405 to Williamson County; TCEQ Docket No. 2005-0337-MSW; SOAH Docket No. 582-06-3321, p. 38.

The Waste Acceptance and Operating Hours Designated in the Application will not Result in Nuisance Conditions

In the preamble to the 2004 rules, the Commission specifically stated that it would look to “objective criteria” and consider the “potential impact” that a facility’s operating hours may have on the surrounding community, e.g., whether the proposed operating hours would create a “nuisance” or would otherwise be “incompatible with land use in the area.”⁶³

The rule has not been changed in regard to comments that a variance from the operating hours designated in the rule should only be granted on a showing of good cause, and that a 24-hour operation should not be authorized in a populated area. Adding a requirement to show good cause would not add any objective criteria for making a determination. The commission will continue to make these decisions on a case-by-case basis considering the potential impact on surrounding communities.⁶⁴

Even though not required by TCEQ’s rules, 130EP proved that operation of its proposed Facility during the hours set out in the Application will not create nuisance conditions or result in an incompatible land use. As discussed herein, 130EP provided a land use compatibility analysis as part of the Application and a Supplemental Land Use Analysis at the contested case hearing. 130EP also provided a detailed Site Operating Plan that provides instructions on site operations that are intended to avoid the creation of a nuisance. 130EP then provided proposed findings of fact regarding those specific site operations to the ALJs. The ALJs’s proposed Findings of Fact and a Conclusion of Law include that the Facility will not result in the creation of a nuisance:

FF173. The Application describes how the Facility is designed for rapid processing and minimum detention of solid waste, and states that solid waste capable of creating health hazards or nuisances will be stored indoors, transferred, or processed promptly, and not allowed to cause nuisances or health hazards.

FF174. The Application provides design features for the waste storage units that will prevent the creation of nuisances and public health hazards due to odors, fly breeding, or harborage of other vectors.

CL43. The methods specified in the Site Operating Plan comply with the municipal solid waste rules to prevent the creation of any nuisance, as defined by 30 TAC § 330.3(95).

130EP is subject to and must comply with all applicable federal, state and local regulations, including the nuisance prohibition under Tex. Health & Safety Code, §382.085 and TCEQ’s rule at 30 TAC §§101.4, 330.15(a). Therefore, 130EP is prohibited from creating a nuisance by statute, regulation, and permit. The Site Operating Plan in the Application specifies provisions to prevent nuisance conditions including provisions related to the unloading of waste control of windblown waste and litter, odor management, disease vector control, controls on salvaging and scavenging, landfill gas controls, landfill cover requirement, and ponded water preventions techniques.⁶⁵ And,

⁶³ 29 Tex. Reg. at 11,069; *see also id.* at 11,070.

⁶⁴ 29 Tex. Reg. at 11,070.

⁶⁵ Application Part IV, Site Operating Plan, *Ex. 130EP-5*, pp.99-187.

in addition to the 125-foot regulatory buffer required under 30 TAC §330.3(19), 130 EP is, at a minimum, more than doubling that by providing a minimum effective buffer of 325 feet to its property boundary.

130EP has demonstrated, and the ALJs have found, that the operation of the 130 Environmental Park Landfill will not result in the creation of a nuisance. The Executive Director has, by the Draft Permit, agreed that the requested waste acceptance and site operating hours are appropriate. 130 EP respectfully requests that the Commissioners incorporate into the final permit for the Facility the hours of waste acceptance and site operations set forth in the Application.

C. ADDITIONAL MATTERS

1. Definition of “Protestants”

130 EP respectfully excepts to the failure of the order proposed by the ALJs to define the term “Protestants”. This term is used in a number of Findings of Fact and Conclusions of Law. Based on the way in which the term is used, it appears it is intended to apply to Environmental Protection in the Interest of Caldwell County (EPICC) and TJFA, L.P. (TJFA), collectively.

2. Compatibility with Site 21 Reservoir

130 EP respectfully excepts to the ALJs expression of “concern” regarding the compatibility of the Landfill with the Site 21 Reservoir. The evidence in the record and the ALJs’ analysis of this issue in the PFD demonstrate that the Landfill will be compatible with the reservoir. In the PFD, at page 173, the ALJs analysis includes:

130EP thoroughly addressed potential adverse impacts of the Facility on the Site 21 Reservoir and Dam in the context of its compliance with other TCEQ rules pertaining to surface water drainage and floodplains. As previously stated in this PFD, the ALJs conclude that the Application met the requirements in the TCEQ’s rules regarding surface water drainage and floodplains, and that the preponderance of the evidence indicates that development and operation of the Facility will not adversely impact or impair the District’s easement rights or its operation of the Site 21 Dam and Reservoir. Specifically, the ALJs find that the Facility will not adversely alter the surface drainage patterns to the Site 21 Reservoir. With respect to any future rehabilitation of the Site 21 Dam, its final design will consider the then-existing upstream land uses, including the Facility should it exist. Importantly, the District, as the entity responsible for the Site 21 Dam and Reservoir, does not argue that the Facility will adversely impact human health or environment or frustrate or interfere with the ability of the Site 21 Dam to protect downstream life and property. Accordingly, the ALJs conclude that in balancing all the relevant factors in 30 TAC § 330.61(h), the Facility is generally compatible with the Site 21 Reservoir and Dam.

In addition, the ALJs’ proposed Finding of Fact 320 states, “Considering all relevant factors, the Facility will not adversely impact human health and the environment and will be compatible with surrounding land uses.” and the ALJs’ proposed Conclusion of Law 18 states, “The Facility will be compatible with surrounding land uses.” The issue of the Landfill’s compatibility with the Site

21 Reservoir has been appropriately evaluated in the PFD and in the referenced finding of fact and conclusion of law.

3. Destruction of Filed Logs and Soil Samples

130EP respectfully excepts to repeated references in the PFD and the ALJs proposed Finding of Fact to 130EP destroying field logs and soil samples (“discoverable materials”). As clearly set forth in the November 23, 2015 affidavit of John Michael Snyder, P.G. to which the ALJs refer in their discussion of this issue (*Attachment B to 2015-11-24 Applicant’s Preliminary Response to the Motion to Compel Access to Property or in the Alternative, Motion for Sanctions Due to Spoliation of Evidence*), the destruction of the field logs and soil samples was done by Biggs & Mathews Environmental, not 130EP, pursuant to its standards practices and need for storage space.

The following are excerpts from Mr. Snyder’s affidavit:

I am a geologist and a licensed Professional Geoscientist in Texas. I am employed by Biggs & Mathews Environmental (BME) in Mansfield, Texas.

The field work for the borings and installation of the piezometers at the 130 Environmental Park Site was done under my direction and supervision by Hydrogeologic/Environmental Testing (H/ET), a registered geotechnical drilling and testing firm owned by Stefan Stamoulis, a geologist and licensed professional geoscientist with whom BME and I have worked for many years on many soil boring and piezometer installation projects for municipal solid waste landfill projects.

Gregg Adams, P.E., a licensed professional engineer employed by BME and with whom I have worked for many years on geologic and geotechnical investigations and evaluations of many sites for municipal solid waste facilities, and I were also on the 130 Environmental Park site for portions of the drilling and sampling activities.

The soil samples were transported to BME’s offices in Mansfield, Texas. The samples to be tested were provided to the laboratory; the other samples were laid out on tables in proper depth sequence, where Mr. Adams and I visually inspected them. Mr. Adams and I discussed various samples and the soils present in them. Under my direction and supervision, Mr. Adams prepared the final versions of the boring logs included in the Application, including descriptions of soils in the borings. The boring logs prepared by Mr. Adams include descriptions of the soils at various depths in the borings using the Unified Soil Classification System and based on (a) visual observations of each sample from the borings, (b) the results of the analytical laboratory testing of samples from the borings, and (c) discussions between Mr. Adams and me regarding the samples. I consider the boring logs prepared in this manner (based on the detailed visual inspection of soil samples from the borings in the controlled environment of BME’s office and the results of analytical laboratory analyses, with descriptions prepared in accordance with the Unified Soil Classification System), to be superior to the field logs prepared in the field (under difficult working conditions, without the benefit of laboratory analytical testing, and not based on the Unified Soil Classification System).

After the laboratory analyses were completed, the boring logs were finalized and included in Parts II and IV of the Application, which was then submitted to TCEQ. Pursuant to BME's standard instructions to Stefan Stamoulis, he did not retain copies of the field logs and, pursuant to BME's standard document retention policies, neither did BME. The soil samples from the 130 Environmental Park site that Mr. Adams and I inspected in our office were then placed in a secure storage unit, then disposed of as storage space was needed for other projects on which BME was working.

The procedures described above are the standard practices followed by Gregg Adams, Stefan Stamoulis, and me in connection with soil borings done as part of site investigations during the many years we have worked together on municipal solid waste landfill projects.

We do not dispose of soil samples and field logs to prevent access to them by third parties. We dispose of soil samples after using them to prepare soil boring logs and samples to be sent for laboratory testing because we have no further use for them, because the samples degrade over time, and because we have limited storage space for sample boxes so our practice is to dispose of older samples to make room for samples from more recent projects. In my experience, the practice of not retaining and/or disposing of soil samples after using them to prepare soil boring logs and samples to be sent for laboratory testing is a standard practice among persons and organizations engaged in geologic site investigations for solid waste facility projects. We dispose of field logs after boring logs to be included in a permit application submitted to TCEQ have been prepared based on BME's standard document retention policy, which is to not retain and/or to dispose of draft documents. The purpose of this policy is to ensure that we do not have older versions of documents in our files or computers that could mistakenly be used in place of current versions of documents.

TCEQ does not require, by rule or otherwise, the preparation or inclusion in a permit application of field logs of soil borings, or the preservation of soil samples from such borings.

4. Wetlands

130EP respectfully excepts to the mischaracterization, in the ALJs proposed Finding of Fact 227, of the results of the wetlands investigation conducted by Mr. Russell Marusek. That finding states, "There are 20 areas, totaling 1.46 acres in size, of jurisdictional wetlands located within the Facility Boundary." However, the uncontroverted evidence in the record (at Ex. 130EP-1 p.672-674) establishes that the referenced 1.46 acres of wetlands is not all "jurisdictional" wetlands:

Table IID.2-1 and Figure IID.2-1 in this appendix summarize information regarding those wetlands that are located within the proposed facility boundary. As shown, there are approximately 1.46 acres of wetlands located within the facility boundary, 0.49 acre of which are jurisdictional wetlands;

130 EP respectfully suggests that Finding of Fact 227 should appropriately provide, "There are 20 areas, totaling 1.46 acres in size, of wetlands located within the Facility Boundary."

5. Caldwell County Disposal Ordinance

130EP respectfully excepts to the mischaracterization of the Caldwell County Disposal Ordinance as a “zoning ordinance”. In fact, *Hallco*, the very case cited by ALJs in the PFD in support of the proposition that the Caldwell County Disposal Ordinance is a zoning ordinance, clearly states that a solid waste facility siting ordinance adopted by a county pursuant to 364.012 (as was the case with the ordinance under consideration in *Hallco* and as is the case with the Caldwell County Disposal Ordinance under consideration here) is not a zoning ordinance: “...this was no zoning ordinance; the ordinance here prohibited precisely the use Hallco intended to make of this property” *Hallco Texas, Inc. v. McMullen County*, 221 S.W.3d 50, 60 (Tex. 2006) (emphasis added). As set out in *Hallco*, and quoted in the PFD, “Texas counties generally enjoy fairly limited zoning authority”. That authority is set out in Local Gov’t Code Ch. 231 (which allows counties to exercise zoning in limited circumstances, mostly dealing with specifically-identified lakes and none applicable to Caldwell County), and Local Gov’t Code Ch. 241 (which allows counties to exercise limited zoning authority “around airports”; also not applicable to Caldwell County and the area of the 130EP Site). The Caldwell County Disposal Ordinance is not a “zoning ordinance”.

130EP also respectfully excepts to the ALJs’ conclusion, as set out in the PFD, that the Caldwell County Disposal Ordinance should have been considered in evaluating land use compatibility for proposed the 130 Environmental Park facility because, as the ALJs found, the ordinance does not apply here because it was adopted after 130EP had already filed an application at TCEQ. *See*, ALJs’ proposed Findings of Fact 316-317 and 325-327 and ALJs’ proposed Conclusion of Law 41: “The existence of the County’s Disposal Ordinance does not prevent TCEQ from granting the Application and issuing the permit pursuant to Texas Health and Safety Code §§ 363.112(d) and 364.012(f).” Consideration of an ordinance that does not apply in this situation should not be a required element of an evaluation of the proposed facility.

6. 30 TAC §330.459

130EP respectfully excepts to the omission, in the ALJs’ proposed Conclusions of Law 53 and 56, of references to the Application’s demonstration of compliance with 30 TAC § 330.459 (Closure of Storage and Processing Units). The uncontroverted evidence in the record (Application Attachment A, Section 8 [Ex. 130EP-2 p.20], Application Attachment H, Section 4.2 [Ex. 130EP-5 p.48]; and Application Attachment I, Section 2.4 [Ex. 130EP-5 p.65]) shows that the Application complies with 30 TAC § 330.459.

II. PRAYER

Based on the foregoing, 130EP respectfully requests that the Commission sustain these exceptions, grant 130EP’s Application, and issue to 130EP a Municipal Solid Waste Landfill Type I permit as set out in the attached Draft Permit with the modifications set out in Item jj below, pursuant to an order based on the ALJs’ proposed order with the changes set out in Items a through ii below:

- a. modify Finding of Fact 20 in the ALJs proposed order to define the term “Protestants” as used elsewhere in the proposed order, as follows: “On March 26, 2015, SOAH ALJs Casey A. Bell and Sharon Cloninger held a preliminary hearing in Lockhart, Texas. The ALJs found that notice had been properly given and that SOAH had jurisdiction over this matter. The ALJs further admitted

the following persons and entities as parties to the contested case hearing: Environmental Protection in the Interest of Caldwell County (EPICC); and TJFA, L.P. (TJFA) (collectively “Protestants”), Caldwell County (County), Plum Creek Conservation District (District), James Abshier, Claudia and Robert Brown, Ann and Troyce Collier, Byron Friedrich, the King Family Trust, Brenda Martin, Frank Sughrue, Bill and Pam Young, and Joe Colley. Ben Pesl was also admitted as a party but did not participate in the contested case hearing.”

- b. overturn and delete a to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “On July 26, 2016, Protestants filed a motion seeking to strike certain portions of 130EP’s prefiled testimony. The basis of Protestants’ motion was 130EP’s alleged spoliation, or destruction, of discoverable material regarding its geologic interpretation and characterization of the subsurface at the Site. On August 3, 2016, 130EP responded to Protestants’ motion and disagreed with their assertions. However, an affidavit of John Michael Snyder, P.G.~~m~~ confirmed that 130EP’s consulting firm, Biggs & Mathews Environmental, had destroyed boring samples and field logs pursuant to its ~~consultant’s~~ retention policy and need for storage space.
- c. overturn and delete portions of Finding of Fact 24 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “On August 11, 2016, the ALJs issued Order No. 26, finding that, ~~130EP had a duty to reasonably preserve discoverable material. 130EP breached its duty because it knew or should have known that there was a substantial chance that a contested case hearing on the Application would take place and that documents in its possession or control would be material and relevant to the hearing. By destroying~~because the field logs and soil samples had been destroyed, 130EP ~~precluded~~ Protestants were precluded from conducting full discovery.”
- d. overturn and delete a portion of Finding of Fact 25 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “The ALJs overruled Protestants’ motion to strike and admitted 130EP’s prefiled evidence. The ALJs determined that striking 130EP’s prefiled testimony was not appropriate because any remedy must be proportionate to the prejudice suffered by Protestants due to the destruction of the discoverable material. Because Protestants conducted an investigation at the Site outside of the discovery period as a result of their prior spoliation assertions, no other action was necessary to remedy the prejudice caused by ~~130EP’s~~the destruction of discoverable material.”
- e. adopt the following additional Finding of Fact 36A, as supported by the evidence in the record: “The District and its easement associated with the Site 21 Reservoir are not listed in the real property appraisal records of the Caldwell County Appraisal District.”
- f. modify Findings of Fact 49 through 51, 61, 62, 65, and 67 in the ALJs proposed order, pursuant to Health & Safety Code § 361.0832(c) because they are not supported by the great weight of the evidence, to change “access road” to “entrance road” to properly identify the portion of roadway discussed in each finding, based on designation of the “entrance road” in the Application.

- g. overturn and delete a portion of Finding of Fact 68 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “The Draft Permit lists ~~all of the~~ “Facilities Authorized” by the permit, including the all-weather access roads. All authorized facilities are within the Permit Boundary, except for the entire length of the access road.
- h. overturn and delete Finding of Fact 69 in the ALJs proposed order (“130EP has not justified why the entire length of the access road is not included within the Permit Boundary, even though it is a facility authorized by the permit.”) pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence.
- i. overturn and delete Finding of Fact 70 in the ALJs proposed order (“The entire length of the access road from US 183 should be included within the Permit Boundary.”) pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence.
- j. modify Finding of Fact 223 and 328 in the ALJs proposed order, pursuant to Health & Safety Code § 361.0832(c) because they are not supported by the great weight of the evidence, to change “access road” to “entrance road/access road” to properly identify the portion of roadway discussed in each finding, based on designation of the “entrance road” and “access road” in the Application.
- k. overturn and delete a portion of Finding of Fact 227 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “There are 20 areas, totaling 1.46 acres in size, of jurisdictional wetlands located within the Facility Boundary.”
- l. overturn and delete a portion of Finding of Fact 318 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “The Disposal Ordinance is a ~~zoning ordinance that regulates~~ land-use activities in the vicinity of the proposed Landfill.”
- m. overturn and delete portions of Finding of Fact 318 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “130EP has not obtained ~~the required~~ a floodplain development permit from the County and did not submit ~~the~~ a floodplain development permit with its Application.”
- n. overturn and delete portions of Finding of Fact 329 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “130EP has not obtained ~~the required~~ a floodplain development permit from the County and did not submit ~~the~~ a floodplain development permit with its Application.
- o. overturn and delete portions of Finding of Fact 330 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “The Draft Permit contains a special provisions to address this deficiency regarding a floodplain development permit. The use of such special provisions in the

permit matter is a common practice at the TCEQ to address similar types of deficiencies involving approvals from other governmental entities.

- p. overturn and delete portions of Finding of Fact 372 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “There are no residences within ~~very short distances to various portions~~ 345 feet of the Landfill proposed for the Facility.”
- q. overturn and delete Finding of Fact 373 in the ALJs proposed order (“Noise from heavy equipment operation and other operations at the Facility could be incompatible with nearby residents.”) pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence.
- r. overturn and delete portions of Finding of Fact 374 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “The screening and buffer zones at the Facility ~~do not eliminate~~ will limit the potential for noise and odors to impact nearby residents.”
- s. overturn and delete portions of Finding of Fact 375 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “130EP ~~did not showed~~ did not show that the operating hours set forth in the Draft Permit are appropriate.”
- t. overturn and delete Finding of Fact 376 in the ALJs proposed order (“The following operating hours are appropriate for the Facility: 7:00 a.m. to 7:00 p.m. Monday through Friday, and material transport and heavy equipment operation must not be conducted between 9:00 p.m. and 5:00 a.m.”) pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence.
- u. overturn and delete Finding of Fact 394 in the ALJs proposed order (“The entire screening berm 130EP will construct on the northern boundary of the Facility should be included within the Permit Boundary.”) pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence.
- v. overturn and delete portions of Finding of Fact 425 in the ALJs proposed order, and modify the finding, pursuant to Health & Safety Code § 361.0832(c) because it is not supported by the great weight of the evidence, as follows: “Protestants incurred additional expenses because 130EP Biggs & Mathews Environmental breached its duty and destroyed discoverable materials field logs and soil samples from the 2013 soil borings it conducted.”
- w. overturn and delete Conclusion of Law 7 in the ALJs proposed order (“130EP’s Application had the following deficiencies: (a) The Application failed to list the District’s easement on the Hunter Tract, as required by 30 TAC §§ 281.5(6) and 330.59. (b) 130EP did not obtain approval from the ED of its boring plan for the subsurface investigation of the Site prior to initiating work, as required by 30 TAC § 330.63(4). (c) 130EP did not obtain a floodplain development permit from the County, as required by 30 TAC § 330.63(c)(2)(D)(ii).”) pursuant

to Health & Safety Code § 361.0832(d), because it is clearly erroneous in light of precedent and applicable rules.

- x. overturn and delete Conclusion of Law 8 in the ALJs proposed order (“130EP did not meet its burden to prove that its requested operating hours beyond those specified in 30 TAC § 330.135 are appropriate.”) pursuant to Health & Safety Code § 361.0832(d), because it is clearly erroneous in light of precedent and applicable rules.
- y. overturn and delete the first part of Conclusion of Law 9 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Other than the deficiencies in the Application and the failure to prove that expanded operating hours would be appropriate,~~ 130EP met its burden on all other issues.
- z. overturn and delete a portion of Conclusion of Law 11 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “The Draft Permit No. MSW-2383, as prepared by the ED ~~and as amended by this Order,~~ includes all matters required by law.
- aa. overturn and delete the first part of Conclusion of Law 13 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Except for the failure to include information regarding the District’s ownership of an easement on the Hunter Tract,~~ The Application complied with 30 TAC §§ 281.5 and 330.59.”
- bb. overturn and delete Conclusion of Law 21 in the ALJs proposed order (“The entire length of the access road should be included within the Permit Boundary to ensure consistency with and enforceability of the permit’s requirements.”) pursuant to Health & Safety Code § 361.0832(d), because it is clearly erroneous in light of precedent and applicable rules.
- cc. overturn and delete the first part of Conclusion of Law 23 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Other than 130EP’s failure to obtain ED approval of its boring plan,~~ The Geology Report in the Application meets the requirements in 30 TAC § 330.63(e).”
- dd. overturn and delete the first part of Conclusion of Law 39 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Except for 130EP’s failure to obtain and include the floodplain development permit from the County in its Application,~~ The Application complies with the floodplain requirements in 30 TAC §§ 330.61(m), 330.63(c)(2), and 330.547.”
- ee. overturn and delete the first part of Conclusion of Law 42 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Except for the deviation from the TCEQ’s~~

~~standard operating hours~~, 130EP has shown that it will comply with the operational prohibitions and requirements in 30 TAC §§ 330.15 and 330.121 through 330.249.

- ff. overturn and delete the first part of proposed Conclusion of Law 51 in the ALJs proposed order and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Except as set out in Conclusion of Law No. 7 regarding 130EP’s omission of the District’s easement~~, Part I of the Application meets the requirements of 30 TAC §§ 281.5, 305.45, 305.57(c)(l), and 305.59.”

- gg. overturn and delete portions of Conclusion of Law 53 in the ALJs proposed order, pursuant to Health & Safety Code § 361.0832(d) because they are clearly erroneous in light of precedent and applicable rules, and modify the conclusion to include reference to 30 TAC § 330.459-330.463, as follows: “~~Except as set out in Conclusion of Law No. 7 regarding the lack of ED approval of the boring plan and the omission of a floodplain development permit~~, Part III of the Application complies with the applicable rules in 30 TAC §§ 330.63, 330.171, 330.303 through 330.307, 330.331, 330.333, 330.371, 330.401 through 330.421, 330.457, through 330.465, and 330.503 through 330.507.”

- hh. overturn and delete the first part of Conclusion of Law 54 in the ALJs proposed order, and modify the conclusion, pursuant to Health & Safety Code § 361.0832(d) because it is clearly erroneous in light of precedent and applicable rules, as follows: “~~Except for the deviation from the TCEQ’s standard operating hours~~, Part IV of the Application, the Site Operating Plan, meets the requirements of 30 TAC §§ 330.57(c)(4), 330.65, and 330.121 through 330.249.”

- ii. modify Conclusion of Law 56 in the ALJs proposed order to include reference to 30 TAC § 330.459, as follows: “130EP has submitted information regarding closure and post-closure that demonstrates compliance with the requirements of 30 TAC §§ 330.63(h), (i), (j); 330.457; ~~330.461~~ through 330.465; and 330.503 through 330.507.

- jj. modify Ordering Provision 1 as follows: “130EP’s Application is granted and the Municipal Solid Waste Landfill Type I permit is hereby issued to 130EP, as set out in the attached Draft Permit with the following modifications:
Within
 - a. ~~Within 30 days of the date of this Order, 130EP shall submit to the ED a revised Permit Boundary that includes the entire length of the access road from US 183 to the entrance of the Facility at the current Permit Boundary and the entire screening berm.~~Section II.F of the Draft Permit is revised to read: “The permittee is authorized to operate a Type I municipal solid waste landfill consisting of a total permit boundary of approximately 520 acres and a waste disposal footprint of approximately 202 acres. The permittee is also authorized to operate a citizen convenience center, leachate storage unit, large items storage area, used/scrap tire storage area, wood waste processing area, and truck wheel wash station. All waste disposal activities authorized by this permit are to be confined to the Type I landfill. Other improvements shall include security fencing, a gatehouse, scales, entrance road, all-weather access roads, soil stockpiles, landfill gas monitoring and collection system, leachate collection system, groundwater monitoring system, liner

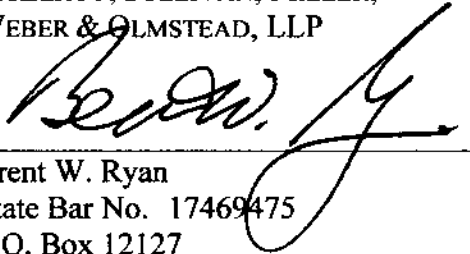
system, and a screening berm. Structures for surface drainage and storm water run-on/runoff control include a perimeter drainage system to convey storm water runoff around the site, berms, ditches, detention ponds and associated drainage structures. All waste processing activities and improvements identified above and authorized by this permit are to be confined to the locations depicted in Drawing IIA.24 in Part II of the permit application, Hearing Exhibit Worrall-10, and Drawing D1.1 in Part III of the permit application and described in Part III, Attachment D, Chapter 2 of the permit application.

~~b. Waste acceptance hours may be any time between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and transportation of materials and heavy equipment operation must not be conducted between the hours of 9:00 p.m. to 5:00 a.m., unless otherwise approved. Operating hours for other activities do not require specific approval.~~

Respectfully submitted,

MCELROY, SULLIVAN, MILLER,
WEBER & OLMSTEAD, LLP

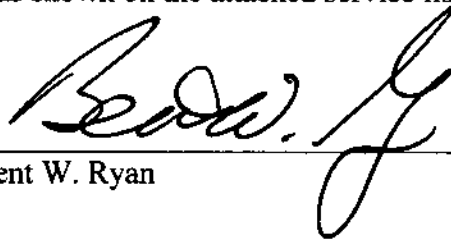
By:


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State Bar No. 17469475
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Tel: (512) 327-8111
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Attorneys for
130 Environmental Park, LLC

CERTIFICATE OF SERVICE

On March 13, 2017, a true and correct copy of the foregoing was sent to each party representative via email and/or first-class mail, as shown on the attached service list.

A handwritten signature in black ink, appearing to read "Brent W. Ryan", is written over a horizontal line. The signature is cursive and stylized.

Brent W. Ryan

SERVICE LIST

SOAH Docket No. 582-15-2082; TCEQ Docket No. 2015-0069-MSW
Application of 130 Environmental Park Landfill, LLC for Proposed Permit No. 2383

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ATTACHMENT 1

**ECD LANDFILL EXPANSION
ELLIS COUNTY, TEXAS
MSW PERMIT NO. 1745-B**

**SITE DEVELOPMENT PLAN PART III
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

Ellis County Landfill TX, L.P.

May 1997

Revised December 1997

Revised February 1998

Technically Complete June 3, 1998

Prepared by

EMCON

5701 East Loop 820 South

Fort Worth, Texas 76119

817/478-8254

Project 65500-021.001

2.1.2 Layer II - Highly Weathered Shaly Clay

Layer II consists of highly oxidized, discolored, limonitic soils immediately below the residual clay (Layer I). This layer is characterized as a highly fractured, highly weathered zone. Vertical joints and fractures are evident throughout this unit. Layer II ranges from nonexistent in boring O-2 to 13.5 feet thick in boring C-11; average thickness of this highly weathered zone is about 6 feet. Cross sections (Figures 4C.3 through 4C.8) indicate that the thickness and depth of Layer II is a result of weathering and appears to be thinnest in the high topographic areas.

2.1.3 Layer III - Slightly Weathered Upper Marl

Layer III is distinguished from the upper units strictly by color, consistency and appearance. This layer can be characterized as a dark gray, slightly weathered and fractured zone. Fractures and joints are present in this zone but not to the degree of the zone above. The thickness of Layer III ranges from 10.5 feet in borings C-13 and L-5 to 42.5 feet in boring I-2. Average thickness across the site is about 24 feet.

2.1.4 Layer IV - Unweathered Lower Marl

Layer IV has been described and characterized as a dark gray, slightly harder, unweathered zone. Layer IV is distinguished from the unit above using field and laboratory determinations of consistency, density, strength, and degree of fracturing. This unit is generally distinguished from Layer III by appearance and hardness. The slight fracturing that was evident in the upper portion of this unit decreases with depth. This unit was only partially penetrated. The average thickness penetrated in the borings drilled on site was about 42 feet.

As stated above, the stratigraphy of the site has been defined by the degree of weathering. To illustrate the unweathered surface of the Taylor Marl, a contour map was prepared using information obtained from the borings (Figure 4C.1). This map indicates that the unweathered unit (Layer IV) surface mimics the surface topography and slopes to the northwest (as does the surface topography). These maps and the generalized cross sections (Figures 4C.3 through 4C.8) support the conclusion that the geologic units generally parallel the surface and are thus related to weathering processes, not to depositional processes.

2.2 Site Exploration

2.2.1 Site Investigations

Subsurface explorations that provided data for the geological interpretation of the existing permitted site were completed in 1992 and 1994. The first of these explorations occurred in March, April, June, and September 1992 and consisted of drilling, logging, and sampling 19

exploratory borings, the installation of deep piezometers in 7 of the exploratory borings (PD-1A, PD-7A, PD-8A, PD-8C, PD-8D, PD-15A, and PD-17A), and the installation of 14 shallow piezometers (PS-1B, PS-2A, PS-4A, PS-5A, PS-7B, PS-7C, PS-8B, PS-10A, PS-11A, PS-12A, PS-13A, PS-15B, PS-16A, and PS-17B) adjacent to exploratory boreholes. A second exploration of the existing permitted site was conducted in March 1994. All 14 borings drilled in 1994 were completed as piezometers; they comprise 6 shallow, weathered marl piezometers (P-1C, P-15C, P-17C, NP-3A, NP-4A, and NP-5A) and 8 deep, unweathered marl piezometers (P-1D, P-15D, P-17D, NP-1B, NP-3B, NP-4B, NP-5B, and NP-7B). The 1992 and 1994 borings ranged in depth from 45 feet to 116 feet; 13 of these borings extended 30 feet or more below the elevation of the deepest excavation (EDE).

The soil boring plan (SBP) for the proposed expansion of the ECD Landfill site was approved by the TNRCC in its letters of July 14 and September 11, 1995 (Figures 4B.165 and 4B.166). Thirty-eight borings (8 previously completed borings and 30 new borings) plus 2 large-diameter borings were approved for characterization of the subsurface. The approved SBP borings are included in Table 4-3. Site exploration for the proposed expansion was conducted in August and September 1995. This included the drilling and subsequent evaluation of two large-diameter borings (F-6 and K-5) completed within the unweathered Taylor Marl at total depths of about 70 feet each. The purpose of the large-diameter borings was to investigate the extent to which groundwater might exist in the unweathered marl. This was accomplished by use of downhole video equipment to observe and record geologic and hydrogeologic conditions within the borehole.

Of the 38 borings approved for characterization of the site, 8 of these were completed in 1992 and 1994 (see Section 2.2.1 and Table 4-3). The remaining 30 borings were completed in 1995. Four of the 1995 borings (G-5, J-8, K-2, and N-5) were drilled and sampled to a depth 30 feet below the elevation of the deepest excavation (EDE). For the purpose of developing the SBP for the site, the EDE was conservatively estimated to be about 390 feet above msl in elevation. The deepest proposed excavation is actually 400 feet above msl. All four borings were completed to elevation 360 feet above msl. Twenty-six of the 1995 borings were completed to total depths at least 30 feet below the proposed excavation at each boring location.

Twelve piezometers were installed in the proposed expansion area as part of the 1995 site exploration. Expansion-area piezometers are screened in the shallow, weathered marl. These 12 piezometers, along with 8 monitoring wells and 7 shallow piezometers at the existing site, were used to characterize groundwater conditions. Piezometer installations are described in Section 4.2.

The 1992, 1994, and 1995 borings, along with their depths, surface elevations, and calculated bottom elevations, are listed in Table 4-3. Logs of the borings are provided in Appendix 4B of this attachment. Drilling and sampling procedures are discussed in Section 2.2.3.

**BELL PROCESSING, INC., IOWA PARK LANDFILL
WICHITA COUNTY, TEXAS**

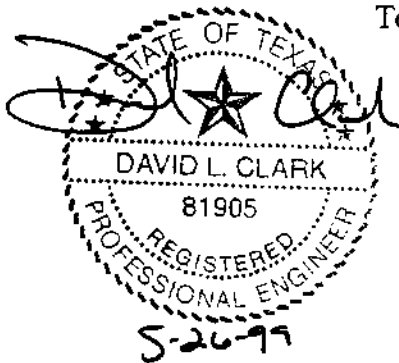
**PERMIT AMENDMENT
TNRCC PERMIT NO. 1571A
PART III SITE DEVELOPMENT PLAN**

**ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for
Bell Processing, Inc.

September 1997
Revised March 1998
Revised June 1998
Revised July 1998

Technically Complete April 16, 1999



Prepared By

EMCON
5701 East Loop 820 South
Fort Worth, Texas 76119
817/478-8254



Project 61560-011-007

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 16, 1996

Mr. Michael Snyder, C.P.G.
EMCON
5701 East Loop 820 South
Fort Worth, Tx 761197051

Re: Solid Waste- Wichita County
Site Investigation, P.A. MSW #1571,
Bell Processing, Inc., Iowa Park Landfill

Dear Mr. Snyder:

We have reviewed your proposed soil boring plan (SBP) dated April 25, 1996, for the expansion of the above-referenced landfill in Wichita County. A total of 33 soil borings, of which 16 soil borings will be deeper than 30 feet below the deepest proposed excavation elevation of approximately 950 feet mean sea level, will be drilled for the combined 268 acre site. The proposed SBP complies with the Commission's Municipal Solid Waste Regulations concerning site investigations and this letter constitutes approval of your SBP.

It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Please be advised that although this plan complies with the Municipal Solid Waste Regulations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. If you should have any questions concerning this matter, please feel free to contact Mr. T. Wesley McCoy, Staff Geologist, at (512) 239-6669.

Sincerely,

A handwritten signature in cursive script that reads "Mark Dollins".

Mark Dollins, P.E., Team Leader
Permits Section
Municipal Solid Waste Permits Section

MD/TWM/jad

cc: TNRCC Region 3 Office
Ms. Jean Doyle, TNRCC MSW Permits Section

FIGURE 4B.1

LOG OF BORING NO. EB-A12

Project Description: BELL PROCESSING - IOWA PARK LANDFILL



Depth, feet	Samples	Symbol / USCS	Location: E 9.6 N 1200.0 Surface El.: 996.9' MSL	Hand Penetrometer, TSF	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION											
5	U-1	[Diagonal Hatching]	CLAY, w/sand, brown & light olive brown, hard, dry, blocky											
	U-2		- iron nodules, calcareous webbing & limonitic below 4.5 ft.	4.5+										
	U-3		- reddish iron stains	987.4	4.25									
10	U-4	[Diagonal Hatching]	SILTY SANDY CLAY, reddish brown, very stiff, slightly moist, iron nodules & stains	3.25										
	U-5				3.25									
	U-6		- increased sand & silt at 12 ft.	1.25					15.3	116.1	51	19	32	71
	U-7		- increased moisture at 13 ft.	0.5										
15	U-8		- some cemented sandstone, moist	980.9	4.25									
	U-9	[Diagonal Hatching]	SANDY CLAY, reddish brown, very stiff, moist, w/some rounded gravel, iron nodules & stains	978.9	1.25									
20	U-10													
	U-11		SAND, w/silt, reddish brown, wet, fine-grained, w/clayey sand & sandy clay seams, w/iron stains & nodules	975.9										
25	U-12	[Diagonal Hatching]	SANDY GRAVELLY CLAY, reddish brown, moist to wet, mostly fine to medium grained, some coarse-grained, & some cobbles, iron stains											
30	C-13	[Diagonal Hatching]	CLAYEY SHALE, w/silt, reddish brown & light blue-gray, hard, dry, fractured, blocky, limonitic			0								
	C-14					55	44							
35			- light blue-gray, clayey siltstone layer											
40	C-15	[Diagonal Hatching]	- less silt, increased fractures, some slickensides below 41 ft.			46	26							
45			- very hard, calcareous, indurated mudstone seam											
50														

Completion Depth: **87.0 ft.**
 Date Boring Started: **5/8/96**
 Date Boring Completed: **5/9/96**
 Engineer/Geologist: **MB**
 Project No.: **61560-011.005**

Remarks: Boring drilled using air-rotary coring techniques. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

Continued Next Page

LOG OF BORING NO. EB-A12

Project Description: **BELL PROCESSING - IOWA PARK LANDFILL**



Depth, feet	Samples	Symbol / USCS	Location: E 9.6 N 1200.0 Surface El.: 996.9' MSL	Hand Penetrometer, TSF	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION											
55	C-16	[Hatched]	CLAYEY SHALE, w/silt (continued) - dark bluish-red, friable, fractured			22	3							
60	C-17	[Hatched]	- more cohesive from 60 to 66 ft.			78	53							
65		[Hatched]	- increased fractures, bluish-red below 66 ft.											
70	C-18	[Hatched]				94	38							
75		[Hatched]												
80	C-19	[Hatched]				74	15							
85		[Hatched]		909.9										
90		[Hatched]												
95		[Hatched]												
100		[Hatched]												

Completion Depth: **87.0 ft.**
 Date Boring Started: **5/8/96**
 Date Boring Completed: **5/9/96**
 Engineer/Geologist: **MB**
 Project No.: **61560-011.005**

Remarks: Boring drilled using air-rotary coring techniques. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

**LONG POINT LANDFILL
FORT BEND COUNTY, TEXAS
PERMIT APPLICATION**

**SITE DEVELOPMENT PLAN PART III
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared For

Long Point Partners, L.P.

February 1998

Revised August 1998

Revised January 1999

Revised May 1999

Revised July 1999

Technically Complete August 31, 1999

Technically Complete Revision 1, February 2000

Permit Issued March 2, 2001

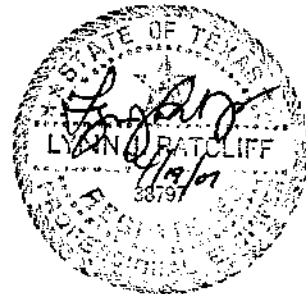
Prepared By

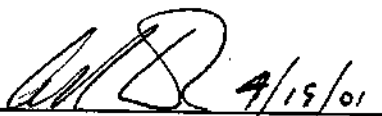
EMCON

5701 East Loop 820 South

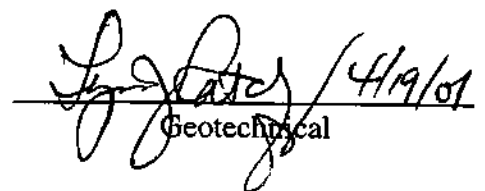
Fort Worth, Texas 76119

(817) 478-8254



A handwritten signature of A. Richard Smith, dated 4/19/01.

A. Richard Smith
Geology/Hydrogeology

A handwritten signature of Lynn R. Hatcliff, dated 4/19/01, with the word "Geotechnical" written below it.

Project 64334-001.100

2.3 Site Exploration

2.3.1 Previous Investigations

Sixteen monitoring wells were installed in 1994 as a part of a site characterization related to a surface impoundment closure. These piezometers have a "TMW-" prefix (e.g., "TMW-1") in tables and on figures. Well logs, screen lengths and some other well details are not available. These wells were installed with no surface slab, metal surface casing, or other permanent surface completion characteristics. They have all been removed and plugged in accordance with TNRCC rules. Locations and total depths are shown on Table 4-8.

Previous soil boring investigations of the site include drilling episodes completed in 1996. A preliminary 10-hole boring program was conducted in May 1996. An additional 40 borings were drilled in July 1996. Four supplementary deep borings were drilled in October 1996. Details and depths of the borings are listed in Table 4-2. Logs of the borings are in Appendix 4B, Figures 4B.5 through 4B.120. Monitoring wells MW001A through MW005 and piezometers PZ001 through PZ005 were logged as shown on the well and piezometer completion sheets. These logs were not used in the site characterization or preparation of maps and cross sections because of lack of detailed information.

2.3.2 Soil Boring Plan

The soil boring plan for the proposed permit application was approved by the TNRCC in its letter of July 10, 1996 (Figure 4B.1). A total of 48 borings was approved for characterization of the subsurface. Ten of these borings had already been drilled in May 1996 as part of a preliminary exploration program. (The July 10, 1996, TNRCC letter refers to eight initial borings, rather than the actual ten completed. The letter approved 40 additional borings for an actual total of 50, though the letter states a total of 48.) All of the 50 borings were completed to total depths that extended at least 5 feet below the elevation of the deepest excavation (EDE) of 52 feet msl; 31 of the borings extend at least 30 feet below the EDE. Nine monitoring wells were installed during the July 1996 drilling.

A supplement to the boring plan was approved by the TNRCC in a letter dated October 25, 1996 (Figure 4B.1, continued). This added four additional deep borings (more than 30 feet below the EDE), five piezometers, and six test pits to collect bulk soil samples for lab testing. The work was completed in October 1996. The six test pits (TP001 - TP006), adjacent to existing borings, were excavated by backhoe to depths of 9½ to 12½ feet, solely to allow collection of geotechnical samples.

A second supplement to the boring plan was approved by the TNRCC in a letter dated October 29, 1997 (Figure 4B.1, continued). Two supplementary soil borings were completed in November 1997 to depths of 60 feet (42 feet below EDE). Boring locations

are shown on Figure 4B.2 (Appendix 4B). Logs of all borings completed at the site are in Appendix 4B of this attachment.

Seventeen geophysical holes were drilled in November 1997 to depths of about 300 feet in order to determine if faults exist beneath the site. Geophysical hole locations are shown on Figure 4B.2. Total depths and elevations of all holes are listed in Table 4-2. Details of wells and piezometers (except the TMW wells) are presented on the logs in Appendix 4B.

Four additional borings were drilled in October 1998. Three of the borings (all 30 feet deep) were completed as temporary piezometers PE-1, 2, and 3 for field determination of hydraulic conductivity in Unit A. BH010A, the fourth boring, was to determine moisture content in Unit A clay. Logs of the borings are in Appendix 4B.

**Table 4-2
Boring Depths and Elevations**

Boring Number	Surface Elevation (ft above msl)	Total Depth of Boring (ft)	Bottom of Boring Elevation (ft above msl)	Depth Below Deepest Excavation (ft)
1996 Borings				
BH001	68.44	114.0	-45.6	97.6
BH002	68.38	70.0	-1.6	53.6
BH003	69.88	114.0	-44.1	96.1
BH004	66.94	70.0	-3.1	55.1
BH005	74.25	114.0	-39.8	91.8
BH006	69.38	114.0	-44.6	96.6
BH007	64.49	58.0	6.5	45.5
BH008	65.73	114.0	-48.3	100.3
BH009	67.00	70.0	-3.0	55.0
BH010	69.22	70.0	-0.8	52.8
BH011	66.87	40.0	26.9	25.1
BH012	66.61	65.0	1.6	50.4
BH013	67.24	40.0	27.2	24.8
BH014	66.42	70.0	-3.6	55.6
BH015	66.24	40.0	26.2	25.8
BH016	63.04	72.0	-9.0	61.0
BH017	69.20	40.0	29.2	22.8
BH018	68.81	70.0	-1.2	53.2
BH019	67.68	40.0	27.7	24.3
BH020	67.25	70.0	-2.8	54.8
BH021	66.53	40.0	26.5	25.5
BH022	66.31	70.0	-3.7	55.7
BH023	63.39	40.0	23.4	28.6
BH024	70.74	75.0	-4.3	56.3
BH025	69.44	40.0	29.4	22.6
BH026	68.18	70.0	-1.8	53.8
BH027	67.28	40.0	27.3	24.7
BH028	66.50	70.0	-3.5	55.5
BH029	61.37	40.0	21.4	30.6
BH030	64.31	75.0	-10.7	62.7
BH031	75.49	40.0	35.5	16.5
BH032	71.75	70.0	1.8	50.3
BH033	69.43	40.0	29.4	22.6
BH034	69.07	75.0	-5.9	57.9
BH035	68.68	40.0	28.7	23.3
BH036	68.73	75.0	-6.3	58.3

BORING LOG	
LOGGED BY	<i>EHSA</i>
DRIILLER	<i>Gulf Coast Coring, Inc.</i>
RIG MAKE/MODEL	<i>Mayhew 200</i>
DRILL METHOD	<i>Rotary Hydraulic</i>
COMPLETION	<i>Grouted (TD to GL)</i>

PROJECT	<i>Geotechnical Investigation</i>		
SITE	<i>Long Point Facility</i>		
LOCATION	<i>N = 583303.34 E = 3044886.15 Fort Bend County, TX</i>		
FLUID LEVEL	DATE	TIME	
<i>1.00 ft</i>	<i>05/14/98</i>	<i>13:30</i>	
<i>23.20 ft</i>	<i>05/15/98</i>	<i>17:50</i>	

WOLE NO.	<i>BH001</i>		
GROUND ELEV.	<i>68.44 ft NGVD</i>		
COLLAR ELEV.	<i>68.44 ft NGVD</i>		
TOTAL DEPTH	<i>114.0 ft</i>		
INCLIN	<i>-90°</i>	BIRNG	<i>0°</i>
START	<i>05/14/98</i>	FINISH	<i>05/14/98</i>

DEPTH (ft)	LITHOLOGY	DESCRIPTION / CLASSIFICATION	SAMPLER		SPT BLOWS	HAND PEN.	MOISTURE (%)	LIMIT WGT (lb/ft ³)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	-200 SIEVE (%)	STRENGTH (ksf)	OTHER TESTS	
			TYPE	ADVANCE RECOVERY											
4		<i>SILTY CLAY (CL): trace fine granular calcareous material; very thickly bedded; pale brown mottled grayish brown; moist, stiff, slightly plastic.</i>													
5															
10		<i>Moderate reddish brown mottled with grayish brown.</i>													
15															
20		<i>Thinly laminated silt at 18.1 and 18.7 ft.</i>													
25		<i>Medium bedded silt; moderate reddish brown mottled light gray; medium, moist, non-plastic.</i>													
		<i>Very thickly bedded; moderate reddish brown mottled light gray; moist, very stiff, moderately plastic.</i>													
30															
		<i>Thickly laminated silt and very thin to medium bedded clay.</i>													

Project No. 16985

Espey, Huston & Associates, Inc.

Sheet 1 of 3

BORING LOG

JOB

Geotechnical Investigation

HOLE NO.

BH001

SITE

Long Point Facility

DEPTH (ft)	LITHOLOGY	DESCRIPTION / CLASSIFICATION	SAMPLER		SPT BLOWS	HAND PEN.	MOISTURE (%)	UNIT WGT (lb/ft ³)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	-200 SIEVE (%)	STRENGTH (ksf)	OTHER TESTS
			TYPE	ADVANCE										
38														
40		SANDY SILT (ML): trace of thickly laminated clay; thickly to very thickly bedded; light brown; fine grained quartz, wet, stiff, non-plastic.		2.0	1.5									
45		SILTY SAND (SM): trace of fine quartz gravel; very thickly bedded; light brown; wet, very dense, moderate cementation at 44 ft.	X	1.0	0.0	32								
		Fine quartz gravel sparse; pale yellowish brown.	X	1.0	1.0	50/3								
50			X	0.8	0.8	36						13.5		G
						50/25								
55		CLAY (CH): as determined from geophysical log.	X	1.5	0.0									
		Trace of clay and fine to coarse granular calcareous material; medium light gray; very dense.	X	1.5	1.0	15								
			X	1.5	0.8	28								
			X	1.5	0.8	22								
60		CLAY (CL): trace of glauconitic sand; thin to medium bedded; grayish red; moist, stiff, slightly plastic.	X	1.5	0.8									
		SAND (SP): very thickly bedded; pale brown; fine grained quartz, wet.												
65		CLAYEY SILT (ML): thickly bedded; dark yellowish brown; moist, medium dense, slightly plastic.	X	1.5	1.3	8								
		SAND WITH CLAY (SP-CL): interbedded, thin to medium bedded clay, and thickly to very thickly bedded sand.				4								
		Pale yellowish brown; fine to medium grained quartz sand, wet, very dense.	X	1.5	1.0	23								
70						24								
			X	1.5	0.8	35								
			X	1.5	0.8	25								
			X	1.5	0.8	12								
		Medium gray; moist, very stiff, medium plastic.	X	1.5	0.8	13								
			X	1.5	0.8	13								

Project No. 16985

Espey, Huston & Associates, Inc.

Sheet 2 of 3

BORING LOG

JOB

Geotechnical Investigation

SOLE NO.

BH001

SITE

Long Point Facility

DEPTH (ft)	LITHOLOGY	DESCRIPTION / CLASSIFICATION	SAMPLER		SPT BLOWS	HAND PEN.	MOISTURE (%)	UNIT WT (lb/ft ³)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	-200 SIEVE (%)	STRENGTH (ksf)	OTHER TESTS
			TYPE	ADVANCE										
80			X	1.5	1.0	28 38 26								
85		Trace of fine quartz gravel; pale yellowish brown; fine to medium quartz sand.	X	1.5	0.8	33 50/5								
90			X	1.5	0.8	15 24 35								
95		CLAY (CL): trace of thinly laminated sand; thickly bedded; yellowish brown; hard, moist, slightly plastic. SAND (SP): trace of clay inclusions; thickly bedded; pale yellowish brown; fine grained quartz, wet, very dense.	X	LS	LQ	13 18 43	1.8							
100			X	1.5	0.8	31 50/5								
105		CLAY: as determined from geophysical log. SAND: as determined from geophysical log.												
110		Not sampled from 100.0 to 114.0 ft. Additional depth required for geophysical logging of borehole												

TEXOMA AREA SOLID WASTE AUTHORITY
GRAYSON COUNTY, TEXAS
TNRCC PERMIT APPLICATION NO. 2290

PERMIT APPLICATION

PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT

Prepared for

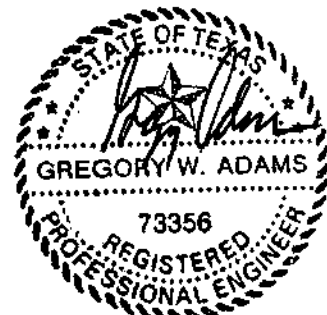
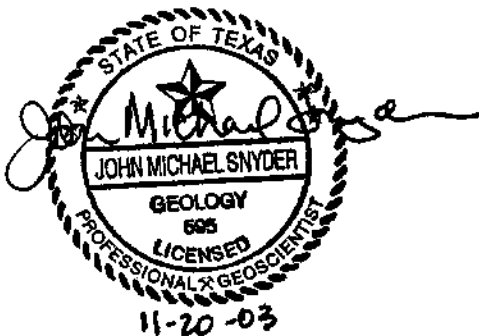
Texoma Area Solid Waste Authority

December 2000

Revised May 2001

Technically Complete November 14, 2001

Permit Issued October 31, 2003



Prepared by

BIGGS & MATHEWS, INC.

2500 Brook Avenue ♦ Wichita Falls, Texas 76301 ♦ 940-766-0156
6031 Interstate 20 West, Ste. 242 ♦ Arlington, Texas 76017 ♦ 817-563-1144

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 11, 2000

Mr. Michael Snyder, C.P.G.
Biggs & Mathews Environmental
5450-A East Loop 820 South
Fort Worth, TX 76119-6548

Re: Municipal Solid Waste - Grayson County
TASWA Proposed Landfill,
Soil Boring Plan

Dear Mr. Snyder:

The Texas Natural Resource Conservation Commission (TNRCC) received your proposed soil boring plan (SBP), dated January 10, 2000, for a proposed 400-acre Type I landfill in Grayson County. The boring plan proposes a total of 39 borings, with 27 borings a minimum of 30 feet below the deepest excavation elevation, and 12 borings a minimum of 5 feet below the deepest excavation elevation. Additionally, the SBP proposes the installation of 18 piezometers for hydrogeologic characterization purposes. Upon review, the proposed location and depth of the borings complies with the TNRCC's Municipal Solid Waste Rules (MSWR) concerning site investigations for Municipal Solid Waste (MSW) landfills, and this letter constitutes approval of the proposed soil boring plan.

Please be aware that a sufficient number of borings and piezometers must be completed to accomplish the following:

- A. Establish the subsurface stratigraphy beneath the facility;
- B. Determine the geotechnical properties of soils and rocks beneath the facility; and
- C. Identify the uppermost aquifer, all deeper hydraulically interconnected aquifers, and the lower confining unit at the uppermost aquifer's lower boundary.

It is anticipated that this SBP, when implemented, will accurately characterize the geologic, hydro-geologic, and engineering properties of the subsurface and subsurface strata at this site. Please be advised that although this plan complies with the MSWR, additional soil borings and piezometers could be required by the TNRCC should the data generated by the SBP prove to be inconclusive. If you should find it necessary to modify this approved plan, another plan, detailing the proposed modifications must be submitted to the TNRCC for approval prior to implementation of the modifications.

The TNRCC recommends that all potential permit applicants contact local governments and persons who may be affected by a landfill facility at a proposed investigation site prior to submission of a permit application. Although not required by the MSWR, pre-application contact between potential permit applicants, local governments, and persons who may be affected by a landfill facility, is highly encouraged.

Mr. Michael Snyder, C.P.G.
Page 2

Pre-application contact can serve to identify technical and non-technical issues of concern, establish communication between parties, and resolve points of conflict prior to submission of an application. You may wish to utilize the formal pre-application review process detailed in 30 Texas Administrative Code, Section 330.50 of the MSWR or choose to contact local governments and persons who may be affected in a less structured manner. An effective method of initiating pre-application contact would be to complete the attached "Information Regarding a Potential Municipal Solid Waste Facility" form and return the completed form to the TNRCC within 30 days of SBP approval. The TNRCC will mail copies of the form to local governments and persons who may be affected by a landfill facility at the proposed location.

If you have any questions concerning this matter, please feel free to contact Mr. T. Wesley McCoy, Staff Geologist. Please note that all written correspondence should include the Municipal Solid Waste Mail Code, MC-124.

Sincerely,



Dorca Zaragoza-Stone, Manager
Municipal Solid Waste Permits Section
Waste Permits Division
Texas Natural Resource Conservation Commission

DZS/TWM

Attachment

) techniques were used to drill EB-6. The boring was continuously sampled by hydraulically pushing 3-inch-diameter, thin-walled sample tubes from the surface to the depth of refusal. Mud-rotary drilling was accomplished using 10-foot, double-tube core barrels. Location of EB-6 is included in the Boring Plan and applicable maps within this application. The log of boring for EB-6 is included in Appendix B.

2.3.2 Soil Boring Plan

On February 11, 2000, the TNRCC approved a soil boring plan for the proposed permit application (see Figure 4B.1). Boring locations are shown on Figure 4B.2. Logs of borings completed at the site are in Appendix 4B of this attachment. Total depths and elevations for these borings are listed in Table 4-5. Piezometer installations are addressed in Section 4.2 of this attachment.

2.3.3 Drilling and Sampling

) Field drilling and sampling of the exploratory borings completed in 2000 were performed using thin-walled tube and mud-rotary drilling techniques. Borings were continuously sampled from the surface to total depth. Shallow, highly-weathered soils were sampled by hydraulically pushing 3-inch-diameter, thin-walled tubes from the surface to refusal (where the drill rig can no longer push the sample tubes) or to a depth conducive to core sampling. At several locations, after nearby shallow formation layers were characterized as consistent, shallow soils were sampled using rotary wash and a sample catcher until harder formation materials were encountered. Coring then proceeded to total depth. Coring was accomplished using 5 and 10-foot length, double-tube core barrels with mud rotary techniques. All samples were extracted in the field and logged, with representative samples selected approximately every 5 feet, wrapped to protect against moisture loss, identification-marked, and packaged for transportation. Samples were then transported to a soils laboratory for testing of selected physical parameters.

The field exploration programs were under the direct supervision of a certified professional geologist.

Borings were field-logged by a qualified geologist at the time of drilling in general accordance with ASTM D 2488. The field logs, in conjunction with field and laboratory testing, were used to prepare the final boring logs. The data generated during the field exploration program are presented on the final logs of borings provided in Appendix 4B of this attachment (Figures 4B.4 through 4B.185). General notes supplementing the logs are on Figure 4B.3.

) Upon completion, boreholes drilled for sampling purposes were pressure-grouted with Bentonite grout using the tremie method. In addition to the required exploratory borings, 19 piezometers were installed in the expansion area as part of the 2000 site exploration. Piezometer drilling and installation procedures are discussed in Section 4.2 of this attachment.

LOG OF BORING NO. YY25

Project Description: **TASWA Disposal and Recycling Facility, Grayson County, Texas**
Site Investigation



Depth, feet	Samples	Symbol / USCS	Location: Surface El.: MATERIAL DESCRIPTION	Hand Penetrometer (tsf)	Penetration Blows/Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Location: E 5000.000 N 2500.000 Surface El.: 748.7 MSL											
	U1		CLAY , dark brown, moist, firm, iron stains, rootlets, calcareous nodules at base	1.75										
	U2			1.75										
	U3			1.75										
				744.2										
5	U4		SHALY CLAY , tan, light brown, light gray, and olive, slightly moist, stiff to very stiff, somewhat blocky, some clayey sand laminations, calcareous, slickensides, some fossil shell material, yellow iron stains, manganese dioxide stains, gypsum	1.75										
	U5			3.0										
	U6			2.75										
	U7			4.25										
	U8			3.75										
10	U9			2.0										
	U10			4.25										
	U11			3.0					28.4	93.0	80	32	48	97.6
15	U12			2.75										
	U13			3.25										
	U14		3.50											
20	U15		2.25											
	U16		3.75					30.4	94.2	75	28	47	95.1	
	C1		3.0											
25	W													
	C2													
	W													
30	C3													
							60/120							
			716.2											
			SHALE , dark gray, dry, soft rock, calcareous, fossils, some carbonaceous laminations											
35														
40														

Completion Depth: **150.0 ft.**
 Date Boring Started: **1/19/00**
 Date Boring Completed: **1/20/00**
 Engineer/Geologist: **M. Brown**
 Project No.: **805645**

Remarks: Borehole advanced with Shelby tubes to 24'. Boring then advanced using mud-rotary coring techniques to total depth. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

Continued Next Page

Project: TASWA-LGPI

LOG OF BORING NO. YY25

Project Description: **TASWA Disposal and Recycling Facility, Grayson County, Texas**
Site Investigation



Depth, feet	Samples	Symbol / USCS	Location: E 5000.000 N 2500.000 Surface El.: 748.7 MSL	Hand Penetrometer (tsf)	Penetration Blows/Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION											
45	C4	SHALE (continued)					55/120							
		- light gray clay seam; laminations below 43'												
			702.0											
		SHALY SANDSTONE, gray, hard, very vuggy, slightly calcareous, calcareous sandstone seam at top, 4" thick	700.8											
50	C5	SHALY SAND, dark gray, soft rock, vuggy, fossil shell material, slightly calcareous					31/120							
			694.5											
55		SHALE w/SAND, dark gray, soft rock, slightly vuggy, pyrite, glauconitic below 58'												
60	C6	- light gray sandy lenses 63' to 64'					10/120	13.0		35	19	16	79.3	
65		- light gray sandy lenses 67.7' to 69.6'												
70	C7						07/120							
75														
80														

Profile: TASWA-1 (CPI)

Completion Depth: **150.0 ft.**
 Date Boring Started: **1/19/00**
 Date Boring Completed: **1/20/00**
 Engineer/Geologist: **M. Brown**
 Project No.: **805645**

Remarks: Borehole advanced with Shelby tubes to 24'. Boring then advanced using mud-rotary coring techniques to total depth. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

Continued Next Page

LOG OF BORING NO. YY25

Project Description: **TASWA Disposal and Recycling Facility, Grayson County, Texas**
Site Investigation



Depth, feet	Samples	Symbol / USCS	Location: E 5000.000 N 2500.000 Surface El.: 748.7 MSL	Hand Penetrometer (tsf)	Penetration Blows/Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION											
85	C8	SHALE w/SAND (continued)	- light gray calcareous mudstone seam, fractured w/pyrite inclusions				92/120							
90	C9	SHALE, dark gray. soft rock, fossils, massive, trace pyrite	- sandy seam	651.7				16.6		56	22	34	85.3	
100	C10	SHALE, dark gray. soft rock, fossils, massive, trace pyrite	- hard mudstone seam, thin waxy seam				52/120	17.0		72	27	45	83.5	
110	C11	SHALE, dark gray. soft rock, fossils, massive, trace pyrite	- less competent shale 110' to 115'				5/120							
115		SHALE, dark gray. soft rock, fossils, massive, trace pyrite	- tan & gray mudstone seams											

Completion Depth: **150.0 ft.**
 Date Boring Started: **1/19/00**
 Date Boring Completed: **1/20/00**
 Engineer/Geologist: **M. Brown**
 Project No.: **805645**

Remarks: Borehole advanced with Shelby tubes to 24'. Boring then advanced using mud-rotary coring techniques to total depth. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

Continued Next Page

LOG OF BORING NO. YY25

Project Description: **TASWA Disposal and Recycling Facility, Grayson County, Texas**
 Site Investigation



Depth, feet	Samples	Symbol / USCS	Location: E 5000.000 N 2500.000 Surface El.: 748.7 MSL	Hand Percussometer (tsf)	Penetration Blows/Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION											
	C12	[Pattern]	SHALE (continued)				80/120							
-125		[Pattern]	SHALY SAND, dark gray, soft rock, w/sand seams & laminations, glauconitic, calcareous sandstone layer 125.3' to 125.9', carbonaceous, sand partings	623.9										
-130	C13	[Pattern]	SAND, gray & green, laminated, glauconitic, w/ thin hard clay stringers, some shale laminations	619.1			46/120						10.5	
-135		[Pattern]	SHALE w/SAND, gray, soft rock, pyrite, glauconitic sand partings, fossils	613.2										
-140	C14	[Pattern]					76/120	19.2		42	22	20		
-150		[Pattern]		598.7										
-155		[Pattern]												
-160		[Pattern]												

Completion Depth: **150.0 ft.**
 Date Boring Started: **1/19/00**
 Date Boring Completed: **1/20/00**
 Engineer/Geologist: **M. Brown**
 Project No.: **805645**

Remarks: Borehole advanced with Shelby tubes to 24'. Boring then advanced using mud-rotary coring techniques to total depth. Borehole grouted upon completion. No groundwater encountered during drilling except as noted.

**BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A**

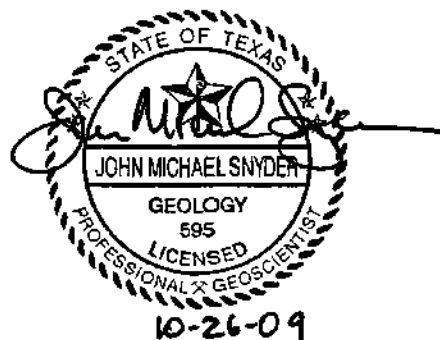
MAJOR PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

Blue Ridge Landfill TX, LP

December 2005
Revised June 2006
Revised October 2009



Prepared by

FUGRO CONSULTANTS, INC.
6100 Hillcroft • Houston, Texas 77081 • 713-369-5400
TBPE Firm No. 299

BIGGS & MATHEWS ENVIRONMENTAL, INC.
1700 Robert Road • Mansfield, Texas 76063-1045 • 817-563-1144
TBPG Firm No. 50222

Robert J. Huston, *Chairman*
R. E. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 31, 2001

Mr. Sonny Anozie
Environmental Manager
BFL/Houston District
757 N. Eldridge, Suite 670
Houston, TX 77079

Re: Municipal Solid Waste- Fort Bend County
Site Investigation for Permit No. MSW 1505,
BFL/Blue Ridge Processing Facility

Dear Mr. Anozie:

We have received the requested revision to your soil boring plan (SBP) dated December 22, 2000, for the proposed expansion of the above-referenced municipal solid waste landfill facility in Fort Bend County. Your proposal indicates that there are 132 existing soil borings at this site, which will be supplemented by the drilling of 22 additional soil borings drilled to a depth of at least 30 feet below the deepest proposed excavation elevation to bring the total number of borings to 154. This proposed SBP complies with the Commission's Municipal Solid Waste Regulations concerning number of borings for site investigations and this letter constitutes approval of your SBP.

Please be advised that under §330.56(d)(5)(A)(ii) of Title 30, Texas Administrative Code, the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. If you should have any questions concerning this matter, please feel free to contact Mr. T. Wesley McCoy, Staff Geologist, at (512) 239-6669.

Sincerely,

Handwritten signature of Wayne Lee in cursive.

Wayne Lee, Acting Team Leader
Permit Team III
Municipal Solid Waste Permits Section

WLT/WM

cc: Mr. Michael Snyder, C.P.G., Biggs & Mathews Environmental

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

Printed on recycled paper using soy based ink

BORING PLAN APPROVAL LETTER
BLUE RIDGE LANDFILL TX, LP
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

2.3.2 Current Site Exploration

In addition to the previous studies, additional site explorations were conducted as part of the current permit amendment application. Current site exploration activities included deepening existing, and drilling new, geotechnical soil borings, drilling and logging geophysical borings, and installing piezometers. The site explorations for the current permit application are described in the following paragraphs. Detailed discussion relating to the geophysical borings, as it pertains to the detailed fault study, is presented in Section 2.4, *Fault Studies*.

2.3.2.1 Soil Boring Plan for Current Study

On January 31, 2001, the Texas Commission of Environmental Quality (TCEQ) approved a soil boring plan for the proposed permit application (Appendix 4B, Figure 4B.1). Boring locations are shown in Appendix 4B on Figures 4B.3 and 4B.4. Logs of borings completed within the proposed expanded permit boundary, including the logs from the 1999 feasibility study as previously discussed, are in Appendix 4B on Figures 4B.141 through 4B.231. A key explaining the terms and symbols used on the 1999 and 2001 boring logs is presented in Appendix 4B on Figures 4B.232 and 4B.233.

In cases where existing borings were deepened, the boring logs include soil descriptions from the original logs and new information, including laboratory test data, which has been collected. For detailed information within the depth zones previously explored, refer to the original boring logs from previous site explorations. Where additional laboratory testing was performed in 2001 on samples obtained during 2001 field activities within the previously explored zone, the laboratory tests results are presented on the current boring logs.

2.3.2.2 Drilling and Sampling Activities

Field exploration activities for the current permit amendment application included drilling and sampling of 53 geotechnical soil borings and the installation of 27 piezometers. Fifty geophysical borings were also drilled and geophysically logged as part of the current permit application. Detailed information relating to the geophysical borings is presented in Section 2.4, *Fault Studies*.

Field exploration activities were conducted in the months spanning January 2001 through August 2001. Of the 53 soil borings drilled, 31 borings were drilled as continuations (i.e., deepening) of borings drilled from previous studies, and 22 were drilled as new borings with new designations. Twenty-three of the continuation borings included deepening of borings drilled during the 1981 study. They included Borings B-1 through B-7, B-9, B-10, B-13, B-14, B-15, B-17, B-18, B-19, B-24 through B-27, B-30, B-31, B-33, and B-35. The remaining 8 continuation borings included the deepening of Borings CB-1 through CB-3, CB-5, CB-7 through CB-9, and CB-11 from the 1999 study. These borings were deepened in order to provide a uniform pattern of deep soil information across the site. A total of 32 new borings were drilled for this study. The new borings are designated CB-12 through CB-33. A plan of the approximate geotechnical boring locations is presented in Appendix 4B on Figures 4B.3 and 4B.4.

DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Figure 4B.4 COORDINATES: N 13,768,712 E 3,093,706 SURFACE EL.: 69.0'	STRATUM DEPTH, FT	CLASSIFICATION					SHEAR STRENGTH							
						UNIT DRY WT. PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT						
				STRATUM DESCRIPTION														
				SANDY SILT (ML), dark gray, with roots SANDY CLAY (CL), stiff, tan and gray - with roots to 3' - gray and tan, with ferrous and calcareous nodules below 4'	1.5			19	42	12	30							
				CLAY (CH), stiff, red and gray, slickensided, with sand pockets - very stiff below 12' - with silt pockets and calcareous nodules below 13' - 3" sand seams at 17'	7.0			28	61	17	44							
				SILTY CLAY (CL), stiff, brown and gray, with silt pockets - with silt seams below 28'	22.5			23	28	14	14							
				CLAY (CH), very stiff, red and gray, slickensided - brown and gray below 43' - with calcareous nodules, 43' to 45'	32.0			27										
				- stiff, with silt pockets below 56' - with sand pockets below 64.5'				28	71	18	53							
				SANDY CLAY (CL), stiff, gray, with calcareous nodules	67.0			38										
					70.0			17	38	13	25							

NOTES:

1. ▽: Water first noticed. ▼: Depth To Water after 25 minutes as measured in 1999 study.
2. Terms and symbols defined on Figures 4B.232 and 4B.233.

DATE: April 26, 1999
TOTAL DEPTH: 70'
CAVED DEPTH: Not Applicable
DRY AUGER: 0 to 18.0'
WET ROTARY: Below 18.0'
BACKFILL: Piezometer
LOGGER: T. Mireles

**LOG OF BORING NO. CB-10
BLUE RIDGE LANDFILL TX, LP
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A**

FIGURE 4B.164

**CITY OF WICHITA FALLS LANDFILL
WICHITA COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 1428A**

PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

City of Wichita Falls

June 2002
Revised November 2002

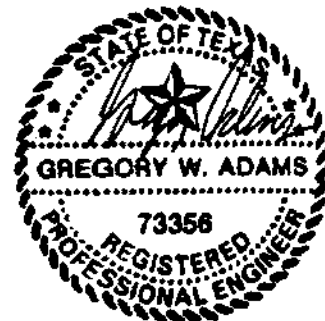
Technically Complete February 18, 2003



4/10/03

Prepared by

BIGGS & MATHEWS, INC.



4/10/03

2500 Brook Avenue • Wichita Falls, Texas 76301 • 940-766-0156
6031 Interstate 20 West, Suite 242 • Arlington, Texas 76017 • 817-563-1144

borings to depths up to 120 feet and elevations of 858 msl. Overlying the shale is about 2 to 25 feet of clay and clayey shale that appears to be residual Petrolia Shale that has been weathered to clay.

The relative amount of siltstone and sandstone in the underlying Petrolia Formation at the site is much less than that of clay and shale. As illustrated on the cross-sections in Appendix 4C of this Attachment, siltstone and sandstone layers are not continuous or correlatable across the site. Sand and sandstone bodies are generally shown on the cross-sections as channels. In general, the discontinuous bodies of sand and sandstone occur throughout the Petrolia beneath the site. Thicknesses of these units range from about 5 to 50 feet. Thinner, 1- to 2-foot-thick layers interbedded with shale are not uncommon.

Locally, the discontinuous sandstone/siltstone units within the Petrolia have irregular depositional surfaces. These, combined with the lack of correlatable beds, prevent determination of local dip, although it is presumed to approximate the regional dip. Three general stratigraphic intervals were identified in which the sandstone/siltstone beds occur. The three units have been identified as Intervals "A", "B", and "C". Figures 4C.2 through 4C.11 show the general distribution of each of those sandier intervals within the Petrolia.

The upper sand, designated as Interval "A" occurs, generally above elevation 990 msl. The middle sand (Interval "B") occurs generally between elevation 990 msl and 940 msl. The lower sand (Interval "C") includes the sandier portions of the Petrolia below elevation 940 msl.

Site exploration indicated the mudstones of the Petrolia are slightly fractured. No regular orientation or vertical zonation of the fractures was observed.

2.3 Site Exploration

2.3.1 Previous Site Exploration

Field exploration activities have been conducted at the site since 1980. Prior to the proposed site exploration, 74 borings had been drilled, including borings completed for piezometer and gas probe installations. Site subsurface conditions were evaluated using logs of these borings. Fifteen borings (NSB numbers) were drilled under the supervision of National Soil Services, Inc., in September and October 1980. Twelve borings (TB numbers) were drilled under the supervision of Team Consultants, Inc., in August 1988. Depths of NSB and TB borings range from about 10 to 50 feet. Piezometers were not installed in these borings.

EMCON commenced drilling activities at the site in September 1993 with the completion of 3 pilot borings (GB-1, 2, 3) to depths of 97 to 103 feet. In December 1993, 16 borings were drilled to depths ranging from 21 to 90 feet. Piezometers were installed in 14 of these borings. An additional 4 borings, with piezometer installations, were completed by EMCON in June 1994. Depths of these 4 borings ranged from 53.5 to 114 feet. Also in June 1994, 19 gas monitoring probes were installed at the site by EMCON. Gas probe boring depths were from 30 to 33 feet. Boring data for the 74 borings completed at the

site are provided in Table 4-2. Data include the surface elevations, boring depths, bottom elevations, and the depth below the deepest excavation. Additional data, including filter-pack and screen elevations, for monitoring well and piezometer installations are listed in Table 4-8. Locations of site borings are shown on Figure 4B-2.

EMCON borings were advanced dry using air rotary methods; samples were retrieved with a 94-mm split core barrel. Samples were extruded in the field, sealed in plastic sheet material, identification marked, and shipped to a laboratory for testing of selected samples. Soil testing was performed for general classification of subsurface material. Drilling and sampling operations were conducted in general accordance with ASTM and/or Corps of Engineers (COE) procedures.

Borings were field-logged by a geologist using visual-manual procedures in general accordance with ASTM Standard D2488. Field logs were used to prepare the final boring logs. Pilot borings that were not used for piezometer installations were pressure-grouted with Bentonite grout using the tremie method.

In November 1999, Biggs & Mathews, Inc. (BMI), drilled five borings during a preliminary site evaluation of the proposed expansion acreage. Each boring was drilled to 120 feet and was completed using thin-walled sampling tubes and wet rotary drilling techniques. Shelby tubes were pushed from ground surface to refusal, typically 3 to 5 feet below the surface. In July and October 2001, BMI drilled 30 borings for the site exploration for the Permit Amendment Application. Those borings were drilled on the existing permit area as well as on the expansion acreage. The locations of all borings are shown on Figure 4B.2. Borings were continuously sampled from refusal to total depth using 10-foot long, double-tube core barrel with a wireline retrieval system. Samples were prepared and transported to a geotechnical soils laboratory for testing. A geologist logged each boring in accordance with ASTM D2488 at the time of drilling. Final logs were prepared by a geotechnical engineer and a geologist following lab testing.

Copies of logs of borings, piezometers, and monitoring wells are provided in Appendix 4B.

2.3.2 Piezometer Installation, Previous Site Exploration

Piezometer installations for the recent site exploration are discussed in Section 4.2 of this attachment.

Piezometer borings drilled by EMCON were advanced dry using air rotary methods with a 5 $\frac{1}{2}$ -inch fishtail bit (approximate 6-inch-diameter borehole). Installation of piezometers was completed in open boreholes.

Piezometer well casing (2-inch-diameter, Schedule 40, PVC) and factory-slotted screen assemblies were lowered into open boreholes, and silica sand was placed to approximately 1 to 8 feet above the top of screen. Surface casing was used in piezometers F-12B and F-12D due to excessive cave-in near the surface and was removed after the installation of the piezometers. Borings L-38A and V-12D were drilled and sampled to depths of 85 feet and 90 feet, respectively, and used as pilot exploratory

borings. Borings L-38 and V-12B were then drilled adjacent to these borings at shallower depths and piezometers installed (Table 4-8).

After placement of the filter pack sand around the piezometer well screens, a Bentonite seal consisting of approximately 2½ feet of hydrated Bentonite pellets was placed on top of the filter sand. The remainder of the annular space was then pressure grouted with Bentonite grout using the tremie method of placement.

The installations were performed to avoid introducing contamination through the use of disposable vinyl gloves, individually packaged materials, and decontamination between wells.

In 1993, piezometer well surface constructions were completed by Winnek Company personnel. Subsequent piezometers were completed by Andrews and Foster Drilling. Surface construction consists of 4-foot by 4-foot by 4-inch-thick concrete pads. Protective lockable steel surface encasements measuring 4 inches by 4 inches by 5 feet in length were placed a minimum of 1 foot below the top of the concrete surface pad in each well and secured in place by concrete.

2.3.3 Soil Boring Plan

On October 1, 2001, the TCEQ approved a soil boring plan for the proposed permit application (see Figure 4B.1). Boring locations are shown on Figure 4B.2. Logs of borings completed at the site are in Appendix 4B of this attachment. Total depths and elevations for these borings are listed in Table 4-2. Piezometer installations are addressed in Section 4.2 of this attachment.

2.3.4 Drilling and Sampling

Field drilling and sampling of the exploratory borings completed in 2001 were performed using thin-walled tube and mud-rotary drilling techniques. Borings were continuously sampled from the surface to total depth. Shallow, highly weathered soils were sampled by hydraulically pushing 3-inch-diameter, thin-walled tubes from the surface to refusal (where the drill rig can no longer push the sample tubes) or to a depth conducive to core sampling. At several locations, after nearby shallow formation layers were characterized as consistent, shallow soils were sampled using rotary wash and a sample catcher until harder formation materials were encountered. Coring then proceeded to total depth. Coring was accomplished using 5 and 10-foot length, double-tube core barrels with mud rotary techniques. All samples were extracted in the field and logged, with representative samples selected approximately every 5 feet, wrapped to protect against moisture loss, identification-marked, and packaged for transportation. Samples were then transported to a soils laboratory for testing of selected physical parameters.

The field exploration programs were under the direct supervision of a certified professional geologist.

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 1, 2001

The Honorable Jerry Leuck
Mayor of Wichita Falls
P.O. Box 1431
Wichita Falls, TX 76307-1431

RE: Municipal Solid Waste - Wichita County
City of Wichita Falls Landfill - Permit No. MSW 1428
Soil Boring Plan for Landfill Development
Mail Log No. 7045

Dear Mayor Leuck:

On September 14, 2001, the Municipal Solid Waste (MSW) Permits Section received the revised soil boring plan (SBP) dated September 13, 2001, for the subject facility expansion. The revised SBP indicates that the proposed expansion area is approximately 182 acres, bringing the total of permitted property to 570 acres. An additional 29 soil borings are to be drilled. Of the proposed 29 borings, 16 borings are to be drilled at least 30 feet below the elevation of the deepest excavation (EDE), which is approximately 940 feet mean sea level. This would bring the total number of borings at least 30 feet below the EDE to 26 (existing and proposed). The remaining 13 borings would be drilled to a depth of at least 5 feet below the EDE, bringing the total number of borings drilled to a depth of at least 5 feet below the EDE to 21 (existing and proposed). Therefore, the total number of existing and proposed borings is 116. The proposed SBP appears to comply with the Commission's Municipal Solid Waste Regulations concerning number of borings for site investigations and this letter constitutes approval of your SBP.

Please be advised that under Texas Administrative Code (TAC) §330.56(d)(5)(A)(ii), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

Technically Complete
February 16, 2003

The Honorable Jerry Leuck
Page 2

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. If you should have any questions concerning this matter, please feel free to contact Ms. Kellie Jones, Geologist, at (512) 239-6786. We appreciate the cooperation of the City of Wichita Falls and the consultant, Mr. Michael Snyder.

Sincerely,



Jeff Holderread, P.E., Team Leader
Team III, Municipal Solid Waste Permit Section
Waste Permit Division

JH/kj/mcl

cc: J Mr. Michael Snyder, C.P.G., Senior Hydrologist, Biggs & Mathews Environmental
Mr. George Bonnett, P.E., Director of Public Utilities, City of Wichita Falls

LOG OF BORING NO. TT-20

Project Description: Wichita Falls Test Borings, Wichita Falls, Texas
Biggs & Mathews, Project No. 980593



Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Pocket Penetro- meter, TSF	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Location: N2000/E4500 Surface El.: 1038.8'											
4.5	U-1	X	SILTY SAND, light reddish brown, with rootlets.	1.0										
4.5	U-2	X	SILTY CLAY, reddish brown, with calcareous nodules, with ferrous stains, with silt layer at 3.5' to 4.0'.	4.5+										
5.0	U-3	X	CLAY, reddish brown, hard, with silt layer at top.	4.0						37	16	21	95	
7.0				7.0										
8.0	C-4	X	SILTSTONE, tan, with clay lenses, moderately consolidated.	6.0		82								
10.0			CLAY, with silt, reddish brown, hard.	10.0										
10.0			CLAY, with siltstone, with clay seams, reddish brown, moderately consolidated.											
15.0	C-5	X				37		10	119	30	15	15	92	
19.0				19.0										
20.0			CLAYEY SHALE, with trace silt, reddish brown, hard, with trace ferrous stains.											
25.0	C-6	X				95								
30.0				30.0										
30.0			CLAYEY SHALE, with trace silt, reddish brown, hard, with ferrous stains.											
35.0	C-7	X				100		11	132	33	16	17	94	
40.0				40.0										
40.0			CLAYEY SHALE, reddish brown, hard, with trace silt, with trace ferrous stains.											
45.0	C-8	X				97		12	135	29	15	14	94	
50.0				50.0										

Completion Depth: 120.0
Date Boring Started: 11/15/99
Date Boring Completed: 11/15/99
Engineer/Geologist: Stamoulis
Project No.: 9910-014

Remarks: Pushed tubes to 5.0'. No water encountered. Began coring with water at 5.0'.

Continued Next Page

LOG OF BORING NO. TT-20

Project Description: **Wichita Falls Test Borings, Wichita Falls, Texas**
Biggs & Mathews, Project No. 980593



Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Pocket Penetro- meter, TSF	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, lbf
			Location: N2000/E4500 Surface El.: 1038.8'											
55	C-9		CLAYEY SHALE, with silt, reddish brown, soft to firm, with ferrous stains.			27		14	128	37	18	19	86	
60			CLAYEY SHALE, with silt reddish brown, soft to firm, with ferrous stains.											
65	C-10		CLAYEY SHALE, reddish brown, hard, fissile.			30								
70			CLAYEY SHALE, reddish brown, hard, fissile.											
75	C-11		CLAYEY SHALE, reddish brown, hard, fissile.			97		9	132	31	19	12	91	
80			CLAYEY SHALE, reddish brown, hard, fissile.											
85	C-12		CLAYEY SHALE, reddish brown, hard, fissile.			97		10	127	31	14	17	91	
90			CLAYEY SHALE, reddish brown, hard, fissile.											
95	C-13		CLAYEY SHALE, reddish brown, hard, fissile.			98		9	121	38	18	20	84	
100														

Completion Depth: **120.0**
 Date Boring Started: **11/15/99**
 Date Boring Completed: **11/15/99**
 Engineer/Geologist: **Stamoulis**
 Project No.: **9910-014**

Remarks: **Pushed tubes to 5.0'. No water encountered. Began coring with water at 5.0'.**

Continued Next Page

LOG OF BORING NO. TT-20

Project Description: Wichita Falls Test Borings, Wichita Falls, Texas
Biggs & Mathews, Project No. 980593



Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Pocket Penetro- meter, TSF	Penetration Blows / Foot	Recovery %	RQD	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Location: N2000/E4500 Surface El.: 1038.8'											
			CLAYEY SHALE, redish brown, hard, with ferrous stains, fissile.											
			104.0											
+05	C-14		CLAYEY SHALE, with silt partings, red and gray, hard, with ferrous stains, fissile.			98								
			110.0											
+10			CLAYEY SHALE, red and gray, hard.											
+15	C-15					100		7	128	34	17	17	94	
			120.0											
+20														
+25														
+30														
+35														
+40														
+45														
+50														

Completion Depth: 120.0
Date Boring Started: 11/15/99
Date Boring Completed: 11/15/99
Engineer/Geologist: Stamoulis
Project No.: 9910-014

Remarks: Pushed tubes to 5.0'. No water encountered. Began coring with water at 5.0'.

LOG OF BORING NO. JJ-50

Project Description: City of Wichita Falls Landfill, Wichita County, Texas
MSW Permit 1428, Site Investigation - Permit Amendment

Biggs & Mathews Environmental
 6031 Interstate 20 West, Suite 242
 Arlington, Texas 76017
 Phone: 817-563-1144
 Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Location: E 3500.000 N 5000.000 Surface El.: 1022.38' Completion Depth: 154.0 ft. Date Boring Started: 6/20/01 Date Boring Completed: 6/20/01									
1			SILTY CLAY (CL), w/sand, reddish-brown, stiff									
5			CLAY (CL), reddish-brown, very stiff									
10												
11			SILTSTONE, gray, moderately consolidated									
15			CLAY (CL), reddish-brown, hard, dry, siltstone partings									
25			- silt partings									
30			CLAYEY SHALE, siltstone layers, reddish-brown, hard, dry, limonitic									
35			- silt partings, siltstone seams									
40			- siltstone 38 to 39 ft.									
41			- siltstone 40 to 41 ft.									
45			- w/siltstone									

Drilling Contractor: **Andrews & Foster**
 Drilling Method: **Air Rotary**
 Sampling Method: **Coring**
 Geologist/Engineer: **S. Stamoulis**
 Project No.: **201.01.100**

Groundwater Observations	
Date	Depth

Remarks: **Dry upon completion. Grouted with Bentonite.**



BME LOG WF.GPJ BME.GDT 3/9/02

LOG OF BORING NO. JJ-50

Project Description: City of Wichita Falls Landfill, Wichita County, Texas
MSW Permit 1428, Site Investigation - Permit Amendment

Biggs & Mathews Environmental
 6031 Interstate 20 West, Suite 242
 Arlington, Texas 76017
 Phone: 817-663-1144
 Fax: 817-663-1224

Depth, feet	Samples	Symbol / USCS	Location: E 3500.000 N 5000.000 Surface El.: 1022.38' Completion Depth: 154.0 ft. Date Boring Started: 6/20/01 Date Boring Completed: 6/20/01	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
MATERIAL DESCRIPTION												
55 60 65 70 75 80 85 90 95 100	[Hatched Pattern]		CLAYEY SHALE, siltstone layers, reddish-brown, hard, dry, limonitic (continued)									
			922.38									

BME LOG WF.GPJ, BME.GDT, 3/9/02

Drilling Contractor: Andrews & Foster
Drilling Method: Air Rotary
Sampling Method: Coring
Geologist/Engineer: S. Stamoulis
Project No.: 201.01.100

Groundwater Observations	
Date	Depth

Remarks: Dry upon completion. Grouted with Bentonite.



LOG OF BORING NO. JJ-50

Project Description: **City of Wichita Falls Landfill, Wichita County, Texas**

MSW Permit 1428, Site Investigation - Permit Amendment

Biggs & Mathews Environmental
 6831 Interstate 20 West, Suite 242
 Arlington, Texas 76017
 Phone: 817-663-1144
 Fax: 817-663-4224

Depth, feet	Samples	Symbol / USCS	Location: E 3500.000 N 5000.000 Surface El.: 1022.38' Completion Depth: 154.0 ft. Date Boring Started: 6/20/01 Date Boring Completed: 6/20/01	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
MATERIAL DESCRIPTION												
105		+++++	SILTSTONE , gray, moderately consolidated, very fine grained									
110		913.38	CLAYEY SHALE , reddish-brown, hard, dry									
115		- silt partings										
120		- slickensides										
125												
130												
135												
140												
145												
150												

BME LOG WF.GPJ BME.GDT 3/9/02

Drilling Contractor: **Andrews & Foster**
 Drilling Method: **Air Rotary**
 Sampling Method: **Coring**
 Geologist/Engineer: **S. Stamoulis**
 Project No.: **201.01.100**

Groundwater Observations	
Date	Depth

Remarks: **Dry upon completion. Grouted with Bentonite.**



LOG OF BORING NO. JJ-50

Project Description: City of Wichita Falls Landfill, Wichita County, Texas
MSW Permit 1428, Site Investigation - Permit Amendment

Biggs & Mathews Environmental
 6031 Interstate 20 West, Suite 242
 Arlington, Texas 76017
 Phone: 817-663-1144
 Fax: 817-663-4224

Depth, feet	Samples	Symbol / USCS	Location: E 3500.000 N 5000.000 Surface El.: 1022.38' Completion Depth: 154.0 ft. Date Boring Started: 6/20/01 Date Boring Completed: 6/20/01	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, (lb/cu ft.)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			MATERIAL DESCRIPTION									
		[Hatched Box]	CLAYEY SHALE, reddish-brown, hard, dry (continued)									
-155			668.38									
-160												
-165												
-170												
-175												
-180												
-185												
-190												
-195												
-200												

BME LOG WF.GPJ BME.GDT 3/9/02

Drilling Contractor: **Andrews & Foster**
 Drilling Method: **Air Rotary**
 Sampling Method: **Coring**
 Geologist/Engineer: **S. Stamoulis**
 Project No.: **201.01.100**

Groundwater Observations	
Date	Depth

Remarks: Dry upon completion. Grouted with Bentonite.



**SPRINT FORT BEND COUNTY LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW 1797A**

PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

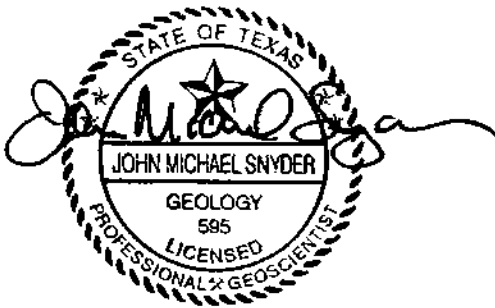
Sprint Fort Bend County Landfill, L.P.

Permit Issued July 15, 2003

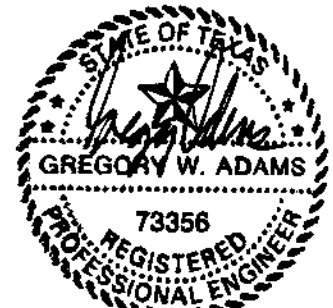
Revised January 2004

Revised March 2007

Revised May 2007



5-14-07



5/14/07

Prepared by

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road, Suite 100 ♦ Mansfield, Texas 76063 ♦ 817-563-1144

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

April 30, 2002

Mr. Donald Poarch
Sprint Fort Bend County Landfill, L.P.
1041 Conrad Sauer
Houston, Texas 77043

RE: Municipal Solid Waste - Harris County
Sprint Fort Bend County C&D Landfill - Permit Nos. MSW 1396, 1683 and 1797
Soil Boring Plans for Landfill Development
Mail Log No. 02-2188

Dear Mr. Poarch:

On April 19, 2002, the Municipal Solid Waste (MSW) Permits Section received a revision to the soil boring plan (SBP) dated October 17, 2001, for the subject facility expansion. The revised SBP indicates that the proposed expansion area is approximately 80 acres, bringing the total of permitted property to 295 acres. An additional 18 soil borings are to be drilled. Of the proposed 18 borings, 14 borings are to be drilled at least 30 feet below the elevation of the deepest excavation (EDE), which is approximately 38.5 feet mean sea level. This would bring the total number of borings at least 30 feet below the EDE to 34 (existing and proposed). The remaining 4 borings would be drilled to a depth of at least 5 feet below the EDE, bringing the total number of borings drilled to a depth of at least 5 feet below the EDE to 30 (existing and proposed). Therefore, the total number of existing and proposed borings is 64. The proposed SBP appears to comply with the Commission's Municipal Solid Waste Regulations concerning number of borings for site investigations and this letter constitutes approval of your SBP.

Please be advised that under Texas Administrative Code (TAC) §330.56(d)(5)(A)(ii), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

Mr. Donald Poarch
Page 2

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. If you should have any questions concerning this matter, please feel free to contact Ms. Kellie Jones, Geologist, at (512) 239-6786. We appreciate the cooperation the consultant, Mr. Michael Snyder.

Sincerely,



Jeff Holderread, P.E., Team Leader
Team III, Municipal Solid Waste Permit Section
Waste Permit Division

JH/kj

cc: Mr. Michael Snyder, C.P.G., Senior Hydrologist, Biggs & Mathews Environmental
Ms. Elizabeth Summers, Hydrogeologist, Biggs & Mathews Environmental

classification and permeabilities of the soil layers, and to evaluate the groundwater protection properties of the on-site soils.

In March 1985, a subsurface investigation was conducted by Tand & Associates to support the application for Permit No. 1797. Twenty-two borings were drilled and three piezometers were installed for long-term water level monitoring. Laboratory tests were performed to evaluate the engineering properties of the subsoils. The laboratory test results were analyzed by a registered professional engineer.

In 1994, eleven shallow piezometers and four deep piezometers were installed by McBride-Ratcliff and Associates, Inc.

The borings from previous investigations with their surface elevations, depths, and calculated bottom elevations, is included in Table 4-3; the logs of borings are included in Appendix 4B of this attachment. Boring locations are shown on Figure 4B.2.

2.3.2 Boring Plan

On October 31, 2001, the TCEQ approved a soil boring plan for this proposed permit amendment application. A revised soil boring plan was approved by letter dated April 30, 2002. Copies of the boring plan approval letters are included in Appendix 4B.

Logs of the recent borings completed at the site are in Appendix 4B of this attachment. Total depths and elevations for these borings are listed in Table 4-4. Piezometer and monitor well installations are addressed in Section 4.1 of this attachment.

**Table 4-4
Existing Borings**

Boring Number	Surface Elevation (ft above msl)	Total Depth of boring (ft)	Boring Depth Elev.	Base Grade Elevation	Depth Above/ Below Base Grade Elev.	Above/ Below Base Grade Elev.
1980 Borings						
CB-1	82.5	64	18.5	38.5	-20	Below (-)
CB-2	85	70	15	38.5	-23.5	Below (-)
CB-3	84	70	14	38.5	-24.5	Below (-)
CB-4	81	70	11	38.5	-27.5	Below (-)
CB-5	93	21.5	71.5	38.5	33	Above (+)
CB-6	92	21.5	70.5	38.5	32	Above (+)
CB-7	92	25	67	38.5	28.5	Above (+)
CB-8	93	30	63	38.5	24.5	Above (+)
CB-9	92	25	67	38.5	28.5	Above (+)
CB-10	92	25	67	38.5	28.5	Above (+)

LOG OF BORING NO. PB-14

BIGGS & MATHEWS ENVIRONMENTAL
 6031 Interstate 20 West, Suite 242
 Arlington, Texas 76017-1045
 Phone: 817-563-1144
 Fax: 817-563-1224

Project Description: Sprint-Fort Bend County Landfill
MSW Permits 1396, 1683, & 1796, Permit Amendment

Depth, feet	Samples	Symbol / USCS	Location: Surface El.: 90.00' Completion Depth: 85.0 ft. Date Boring Started: 9/28/01 Date Boring Completed: 10/2/01	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
MATERIAL DESCRIPTION												
			SILTY SAND, fine, dark gray	3.5								
5	c		SANDY CLAY, dark gray & tan	88.00								
				4.5+								
10	c		SILTY SAND, red, calcareous nodules	81.00								
				76.00								
15	c		SAND, red & tan									
20	c											
25	c											
30	c											
35	c		SANDY CLAY, red SAND, tan	56.00 55.00	0.75							
40	c		SILTY CLAY, brown & gray	51.00	0.25							
45	c				0.25							
50	c											

LOG OF EXPLORATION REV 3/02 SPRINT.GPJ BME.GDT 10/18/01

Drilling Contractor: **Mathers**
 Drilling Method: **HSA**
 Sampling Method: **Core**
 Geologist/Engineer: **RJ**
 Project No.: **103.01.100**

Groundwater Observations	
Date	Depth
10/2/01	46

Remarks:



The stratification lines represent approximate strata boundaries.
 In situ, the transition may be gradual.

LOG OF BORING NO. PB-14

BIGGS & MATHEWS ENVIRONMENTAL
 6031 Interstate 20 West, Suite 242
 Arlington, Texas 76017-1045
 Phone: 817-563-1144
 Fax: 817-563-1224

Project Description: Sprint-Fort Bend County Landfill
MSW Permits 1396, 1683, & 1796, Permit Amendment

Depth, feet	Samples	Symbol / USCS	Location: Surface El.: 90.00' Completion Depth: 85.0 ft. Date Boring Started: 9/28/01 Date Boring Completed: 10/2/01	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
MATERIAL DESCRIPTION												
55	c	[diagonal lines]	SILTY CLAY, brown & gray (<i>continued</i>)	4.5+								
	c	[horizontal lines]	SILT, red	34.00								
	c	[diagonal lines]	CLAY, red, gray	33.00								
60	c	[diagonal lines]	- red & tan sandy silt 51 to 61 ft.									
65	c	[diagonal lines]										
70	c	[diagonal lines]										
75	c	[diagonal lines]										
80	c	[diagonal lines]	- very stiff	3.0								
	c	[diagonal lines]		3.0								
	c	[diagonal lines]		3.5								
85	c	[diagonal lines]		5.00								

LOG OF EXPLORATION REV 3/2 SPRINT.GPJ BME.GDT 10/18/01

Drilling Contractor: **Mathers**
 Drilling Method: **HSA**
 Sampling Method: **Core**
 Geologist/Engineer: **RJ**
 Project No.: **103.01.100**

Groundwater Observations	
Date	Depth
10/2/01	46

Remarks:



The stratification lines represent approximate strata boundaries.
 In situ, the transition may be gradual.

**DELTA WASTE LANDFILL
HARRIS COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. 2344**

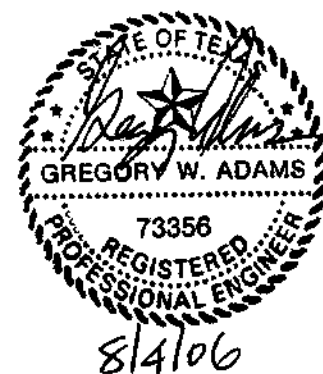
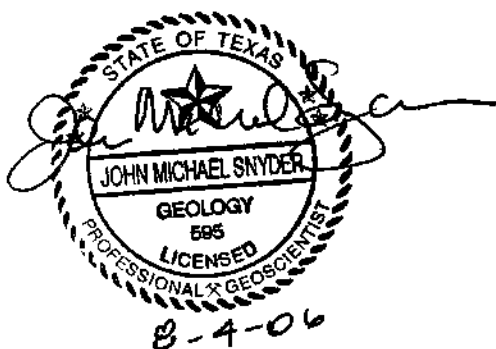
PERMIT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

Delta Waste Services LP

Technically Complete July 26, 2006



Prepared by

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 76063
817-563-1144

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 7, 2002

Mr. Larry Martin
Delta Waste, L.L.C.
2100 West Loop South, Suite 1400
Houston, TX 77027

**Re: Municipal Solid Waste - Harris County
Delta Waste, L.L.C. - Proposed Type IV Construction and Demolition Landfill
Soil Boring Plan for Landfill Development
Mail Log No. 03-221**

Dear Mr. Martin:

On October 4, 2002, the Texas Commission on Environmental Quality (TCEQ) received a soil boring plan (SBP) for a proposed Type IV municipal solid waste landfill in Harris County. The SBP was prepared by Hydrogeologic / Engineering of Texas, Inc., and was submitted under a cover letter dated October 1, 2002, signed by Mr. Stefan Stamoulis, Principal Hydrogeologist.

The SBP proposes using 15 soil borings drilled to a depth of at least 30 feet below the elevation of the deepest proposed excavation, and 15 soil borings drilled to a depth of at least five (5) feet below the elevation of the deepest proposed excavation. The total number of borings proposed is 30. The SBP also indicates that new piezometers will be installed to TCEQ groundwater monitoring well standards at approximately 12 locations to determine water levels at the proposed facility. Our review of this SBP indicates that it complies with the State of Texas Municipal Solid Waste Regulations concerning the number of borings for site investigations and this letter constitutes approval of your SBP.

Please be advised that under 30 TAC §330.56(d)(5)(A)(ii), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this SBP complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

If you find it necessary to modify this approved SBP, another SBP detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. Please contact Mr. Gale Baker at 512/239-6730 (MC-124) if you have any questions concerning this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Davis".

Jeff Davis, Team Leader
MSW Permits Section
Waste Permits Division

JD/gb

cc: Mr. Stefan Stamoulis, Hydrogeologic / Engineering of Texas, Inc., Galveston

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-3000 • Internet address: www.tceq.state.tx.us

For more information, please visit our website at www.tceq.state.tx.us

Figure 4B.1

LOG OF BORING NO. B-2

**Project Description: Delta Waste Landfill
Texas**

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 75063
Phone: 817-563-1144
Fax: 817-563-1224

Location: E 3099396.890 N 13780501.780

Surface El.: 61.49 ft. msl
Completion Depth: 75.0 ft.
Date Boring Started: 9/13/04
Date Boring Completed: 9/13/04

MATERIAL DESCRIPTION

Depth, feet	Samples	Symbol / USCS	MATERIAL DESCRIPTION	Hand Penetrometer, tsf	Penetration Flows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
	U1		CLAY, dark brown, yellow-orange, hard, ferrous stains (CH)	4.3		25		55	19	36	62	
	U2		SILTY CLAY, gray, calcareous nodules, ferrous stains	4.5								
5	U3		SILTY SAND, gray, fine grained, ferrous stains	1.75								
	U4		SAND, brown, medium grain, ferrous stains	2.0								
10												
15	A5											
20												
25				36.49								
	CS6		CLAY, reddish brown, hard, ferrous stains, calcareous nodules (CH)	2.0								
				2.5								
				3.0		24	99.3	54	20	34	96	
30				.75								
	CS7			1.5								
				27.48								
35			SILTY SAND, brown, medium grain, ferrous stains with clay lenses	26.49								
			CLAY, reddish brown, firm, calcareous nodules									
	CS8			23.49								
			CLAY, reddish brown, firm, calcareous nodules	2.5								
40				21.49								
	CS9		SILTY SAND, reddish brown, fine grained, calcareous nodules 43 to 43.5 feet, clay lenses									
45	A10			2.0								
50	CS11			12.49								

Drilling Contractor: **Prospector**
 Drilling Method: **Wet Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Boyce**
 Project No.: **113.01.101**

Groundwater Observations	
Date	Depth

Remarks: Borehole advanced with shelly tubes, pushed to refusal, then wet rotary/coring to total depth. No water encountered prior to introduction of drilling mud unless otherwise noted. Borehole grouted upon completion.



BME LOG DEL TA GPJ BME.GDT 1/18/05

The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

Figure 4B.8

Project Description: **Delta Waste Landfill**
Texas

1700 Robert Road
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 3099396.890 N 13780501.780	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 61.49 ft. msl Completion Depth: 75.0 ft. Date Boring Started: 9/13/04 Date Boring Completed: 9/13/04									
MATERIAL DESCRIPTION												
55	CS11	CLAY, dark gray, reddish brown, calcareous nodules, slickensides silt lenses 3"-6" thick (CH) <i>(continued)</i>		1.25								
				2.5								
				1.75								
				1.50								
				1.75			34	92.0	70	25	45	100
60	CS12			2.75								
				3.75								
65	CS13			2.5								
				1.5								
				2.5								
				-3.51								
70	A14	SILTY SAND, gray, medium to fine, unconsolidated subrounded to rounded, poorly graded										
75				-13.51								
80												
85												
90												
95												
100												

LOG DELTA.GPJ BME.GDT 4/5/05

Drilling Contractor: **Prospector**
 Drilling Method: **Wet Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Boyce**
 Project No.: **113.01.101**

Groundwater Observations	
Date	Depth

Remarks: Borehole advanced with Shelby tubes, pushed to refusal, then wet rotary/coring to total depth. No water encountered prior to introduction of drilling mud unless otherwise noted. Borehole grouted upon completion.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

Figure A.2

Figure 4B.9

**BFI/SUNSET FARMS LANDFILL
TRAVIS COUNTY, TEXAS
TCEQ PERMIT NO. MSW 1447-A**

PERMIT AMENDMENT APPLICATION

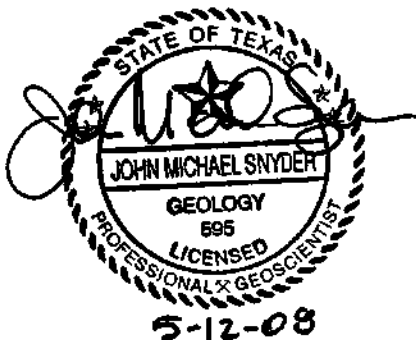
**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

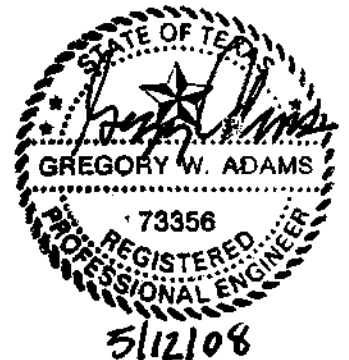
BFI Waste Systems of North America, Inc.

June 2005
Revised May
Revised August 2006
Revised November 2006

Revised May 2008



Prepared by



In 2004, exploratory borings EB-1 through EB-18 were installed by HET in the proposed expansion area. All samples were logged using ASTM D 2488 Visual-Manual procedures. Representative samples were tested in the laboratory.

2.3.2 Soil Boring Plan

On July 20, 2004, the TCEQ approved a soil boring plan for the proposed permit application (see Figure 4B.1). Boring locations are shown on Figure 4B.2. Logs of borings completed at the site are in Appendix 4B of this attachment. Total depths and elevations for these borings are listed in Table 4-5. Piezometer installations are addressed in Section 4.2 of this attachment.

2.3.3 Drilling and Sampling

Field drilling and sampling of the 18 exploratory borings completed in 2004 were performed using thin-walled tube and mud-rotary drilling techniques. Borings were continuously sampled from the surface to total depth. Shallow, highly weathered soils were sampled by hydraulically pushing 3-inch-diameter, thin-walled tubes from the surface to refusal (where the drill rig can no longer push the sample tubes) or to a depth conducive to core sampling. At several locations, after nearby formation layers were characterized as consistent, soils were sampled using rotary wash and a sample catcher. Coring was accomplished using 5 and 10-foot length, double-tube core barrels with mud rotary techniques. Samples were extracted in the field and logged, with representative samples selected approximately every 5 feet, wrapped to protect against moisture loss, identification-marked, and packaged for transportation. Samples were then transported to a soils laboratory for testing of selected physical parameters.

The field exploration programs were under the direct supervision of a certified professional geologist. Borings were field-logged by a qualified geologist at the time of drilling in general accordance with ASTM D 2488. The field logs, in conjunction with field and laboratory testing, were used to prepare the final boring logs. The data generated during the field exploration program are presented on the final logs of borings provided in Appendix 4B of this attachment (Figures 4B.5 through 4B.45). General notes supplementing the logs are on Figure 4B.3.

Upon completion, boreholes drilled for sampling purposes were pressure-grouted with Bentonite grout using the tremie method. In addition to the required exploratory borings, one piezometer was installed in the expansion area as part of the 2004 site exploration. Piezometer drilling and installation procedures are discussed in Section 4.2 of this attachment.

**Table 4-5
Boring Depths and Elevations**

ID	Consultant	Date Drilled	Surface Elevation	Total Depth	Depth Above (Below) EDE	Figure No.
				EDE =	555	
B-1	RKC	8/15/1980	644	81.5	7.5	4B.47
B-2	RKC	8/20/1980	641	50.5	35.5	4B.49
B-3	RKC	10/8/1980	636	51.5	29.5	4B.50
B-4	RKC	10/7/1980	630	81.5	(6.5)	4B.51
B-5	RKC	10/7/1980	625	50	20.0	4B.53
B-6	RKC	10/7/1980	615	50	10.0	4B.54
B-7	RKC	10/3/1980	616	80	(19.0)	4B.55
B-8	RKC	10/3/1980	609	50	4.0	4B.57
B-9	RKC	10/8/1980	637	51.5	30.5	4B.58
B-10	RKC	10/9/1980	629	60	14.0	4B.59
B-11	RKC	10/9/1980	624	50	19.0	4B.60
B-12	RKC	10/9/1980	616	60	1.0	4B.61
B-13	RKC	8/19/1980	614	48.5	10.5	4B.62
B-14	RKC	8/18/1980	606	50.5	0.5	4B.63
B-15	RKC	8/21/1980	670	50	65.0	4B.64
B-16	RKC	10/13/1980	646	50	41.0	4B.65
B-17	RKC	10/10/1980	640	56.6	28.4	4B.66
B-18	RKC	10/2/1980	654	50	49.0	4B.67
B-19	RKC	10/10/1980	619	61.5	2.5	4B.68
B-20	RKC	10/9/1980	625	50	20.0	4B.69
B-21	RKC	8/19/1980	609	50.5	3.5	4B.70
B-22	RKC	11/5/1980	651	81	15.0	4B.71
B-23	RKC	11/5/1980	634	51.5	27.5	4B.73
B-24	RKC	10/13/1980	652	50	47.0	4B.74
B-25	RKC	11/6/1980	614	81	(22.0)	4B.75
B-26	RKC	10/14/1980	614	50	9.0	4B.77
B-27	RKC	8/20/1980	622	50.5	16.5	4B.78
B-28	RKC	8/14/1980	616	81.5	(20.5)	4B.79
MW-1	RKC	1981	652	50	47.0	4B.112
MW-2	RKC	1981	636.3	25.5	55.8	4B.113
MW-3	RKC	1981	617.25	45	17.3	4B.114
MW-4	RKC	1981	606.6	40	11.6	4B.115
MW-5	RKC	1981	665.6	60	50.6	4B.116
MW-6	RKC	1981	656.2	50	51.2	4B.117
MW-7	RKC	1981	610.7	45	10.7	4B.118
MW-8	RKC	1981	644.9	45	44.9	4B.119
MW-9	RKC	1981	670.3	60	55.3	4B.120
MW-10	RKC	1981	661.7	65	41.7	4B.121
MW-11	RKC	1981	614.6	40	19.6	4B.122
MW-12	RKC	1981	622.6	55	12.6	4B.123
MW-13	RKC	1981	616.2	35	26.2	4B.124

**Table 4-5
Boring Depths and Elevations (Continued)**

ID	Consultant	Date Drilled	Surface Elevation	Total Depth	Depth Above (Below) EDE	Figure No.
				EDE =	555	
MW-14	RKC	1981	632	35	42.0	4B.125
MW-15	Scot	8/23/1991	636.2	60	21.2	4B.81
PZ-1	GTI	6/13/1995	650.42	60	35.4	4B.100
PZ-1S	GTI	6/13/1995	650.42	20	75.4	4B.102
P-2	GTI	5/24/1995	Unknown	35.5	--	4B.103
P-2A	GTI	6/11/1995	Unknown	37	--	-NA-
PZ-3	GTI	6/9/1995	610.09	35	20.1	4B.104
PZ-4	GTI	6/9/1995	611.63	49	7.6	4B.105
PZ-5	GTI	6/8/1995	611.67	50	6.7	4B.106
MW-16	H/ET	9/26/1998	641.35	50	36.4	4B.83
MW-17	H/ET	9/26/1998	666.96	58	54.0	4B.84
MW-18	H/ET	9/27/1998	626.04	35	36.0	4B.86
MW-19	H/ET	9/24/1998	652.63	39	58.6	4B.87
MW-20	H/ET	9/24/1998	637.38	39	43.4	4B.88
MW-22	H/ET	9/25/1998	608.9	44	9.9	4B.89
MW-23	H/ET	9/23/1998	610.49	50	5.5	4B.90
MW-24	H/ET	9/21/1998	610.86	52	3.9	4B.91
MW-25	H/ET	10/2/1998	611.5	43	13.5	4B.92
MW-26	H/ET	9/22/1998	615.37	57	3.4	4B.93
MW-27	H/ET	9/22/1998	606.09	44	7.1	4B.95
MW-28	H/ET	10/1/1998	635.88	37	43.9	4B.96
MW-29	H/ET	10/1/1998	652.66	44	53.7	4B.97
MW-30	H/ET	10/2/1998	670.51	61.5	54.0	4B.98
P-21A	H/ET	9/29/1998	620.49	44	21.5	4B.109
P-21B	H/ET	9/29/1998	617.47	45	17.5	4B.110
P-21C	H/ET	9/28/1998	611.51	41	15.5	4B.111
EB-1	BME	4/20/2004	620.5	80	(14.5)	4B.5
EB-2	BME	4/28/2004	615.72	94	(33.3)	4B.7
EB-3	BME	4/29/2004	611.61	65	(8.4)	4B.9
EB-4	BME	4/21/2004	609.7	89.5	(34.8)	4B.11
EB-5	BME	4/26/2004	611.85	65	(8.1)	4B.13
EB-6	BME	4/22/2004	636.22	114	(32.8)	4B.15
EB-7	BME	4/26/2004	632.51	87	(9.5)	4B.18
EB-8	BME	4/19/2004	634.27	113	(33.7)	4B.20
EB-9	BME	4/27/2004	636.25	116	(34.8)	4B.23
EB-10	BME	4/30/2004	612	89	(32.0)	4B.26
EB-11	BME	7/12/2004	620	77	(12.0)	4B.28
EB-12	BME	7/12/2004	620	77	(12.0)	4B.30
EB-13	BME	7/12/2004	612	95	(38.0)	4B.32
EB-14	BME	7/12/2004	620	103	(38.0)	4B.34
EB-15	BME	7/12/2004	624	107	(38.0)	4B.37

**Table 4-5
Boring Depths and Elevations (Continued)**

ID	Consultant	Date Drilled	Surface Elevation	Total Depth	Depth Above (Below) EDE	Figure No.
				EDE =	555	
EB-16	BME	7/12/2004	620	78	(13.0)	4B.40
EB-17	BME	7/12/2004	610	68	(13.0)	4B.42
EB-18	BME	7/13/2004	610	93	(38.0)	4B.44
PZ-16	BME	7/15/2004	620	58	7.0	4B.107

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Margaret Hoffman, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 20, 2004

Mr. Gordon Spradley
Project Manager
Allied Waste Industries
11757 Katy Freeway, Suite 930
Houston, Texas 77079-1762

Re: Solid Waste – Travis County – TCEQ Region 11
BFI Sunset Farms Landfill – Municipal Solid Waste Permit No. 1447
Revised Soil Boring Plan
WWC Tracking System No. 10670607 (MSW Mail Log No. 6046)
RN100542752, CN600343826

Dear Mr. Spradley:

On June 30, 2004, the Texas Commission on Environmental Quality (TCEQ), Municipal Solid Waste (MSW) Permits Section received a soil boring plan (SBP) for expansion of the referenced facility, revised in response to letter from the TCEQ dated June 25, 2004, regarding the original SBP dated April 6, 2004. The revised SBP was submitted under a cover letter dated June 28, 2004, signed by Mr. Michael Snyder, P.G. (Texas Licensed Professional Geoscientist No. 595), Senior Hydrogeologist, Biggs & Mathews Environmental, Arlington, Texas, and bears his seal and signature dated June 28, 2004.

The SBP proposes 16 borings in and around an approximately 42-acre area within the existing, permitted disposal area that is being considered for deepening, and an adjacent plot of 14 acres to be added to the existing permitted disposal area. Of the 16 borings, four will extend 10 feet below the elevation of deepest excavation [EDE], four 15 feet below EDE, four 35 feet below EDE, and four 40 feet below EDE. The SBP also proposes two additional borings to extend 35 feet below EDE at locations along the facility property boundary, one about 1500 feet southwest of the area to be deepened and the other about 1000 feet north of the expansion area. In addition, the plan indicates that a piezometer will be installed at the location of one of the borings (boring EB-13).

The proposed SBP appears to meet the requirements of Title 30 Texas Administrative Code (30 TAC), Chapter 330, Section (§) 330.56(d)(5)(A), regarding the number and depths of borings. We anticipate that this SBP, when implemented, will yield the information needed to meet the requirements of 30 TAC §330.56(d)(5)(A) regarding characterization of subsurface conditions at the site. Therefore, the proposed SBP is hereby approved. However, please be aware that additional soil borings and piezometers could be required if the data generated by this investigation are inconclusive. If you find it necessary to alter this SBP, another SBP detailing any proposed changes must be submitted to the executive director for review and approval before implementation.

Mr. Gordon Spradley
Page 2
July 20, 2004

If you have any questions about this letter, please contact Mr. Arten J. Avakian in the MSW Permits Section by telephone at (512) 239-4419, by e-mail at aavakian@tceq.state.tx.us, or in writing at the address on our letterhead (please specify Mail Code 124 on the first line of our address).

Sincerely,



Richard C. Carmichael, Ph.D., P.E., CIH
Manager, Municipal Solid Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality

RCC/AJA/fp

cc: Mr. Michael Snyder, P.G., Senior Hydrogeologist, Biggs & Mathews Environmental
Mr. Gregory Lewis, P.E., Associated Consulting Engineers, Inc.

LOG OF BORING NO. EB- 8

**Project Description: Sunset Farms Expansion
Austin, TX**

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 150740.000 N 98900.000	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 634.27 ft. msl Completion Depth: 113.0 ft. Date Boring Started: 4/19/04 Date Boring Completed: 4/20/04									
			MATERIAL DESCRIPTION									
	U1		CLAY (CH), tan, gray, light brown, orange, mottled, stiff to very stiff, calcareous, moist, iron stains									
	U2			631.27	3.0							
5	U3		CLAY (CH), tan and light gray and orange, blocky, jointed, iron stains, calcareous, slightly moist		4.5+							
	U4		- iron stained seam		4.5							
	NR											
10			- friable below 10 feet		4.5	24	101.2	66	29	37	81	
	CS1											
15			- blocky below 15 feet, friable seams		4.5+							
	CS2											
20					4.5+							
	C1											
	C2		- slightly sandy below 23.5 feet, tan and orange	609.77								
25			CLAY (CH), tan and light gray, hard, weathered, slightly sandy, fossil shell seams, iron stains, massive, calcareous									
	C3											
30												
	C4											
35												
	C5					19	106.9	57	21	36	94	
40			- mostly dark gray, weathered layers and seams									
	C6											
45												
	C6		- angular iron stained fracture	587.27								
50			CLAYEY SHALE (CH), dark gray, hard, massive, calcareous, unweathered marl									

BME LOG SUNSET FARMS EXPANSION.GPJ BME:GUT 3/27/06

Drilling Contractor: **Total Support**
 Drilling Method: **Wet Rotary**
 Sampling Method: **Core**
 Geologist/Engineer: **Mike Brown**
 Project No.: **904-01-400**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal; then wet rotary coring using NX core. No water observed prior to introduction of drilling water.



LOG OF BORING NO. EB- 8

**Project Description: Sunset Farms Expansion
Austin, TX**

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

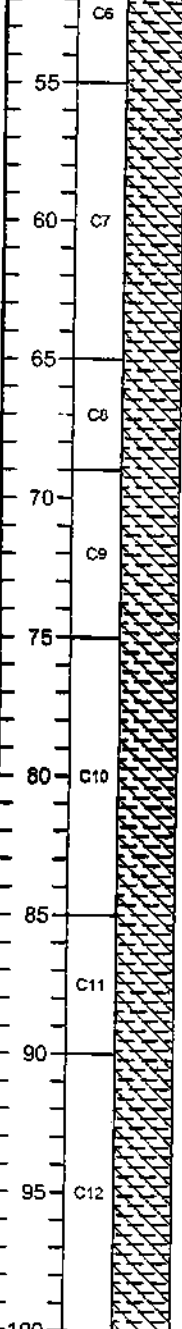
Location: E 150740.000 N 98900.000

Surface El.: 634.27 ft. msl
Completion Depth: 113.0 ft.
Date Boring Started: 4/19/04
Date Boring Completed: 4/20/04

Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
------------------------	------------------------	---------------------	----------------------------	--------------	---------------	------------------	-------------------------	--------------------------------

MATERIAL DESCRIPTION

CLAYEY SHALE (CH), dark gray, hard, massive, calcareous, unweathered marl (continued)



16	116.3	58	22	37	98
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BME LOG SUNSET FARMS EXPANSION.GPJ BME.GDT 3/27/06

Drilling Contractor: Total Support
Drilling Method: Wet Rotary
Sampling Method: Core
Geologist/Engineer: Mike Brown
Project No.: 904-01-400

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal; then wet rotary coring using NX core. No water observed prior to introduction of drilling water.



LOG OF BORING NO. EB- 8

**Project Description: Sunset Farms Expansion
Austin, TX**

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 150740.000 N 98900.000	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 634.27 ft. msl Completion Depth: 113.0 ft. Date Boring Started: 4/19/04 Date Boring Completed: 4/20/04									
			MATERIAL DESCRIPTION									
105		C13	CLAYEY SHALE (CH), dark gray, hard, massive, calcareous, unweathered marl (continued)									
110		C14		521.27								
115												
120												
125												
130												
135												
140												
145												
150												

BME LOG SUNSET FARMS EXPANSION.GPJ BME.GDT 3/27/06

Drilling Contractor: **Total Support**
 Drilling Method: **Wet Rotary**
 Sampling Method: **Core**
 Geologist/Engineer: **Mike Brown**
 Project No.: **904-01-400**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal; then wet rotary coring using NX core. No water observed prior to introduction of drilling water.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

**LA GLORIA RANCH LANDFILL
HIDALGO COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW-2348**

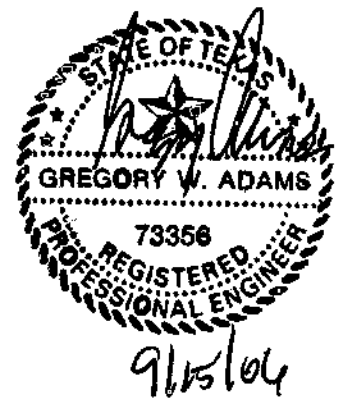
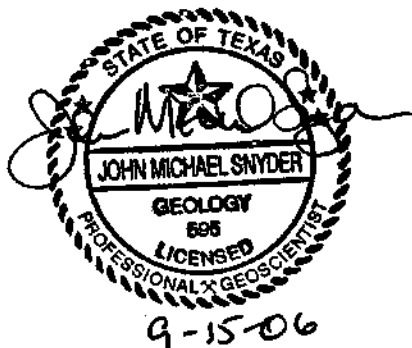
PERMIT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

Desarrollo Del Rancho La Gloria TX, L.P.

Revised September 2006



Prepared by

BIGGS & MATTHEWS ENVIRONMENTAL
1700 Robert Road • Mansfield, Texas 76063 • 817-563-1144

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 31, 2005

Mr. Michael Snyder, P.G.
Senior Hydrogeologist
Biggs and Mathews Environmental
1700 Robert Road
Mansfield, TX 76063

Re: Municipal Solid Waste (MSW) - Hidalgo County
Proposed Site Investigation, La Gloria Ranch
WWC No. 10960363

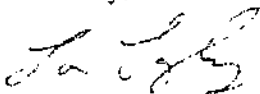
Dear Mr. Snyder:

The Texas Commission on Environmental Quality (TCEQ) received a soil boring plan (SBP) on May 11, 2005 for the above-referenced proposed Type I Municipal Solid Waste landfill facility in Hidalgo County. The SBP proposes to drill a total of 64 borings. The SBP proposes to drill 37 borings to a depth 30 feet greater than the elevation of deepest excavation (EDE) of approximately 190 feet above mean sea level. The remaining borings will be installed to a depth 5 feet greater than the EDE. Our review of this plan indicates that it complies with the Municipal Solid Waste Regulations and this letter constitutes approval of your plan.

Please be advised that under §330.56(d)(5)(A)(ii) of Title 30, Texas Administrative Code, the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. When submitting correspondence to the TCEQ, please include the Municipal Solid Waste Permits Section's mail code MC-124 to insure prompt delivery. If you should have any questions concerning this matter, please feel free to contact me at (512) 239-6234.

Sincerely,



Lon Langley, P.G., Geologist
Municipal Solid Waste Permits Section
Waste Permits Division

LL/fp

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 28, 2006

Mr. Brad Dugas
South Central Texas District Manager
Allied Waste Landfill Holdings, Inc.
251 N. FM 1626, Building 1, Suite A
Buda, Texas 78610

Re: Municipal Solid Waste (MSW) - Hidalgo County
La Gloria Ranch Landfill - Proposed MSW Permit No. 2348
Revised Facility Soil Boring Plan
WWC Nos. 11315346, 11321590; CN602972770 / RN104858790

Dear Mr. Dugas:

On April 6, 2006, April 11, 2006, and April 26, 2006, the Texas Commission on Environmental Quality (TCEQ) received a revised soil boring plan (SBP) and addenda, respectively, for a proposed 2,037-acre Type I municipal solid waste landfill facility in Hidalgo County. It was submitted in response to a April 3, 2006 meeting between applicant representatives and our staff. The revised SBP and addenda, dated April 7, 2006, April 11, 2006, and April 25, 2006, respectively, were signed and sealed by Mr. John Michael Snyder, P.G. (#595), Senior Hydrogeologist, Biggs & Mathews Environmental.

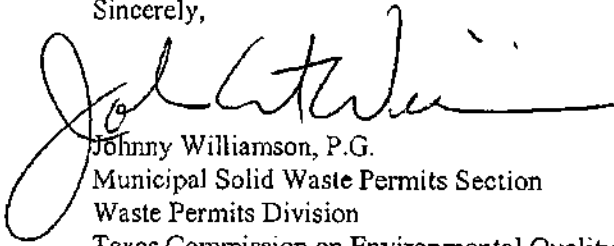
The revised SBP proposes drilling a total of 68 borings, of which 31 borings will be drilled to at least a depth 30 feet greater than the elevation of deepest excavation (EDE) of approximately 190 feet above mean sea level. All borings, including the remaining 37 borings, will be advanced a minimum of 5 feet below the EDE.

This SBP complies with the TCEQ Municipal Solid Waste Rules concerning site investigations for municipal solid waste landfill facilities, and this letter constitutes approval of the revised SBP. Please be advised that under Title 30 Texas Administrative Code §330.56(d)(5)(A)(ii), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this revised soil boring plan, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Rules concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this soil boring plan prove to be inconclusive.

Mr. Brad Dugas
Page 2
April 28, 2006

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. Please contact me at (512) 239-6631 if you have any questions concerning this matter. When addressing written correspondence, please use Mail Code 124 (MC-124).

Sincerely,

A handwritten signature in black ink, appearing to read 'Johnny Williamson', written over the typed name and title.

Johnny Williamson, P.G.
Municipal Solid Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality

JAW/ff

cc: Mr. Mike Snyder, P.G., Senior Hydrogeologist, Biggs & Mathews Environmental, Mansfield

LOG OF BORING NO. F- 5 (B-1)

Project Description: Desarrollo Del Rancho La Gloria TX, LP
La Gloria Ranch Landfill

Biggs & Mathews Environmental, Inc.
 1700 Robert Road, Suite 100
 Mansfield, Texas 76063
 Phone: 817-583-1144
 Fax: 817-563-1224

Depth, foot	Samples	Symbol / USCS	Location: E -4334.767 N -4155.240	Hand Penetrometer, lsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, lsf
			Surface El.: 248.00 ft. msl Completion Depth: 70.0 ft. Date Boring Started: 11/3/04 Date Boring Completed: 11/4/04									
			MATERIAL DESCRIPTION									
		SAND, brown, soft, silty,	244.00									
5		SILT, brown, soft calcareous nodules, clayey to sandy	238.00									
10	A1	CLAYEY SILT (MH), brown to white, stiff, calcareous seams, silty						86	47	39	58	
15		- wet										
20	A2	CLAY, brown, stiff to hard, calcareous seam upper zone to calcareous nodules lower zone, silty	225.00					61	29	32	78	
25												
30	C3											
35	C5	SAND, clayey to coarse grained, some gravel	213.00									
40	C6	CLAY (CL), silty, brown, stiff to hard, calcareous nodules	211.00									
45	C10	- coarse to medium, calcareous nodules						49	24	25	85	
50	C12											

BME LOG LAGLORIA RANCH.GPJ BME.GDT 1/3/06

Drilling Contractor: **Prospector**
 Drilling Method: **Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Doug Jones**
 Project No.: **904.02.101**

Groundwater Observations	
Date	Depth

Remarks: Sand seam at 35 feet, produced a lot of water. Borehole advanced with Shelby tubes pushed to depth of refusal then air or wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



LOG OF BORING NO. F- 5 (B-1)

Biggs & Mathews Environmental, Inc.
 1700 Robert Road, Suite 100
 Mansfield, Texas 76063
 Phone: 817-563-1144
 Fax: 817-563-1224

Project Description: Desarrollo Del Rancho La Gloria TX, LP
La Gloria Ranch Landfill

Depth, feet	Samples	Symbol / USCS	Location: E -4334.767 N -4155.240 Surface El.: 248.00 ft. msl Completion Depth: 70.0 ft. Date Boring Started: 11/3/04 Date Boring Completed: 11/4/04	Hand Penetrometer, tsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf	
			MATERIAL DESCRIPTION										
55	C13		CLAY (CL), silty, brown, stiff to hard, calcareous nodules <i>(continued)</i>										
	C14												
	C15												
	C16					190.00							
	C17												
60	C18		CLAY, silty to fine grained, sandy, reddish-brown										
	C19												
	C20					183.00							
	C21												
65	C22		SAND, gravel, alternating layers of clayey sand and gravel, subrounded, loose										
						178.00							
70													
75													
80													
85													
90													
95													
100													

BME LOG LAGLORIA RANCH (SPJ) BME GDT 1/3/06

Drilling Contractor: **Prospector**
 Drilling Method: **Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Doug Jones**
 Project No.: **904.02.101**

Groundwater Observations	
Date	Depth

Remarks: Sand seam at 35 feet, produced a lot of water. Borehole advanced with Shelby tubes pushed to depth of refusal then air or wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

Figure 4B.106

LOG OF BORING NO. C-40

Project Description: Desarrollo Del Rancho La Gloria TX, LP
La Gloria Ranch Landfill

Biggs & Mathews Environmental, Inc.
 1700 Robert Road, Suite 100
 Mansfield, Texas 76063
 Phone: 817-563-1144
 Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 1034283.300 N 16676208.900	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 236.60 ft. msl Completion Depth: 76.6 ft. Date Boring Started: 4/24/05 Date Boring Completed: 4/24/05									
			MATERIAL DESCRIPTION									
0 - 5	W1	SAND	SAND, brown, calcareous nodules, silty									
5 - 10			227.60									
10 - 20	D2	SILT (MH)	SILT (MH), tan, dry, calcareous nodules, ferrous stains, abundant caliche, clayey			28	88.4	66	38	28		
20 - 25			216.60									
25 - 30	D3	CLAY (CH)	CLAY (CH), light reddish-brown, dry, calcareous nodules, ferrous stains, silty									
30 - 35	D4											
35 - 40	D5											
40 - 45	D6											
45 - 50	D7											
50 - 55	D8											
55 - 60	D9					26	88.6	59	29	30	75	
60 - 65	D10											
65 - 70	D11											
70 - 75	D12											
75 - 80	D13											
80 - 85	D14											

BME LOG LAGLORIA RANCH.GPJ BME.GDT 12/27/05

Drilling Contractor: **Prospector**
 Drilling Method: **Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Stamoulis**
 Project No.: **904.02.101**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal then wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



LOG OF BORING NO. C-40

**Project Description: Desarrollo Del Rancho La Gloria TX, LP
La Gloria Ranch Landfill**

Biggs & Mathews Environmental, Inc.
1700 Robert Road, Suite 100
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

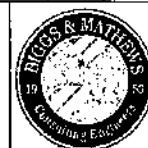
Depth, feet	Samples	Symbol / USCS	Location: E 1034283.300 N 16676208.900	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 236.60 ft. msl Completion Depth: 76.6 ft. Date Boring Started: 4/24/05 Date Boring Completed: 4/24/05									
			MATERIAL DESCRIPTION									
	D15		CLAY (CH), light reddish-brown, dry, calcareous nodules, ferrous stains, silty <i>(continued)</i>									
	D16											
55	D17											
	D18											
60	D19					17	108.3	52	22	30	76	
	D20		- caliche increases with depth									
65	D21											
	D22											
70	D23											
	D24											
75	D25				160.00							
80												
85												
90												
95												
100												

BME LOG LAGLORIA RANCH.GPJ BME.GDT 12/27/05

Drilling Contractor: **Prospector**
 Drilling Method: **Rotary**
 Sampling Method: **Various**
 Geologist/Engineer: **Stamoulis**
 Project No.: **904.02.101**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal then wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

Figure 4B.59

**IESI WEATHERFORD LANDFILL
PARKER COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 47A**

PERMIT AMENDMENT APPLICATION

PART III - SITE DEVELOPMENT PLAN

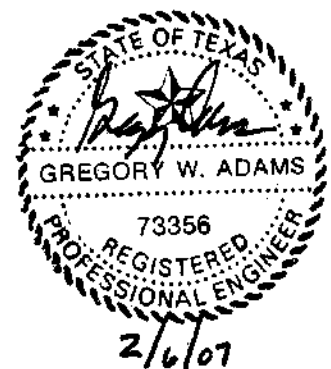
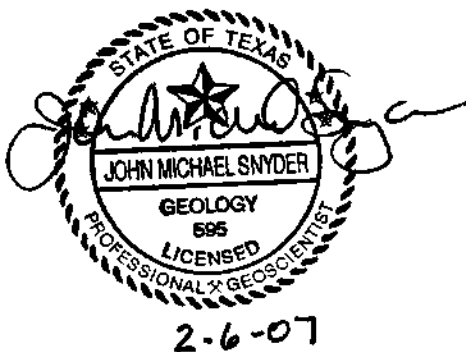
**ATTACHMENT 4
GEOLOGY AND GEOTECHNICAL REPORT**

Prepared for

IESI TX Landfill LP

October 2005
Revised March 2006
Revised July 2006
Revised October 2006
Revised January 2007

Technically Complete January 26, 2007



Prepared by

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road • Mansfield, Texas 76063 • 817-563-1144

sandstones and siltstones of the overlying Glen Rose Formation primarily by texture and color. The Twin Mountains sandstones are typically tan to brown and are fine to very fine grained, well sorted sandstone. The Twin Mountains serves as a major regional aquifer for the North Texas area. Groundwater flows to the southeast and is confined by the overlying limestones and shales of the Glen Rose Formation. Most wells are completed in a lower massive sand; the upper portion of the formation generally contains more clay and is less productive. In the site vicinity the top of the Twin Mountains is at an elevation of about 840 feet above the NGVD, or about 140 feet below the lowest part of the site

The average depth to the top of the Twin Mountains beneath the site is about 170 feet. On the lower portions of the site, where significant thicknesses of the Paluxy have been eroded, the Twin Mountains occurs nearest the surface, such as in E-3 where the Twin Mountains occurs at a depth of 117 feet. No borings on the site penetrated the full thickness of the Twin Mountains. Boring E-3 penetrated 98 feet of the Twin Mountains. The average thickness of the Twin Mountains drilled by site borings is about 47 feet. The Twin Mountains is about 120 feet thick in the area (Hendricks, 1957).

2.3 Site Exploration

A soil boring plan for the proposed permit amendment was submitted to the TCEQ and was approved by the TCEQ in its letter of August 23, 2005 (Figure 4B.1). Figure 4B.2 depicts site soil boring and well locations.

2.3.1 Previous Site Exploration

2.3.1.1 Borings

The permitted area of the original site was approximately 111 acres. The proposed amendment includes vertical expansion over the original site. Waste from the previously closed 59-acre southwest portion of the site will be exhumed and placed in Subtitle D lined areas.

Various geologic/hydrogeologic investigations have been conducted at the IESI Weatherford Landfill facility since 1983. The existing landfill was characterized with the completion of 20 borings during 1983 and 1984 by Rone Engineers. These borings were numbered B-1 through B-8 (1983) and E-1 through E-12 (1984). In addition, various groundwater monitoring wells, piezometers, and landfill gas probes have been drilled and installed. Logs of previous borings and wells are included as Figures 4B.10 through 4B.152.

In the 1990's, various studies using existing borings were completed by Rady and Associates and EMCON as part of the Subtitle D groundwater monitoring system design.

2.3.1.2 Drilling Methods

Borings were done generally in accordance with §330.56(d)(5)(A)(iii) and were advanced utilizing auger and wet rotary drilling methods. Sampling methods included Shelby tubes, split spoons, and coring as appropriate for rock materials. Samples were logged by a qualified geologist or engineer in accordance with §330.56(d)(5)(A) and consistent with established description procedures. Each boring was plugged (pressure grouted using tremie methods) in accordance with TCEQ and water well drilling regulations as described in §330.56(d)(5)(A)(v) unless the borehole was drilled to install a piezometer or monitoring well.

2.3.1.3 Water Levels

Historical water level readings have been taken in site monitoring wells since 1988. Those water levels were used in combination with water levels in site piezometers for groundwater characterization in accordance with 330.56(d)(5)(C)(ii). Historical water levels are included in Table 4-13a.

2.3.1.4 Slug Tests

Slug tests have been previously conducted in site wells in various lithologies of the Paluxy and hydraulic conductivities have been calculated for the site strata from these tests. Those hydraulic conductivities were used to characterize site hydrogeologic conditions and to confirm the groundwater monitoring system. Slug test information is summarized in Table 4-14 and in Appendix 4H.

2.3.1.5 Laboratory Testing

A significant amount of geotechnical laboratory testing has been conducted on samples collected from borings in the appropriate strata from the existing permitted area. These tests were done in accordance with §330.56(d)(5)(B)(i). Data from those tests were combined with soils laboratory data from the recent borings and used to characterize site stratigraphic conditions and for geotechnical evaluation of site conditions.

2.3.2 Recent Site Exploration

TCEQ regulations regarding the number of borings for site characterization suggest that a total of approximately 20 borings be used that are drilled at least 5-feet below the elevation of deepest excavation (EDE). Of the 20, at least 14 of the borings should be drilled greater than 30 feet below the EDE. The proposed EDE for the amended permit is 920 feet msl.

2.3.2.1 Borings

A total of 20 borings and 10 monitoring wells were previously drilled on the original permit. None of those borings was drilled below the proposed new EDE. A boring plan that exceeds the recommended numbers was proposed. A total of 20 borings that are drilled at least 5 feet below the EDE were drilled for the site characterization for the

permit amendment. Each of the 20 borings was drilled greater than 30 feet below the EDE.

Borings were done generally in accordance with §330.56(d)(5)(A)(iii) and were advanced utilizing air and mud rotary methods. Sampling methods included Shelby tubes, split spoons, cuttings, and coring as appropriate for harder rock materials. Samples were logged by a qualified geologist or engineer in accordance with §330.56(d)(5)(A) and consistent with established description procedures. Each boring was plugged (pressure grouted using tremie methods) in accordance with TCEQ and water well drilling regulations as described in §330.56(d)(5)(a)(v).

The field logs, in conjunction with field and laboratory testing data, were used to prepare the final boring logs provided in Appendix 4B of this attachment. General notes supplementing the logs are in Figure 4B.5. Monitoring well and piezometer logs are provided as Figures 4B.111 through 4B.152.

2.3.2.2 Piezometers

A total of nine piezometers were installed within the Glen Rose Sandstone to provide water level data beneath the proposed excavation. Boreholes for the piezometers were advanced with air rotary auger methods. Two-inch diameter PVC piezometers were installed to TCEQ groundwater monitoring well standards.

2.3.2.3 Water Level Measurements

Stabilized water levels have been measured in the new piezometers until sufficient data was collected to characterize a wet-dry temporal cycle. Water levels were stable within several weeks following installation. Water levels from the new piezometers have been combined with previously measured water levels from the site monitoring wells to provide hydrogeologic information for both the Glen Rose sandstone and the shallower Paluxy sandstone. Water levels are included in Table 4-13b.

2.3.2.4 Slug Tests

Slug tests were previously conducted in site wells in various lithologies of the Paluxy and hydraulic conductivities were calculated for the site strata from these tests. Those hydraulic conductivities have been used to characterize site hydrogeologic conditions and to design the groundwater monitoring system that will be included in the permit amendment application. Additional slug testing was performed in new piezometers to determine the hydraulic conductivities of the sandstone and siltstones of the Glen Rose sandstone. Hydraulic conductivity information is included in Table 4-14 and in Appendix 4H.

2.3.2.5 Laboratory Testing

A sufficient number of laboratory tests were completed in accordance with 30 TAC §330.56(d)(5)(B) to characterize the geotechnical properties of the soils encountered. These tests have been combined with previous geotechnical testing to provide soils data for the geotechnical design of site facilities. Results of laboratory soils testing are included in Section 3 and in Appendices 4E and 4F.

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 23, 2005

Mr. Michael Snyder, P.G.
Senior Hydrogeologist
Biggs and Mathews Environmental
1700 Robert Road
Mansfield, TX 76063

Re: Municipal Solid Waste - Parker County
IESI Weatherford Landfill - MSW Permit No. 47
Soil Boring Plan
WWC No. 11045165 / RN100617984 / CN601668486

Dear Mr. Snyder:

The Texas Commission on Environmental Quality (TCEQ) received your revised soil boring plan (SBP) on August 1, 2005, for a proposed vertical expansion of the above-referenced municipal solid waste landfill facility in Parker County. The revised SBP was submitted in response to our letter dated July 20, 2005. According to the information you provided, the proposed vertical expansion will be about 78 acres, a total of 20 soil borings were drilled in late 2003 to a depth greater than 30 feet below the proposed elevation of the deepest excavation (~920 feet mean sea level), and nine new piezometers were installed to TCEQ groundwater monitoring standards in borings to provide water level data for the groundwater units beneath the site. Please know that in accordance with Title 30, Texas Administrative Code (30 TAC) §330.56(d)(5)(A)(iv), the SBP, including locations and depths of all borings, should have been approved by the executive director prior to initiation of the work. However, the above notwithstanding, this letter constitutes approval of your plan.

Please be advised that under 30 TAC §330.56(d)(5)(A)(ii), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan has been approved, additional soil borings and piezometers could be required by the executive director should the data generated by this SBP prove to be inconclusive.

Please contact me at 512/239-6730 if you have any questions concerning this matter. When addressing written correspondence, please use Mail Code 124 (MC-124).

Sincerely,

A handwritten signature in black ink, appearing to read "Gale L. Baker".

Gale L. Baker, P.G.
Municipal Solid Waste Permits Section
Waste Permits Division

GLB/fp

cc: Mr. Joe Vieceli, Environmental Manager, IESI South Region, Fort Worth

4B.1

LOG OF BORING NO. BME- 1

Project Description: IESI Weatherford Landfill
Weatherford, Texas

BIGGS & MATHEWS ENVIRONMENTAL
 1700 Robert Road
 Mansfield, Texas 76063
 Phone: 817-563-1144
 Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 2166440.000 N 6945500.000	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 993.25 ft. msl Completion Depth: 124.0 ft. Date Boring Started: 10/1/03 Date Boring Completed: 10/1/03									
			MATERIAL DESCRIPTION									
55		c	LIMESTONE, gray to light gray, hard, shale seams			9	140.2					56.2
60												
65			SHALE, dark gray, hard, dry	928.25								
70			LIMESTONE, light gray, hard, shale seams	924.25								
75												
80			SHALE, dark gray, hard, dry	913.25								
85			LIMESTONE, light gray, hard	910.25								
90			SHALE, dark gray, hard, dry	903.25								
95			- limestone seams									
100				893.25								

BME LOG NO. 1, D.G.P., BME.GDT 9/16/03

Drilling Contractor: **H/ET**
 Drilling Method: **Air Rotary**
 Sampling Method: **Varies**
 Geologist/Engineer: **S. Stamoulis**
 Project No.: **112-02-102**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal; then air or wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



LOG OF BORING NO. BME-1

**Project Description: IESI Weatherford Landfill
Weatherford, Texas**

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road
Mansfield, Texas 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 2166440.000 N 6945500.000	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 993.25 ft. msl Completion Depth: 124.0 ft. Date Boring Started: 10/1/03 Date Boring Completed: 10/1/03									
			MATERIAL DESCRIPTION									
-105			SHALE, dark gray, hard									
-110				883.25								
-115			SHALE, silty, dark gray, shell fragments									
-120												
-125				869.25								
-130												
-135												
-140												
-145												
-150												

BME LOG WTHFD.GPJ BME.GDT 9/16/05

Drilling Contractor: **H/ET**
 Drilling Method: **Air Rotary**
 Sampling Method: **Varies**
 Geologist/Engineer: **S. Stamoulis**
 Project No.: **112-02-102**

Groundwater Observations	
Date	Depth

Remarks: Borehole grouted with tremied bentonite upon completion. Borehole advanced with Shelby tubes pushed to depth of refusal; then air or wet rotary coring. No water observed prior to introduction of drilling water, unless noted.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

**GALVESTON COUNTY LANDFILL
CITIES OF LAMARQUE AND HITCHCOCK
GALVESTON COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW-1149B**

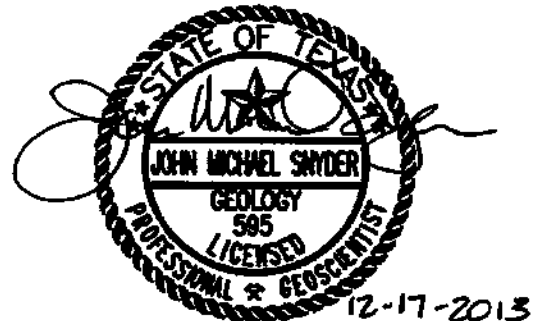
PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
APPENDIX III G
GEOLOGY REPORT**

Prepared for

GALVESTON COUNTY LANDFILL TX, LP

Technically Complete December 17, 2013



Biggs & Mathews Environmental, Inc.
Firm Registration No. 50222

Prepared by

BIGGS & MATHEWS ENVIRONMENTAL

1700 Robert Road, Suite 100 • Mansfield, Texas 76063 • 817-563-1144

TEXAS BOARD OF PROFESSIONAL ENGINEERS
FIRM REGISTRATION NO. F-256

TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS
FIRM REGISTRATION NO. 50222

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution.

June 4, 2009

Mr. Burgeas Stengl
Environmental Manager
Albied Waste Industries, Inc.
Galveston County Landfill Texas, L.P.
5757 A Oates Road
Houston, TX 77078

Re: Galveston County Landfill - Galveston County
Municipal Solid Waste (MSW) - Permit No. 1149A
Proposed Site Investigation - SBP Approval
Tracking No. 12683483; RN100221597 / CN601587355

Dear Mr. Stengl:

The Texas Commission on Environmental Quality (TCEQ) received a soil boring plan (SBP) on March 19, 2009, and revisions on May 8, 2009, for the proposed expansion of the above-referenced municipal solid waste landfill facility in Galveston County. The plan includes 25 new borings to be drilled to more than 30 feet below the elevation of the deepest excavation of -38 feet msl. Our review of this plan indicates that it complies with the Municipal Solid Waste Regulations and this letter constitutes approval of your plan.

Please be advised that under Section 330.63(e)(4)(B) of Title 30, Texas Administrative Code, the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan complies with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. When submitting correspondence to the TCEQ, please include the Municipal Solid Waste Permits Section's mail code MC 124 to insure prompt delivery. If you have questions concerning this matter, please feel free to contact me at (512) 239-3419.

Sincerely,

A handwritten signature in cursive script that reads "F. Rambaud".

Fabienne Rambaud, Permit Coordinator
Municipal Solid Waste Permits Section
Waste Permits Division

FR/h

cc: Mr. Michael Snyder, P.G., Biggs and Matthews Environmental, Mansfield

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • Internet address: www.tceq.state.tx.us

Printed on recycled paper using soy-based ink

LOG OF BORING NO. EB- 3

**Project Description: Galveston County Landfill
Galveston County, Texas**

Biggs & Mathews Environmental, Inc.
1700 Robert Road, Suite 100
Mansfield, TX 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 224368.150 N 706208.810	Hand Penetration, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf	
			Surface El.: 15.25 ft. msl Completion Depth: 130.0 ft. Date Boring Started: 5/28/09 Date Boring Completed: 6/1/09										
MATERIAL DESCRIPTION													
	U1	CLAY (CL)	CLAY (CL), silty, brown, stiff with calcareous nodules and iron stains	3.0									
	U2			2.0									
5	U3			1.5	9.3								
	U4	CLAY (CL)	CLAY (CL), light greenish gray, stiff, trace of silt and trace calcareous nodules and iron stains	2.0									
	U5			2.0									
10	U6			1.5	- mottled below 10'								
	U7			2.5	- light red, mottled, stiff								
15	U8			2.0	0.3								
	U9	CLAY (CH)	CLAY (CH), light gray, with light red streaks, stiff - light brown at 16', very stiff, calcareous nodules and iron stains	3.25									
	U10			3.0									
20	U11			3.25									
	U12			4.0	- brown with light gray streaks and calcareous nodules								
25	U13			3.0									
	U14			3.5									
	U15			3.5									
30	U16			3.0				31	88.0	69	22	47	67
	U17			2.0									
35	U18			2.0									
	U19			2.5									
	U20			2.5									
40	U21	2.5											
	U22	2.5											
45	U23	3.0											
	U24	2.0											
50	U25	2.0											

BME LOG GALVESTON.GPJ BME.GDT 2/22/10

Drilling Contractor: **HET**
 Drilling Method: **Wet rotary**
 Sampling Method: **Shelby Tube/Spill Spoon**
 Geologist/Engineer: **Smith/S. Stamoulis**
 Project No.: **108.12.100**

Groundwater Observations	
Date	Depth

Remarks: Grouted borehole upon completion.
 No groundwater observed in borings prior to introduction of drilling water unless noted.



The stratification lines represent approximate strata boundaries.
 In situ, the transition may be gradual.

LOG OF BORING NO. EB- 3

**Project Description: Galveston County Landfill
Galveston County, Texas**

Biggs & Mathews Environmental, Inc.
1700 Robert Road, Suite 100
Mansfield, TX 76063
Phone: 817-563-1144
Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 224368.150 N 706208.810	Hand Penetrometer, lsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, lsf
			Surface El.: 15.25 ft. msl Completion Depth: 130.0 ft. Date Boring Started: 5/28/08 Date Boring Completed: 6/1/09									
			MATERIAL DESCRIPTION									
	U26		CLAY (CH), light gray, with light red streaks, stiff (continued)	-2.5								
	U27		CLAY (CL), brown, stiff, with gray silt	-39.6								
55	U28		CLAY (CL), silty, greenish gray, stiff, iron stains - brown	2.5								
	U29			2.5								
	U30			2.25								
60	U31			3.5								
65			CLAY (CL)	-49.6				30	18	12	69	
70	S32			-57.6								
75	U33		CLAY (CL), silty, grayish green, stiff, silt partings, iron stains	3.0								
80	U34		CLAY (CL), sandy, grayish green to gray, very stiff, iron stains	-62.8								
	U35			3.5		19	120.4	49	15	28	62	
85	U36			3.25								
90	U36		SAND (SP-SC), clayey, silty, green, very loose, unconsolidated, subrounded to round, fine to very fine, shell fragments	-72.8								
	S37					20	130.6	28	13	16	25	
95			- gray									
100	S38											

SME LOG GALVESTON.GPJ 01ME.GDT 2/23/10

Drilling Contractor: **NET**
 Drilling Method: **Wet rotary**
 Sampling Method: **Shelby Tube/Split Spoon**
 Geologist/Engineer: **Smith/S. Stamoullis**
 Project No.: **108.12.105**

Groundwater Observations	
Date	Depth

Remarks: Grouted borehole upon completion.
 No groundwater observed in borings prior to introduction of drilling water unless noted.



The stratification lines represent approximate strata boundaries.
 In situ, the transition may be gradual.

LOG OF BORING NO. EB- 3

Project Description: Galveston County Landfill
Galveston County, Texas

Biggs & Mathews Environmental, Inc.
 1700 Robert Road, Suite 100
 Mansfield, TX 76063
 Phone: 817-583-1144
 Fax: 817-583-1224

Depth, feet	Samples	Symbol / USCS	Location: E 224368.150 N 706208.810	Hand Penetrometer, <i>tf</i>	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, <i>tf</i>
			Surface El.: 15.25 ft. msl Completion Depth: 130.0 ft. Date Boring Started: 5/28/09 Date Boring Completed: 6/1/09									
			MATERIAL DESCRIPTION									
105	S38	[Hatched]	SAND (SP-SC), claysy, silty, green, very loose, unconsolidated, subrounded to round, fine to very fine, shell fragments <i>(continued)</i>					21	21	3	9	
110	S40	[Hatched]										
115	S41	[Hatched]	CLAY (CL), gray, very loose, shell fragments, with silt	-88.3		35	127.8	43	15	28	76	
120	U42	[Hatched]										
125	S43	[Hatched]	CLAY (CL), silty, dark gray	-109.3								
130	S44	[Hatched]		-114.8								
135												
140												
145												
150												
Drilling Contractor: HET Drilling Method: Wet rotary Sampling Method: Shelby Tube/Split Spoon Geologist/Engineer: Smith/S. Stamoulis Project No.: 108.12.100				Groundwater Observations Date: _____ Depth: _____		Remarks: Grouted borehole upon completion. No groundwater observed in borings prior to introduction of drilling water unless noted.						

BMELOS GALVESTON.GPJ BME.GDT 2/22/10



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

**NEW BOSTON LANDFILL
BOWIE COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 576C**

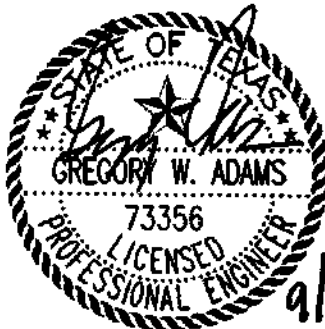
PERMIT AMENDMENT APPLICATION

**PART III – SITE DEVELOPMENT PLAN
ATTACHMENT E
GEOLOGY REPORT**

Prepared for

Waste Management of Texas, Inc.

Technically Complete September 12, 2014



Biggs & Mathews Environmental, Inc.
Firm Registration No. F-256
For sections 2.3, 5.1 – 5.3



Biggs & Mathews Environmental, Inc.
Firm Registration No. 50222

Prepared by

BIGGS & MATHEWS ENVIRONMENTAL

1700 Robert Road, Suite 100 • Mansfield, Texas 76063 • 817-563-1144

TEXAS BOARD OF PROFESSIONAL ENGINEERS
FIRM REGISTRATION NO. F-256

TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS
FIRM REGISTRATION NO. 50222

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 29, 2010

Ms. Paula Carboni
Market Area Compliance Manager
North Texas Market Area
Waste Management of Texas, Inc.
P. O. Box 400
Ferris, Texas 75125-0400

Re: Waste Management New Boston Landfill – Bowie County
Municipal Solid Waste (MSW) – Permit No. 576B
Proposed Site Investigation
Tracking Nos. 13193618, 14443116, and 14468048
RN102594892/CN600127856

Dear Ms. Carboni:

The Texas Commission on Environmental Quality, MSW Permits Section received a revised soil boring plan (SBP) on October 11, 2010, for a potential expansion of the referenced facility. The revised SBP is dated October 7, 2010, and was submitted on behalf of the facility by Biggs & Mathews Environmental, of Mansfield, Texas, in response to comments in our letters dated September 3, 2010, and September 22, 2010.

The SBP proposes 25 borings in an approximately 136-acre expansion area, of which approximately 93 acres is being considered for waste footprint. All of the borings will be drilled to approximately 295 feet above mean sea level, or deeper, corresponding to depths greater than 30 feet below the elevation of the deepest excavation (EDE, estimated at 325 feet above sea level). Our review of the revised plan indicates that it complies with the Municipal Solid Waste Regulations. This letter constitutes approval of your plan.

Please be advised that under Title 30 Texas Administrative Code, Chapter 330, Section 330.63(e)(4)(B), the uppermost aquifer and any hydraulically interconnected aquifers below the site must be identified, as well as the underlying confining unit. It is anticipated that this SBP, when implemented, will accurately characterize the in-situ geologic, hydrologic, and engineering properties of the surface and subsurface strata at this site. Although this plan appears to comply with the Municipal Solid Waste Regulations concerning site investigations, additional soil borings and piezometers could be required by the Commission should the data generated by this SBP prove to be inconclusive.

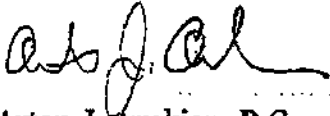
Ms. Paula Carboni

Page 2

October 29, 2010

If you should find it necessary to modify this approved plan, another plan detailing any proposed modifications must be submitted to the Commission for approval before implementation of the modifications. If you have questions regarding this letter, please contact me at (512) 239-4419. When addressing written correspondence, please use mail code MC 124.

Sincerely,



Arten J. Avakian, P.G.
Municipal Solid Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality

AJA/fp

cc: Mr. Walter C. Hunt, P.E., Waste Management of Texas, Inc., Ferris
Ms. Elizabeth Floyd, P.G., Biggs & Mathews Environmental, Mansfield

**Table E-4
New Boston Landfill
Summary of Borings**

Note: Copies of recent and available historical logs are provided in Appendix E2.

BORING NO.	SURFACE ELEVATION	DEPTH (ft)	ELEVATION at TOTAL DEPTH	DEPTH BELOW EDE ¹ (ft)	PIEZOMETER OR MONITORING WELL	NORTHING	EASTING	Page # Appendix E2
B-23	375.13	6.00	369.13	-39.13	No	11306.224	10131.567	E2-180
B-24	370.09	6.00	364.09	-34.09	No	11520.840	10097.646	E2-181
B-25	371.13	20.00	351.13	-21.13	No	12367.460	10160.161	E2-182
B-26	372.37	20.00	352.37	-22.37	No	12286.514	10178.653	E2-183
B-27	362.74	6.00	356.74	-26.74	No	11344.392	9868.044	E2-184
1990 - 2011 EXISTING AND HISTORIC MONITORING WELLS								
MW-1	378.60	76.00	302.60	27.40	Yes	12675.000	10338.000	E2-199
MW-2	385.70	85.00	300.70	29.30	Yes	12122.168	8963.786	E2-202
MW-2A ²	385±	86±	299±	31±	Yes	12122.168	8963.786	E2-186
MW-2B ²	385±	85±	300±	30±	Yes	12122.168	8963.786	E2-189
MW-2C ²	385±	84±	301±	29±	Yes	12122.168	8963.786	E2-192
MW-2D ²	385±	85±	300±	30±	Yes	12122.168	8963.786	E2-195
MW-2R(GEC-PZ-1)	387.48	39.75	347.73	-17.73	Yes	12138.000	8927.000	E2-205
MW-3	370.80	63.00	307.80	22.20	Yes	11693.106	8128.109	E2-206
MW-3R	372.46	64.00	308.46	21.54	Yes	11738.500	8103.430	E2-208
MW-4	370.60	69.00	301.60	28.40	Yes	11014.000	8123.000	E2-210
MW-5 ³	373.27	70.57	302.70	27.30	Yes	10914.000	8512.000	E2-212
MW-6	357.80	50.00	307.80	22.20	Yes	10546.247	9314.030	E2-214
MW-6R	359.12	50.00	309.12	20.88	Yes	10476.000	9314.000	E2-215
MW-7	366.31	48.00	317.31	12.70	Yes	10141.000	10154.000	E2-217
MW-8	360.19	55.00	305.19	24.60	Yes	10759.000	8761.000	E2-219
MW-9	364.54	48.50	316.04	14.00	Yes	10273.000	9665.000	E2-221
MW-10	383.64	78.00	305.64	24.40	Yes	11941.500	8528.600	E2-223
MW-11	373.37	62.00	311.37	18.60	Yes	11366.100	8082.600	E2-224
MW-12	361.12	53.00	308.12	21.90	Yes	10587.900	9078.200	E2-225
MW-13	372.28	60.00	312.28	17.72	Yes	10402.700	10272.900	E2-226

See Table E-9 for Monitoring Well Details. MWDS forms and plugging reports are included in Attachment F, Appendix F1.

¹ The EDE for the entire site is 330 feet above sea level. The EDE was formerly 335 feet above sea level when the facility consisted only of the West Disposal Area.

² Coordinates were not included on the original log and have been estimated from site topography map.

³ MW-5 was reconditioned on 10/12/2005.

4.1.1 Biggs and Matthews Environmental – 2010 to 2011

Field exploration activities were conducted in October 2010 and March through April 2011. The new borings are designated BME-01 through BME-25. These borings were drilled using hollow stem augers and sampled continuously using Shelby tubes and split spoons where appropriate. Borings were drilled in accordance with TCEQ approved boring plans and established field exploration methods. Installation, abandonment, and plugging of borings completed in support of previous permit amendment or modification applications were performed in accordance with the TCEQ rules in effect at the time.

Ten piezometers were installed: BME-01, BME-04, BME-07, BME-09, BME-12, BME-14, BME-16, BME-20, BME-22, and BME-23. Piezometers were installed immediately adjacent to the corresponding boring number. The original borehole was sampled and logged, and then the boring was plugged by pressure grouting from the

LOG OF BORING NO. BME-01

Project Description: New Boston Landfill Expansion
Bowie County, TX

Biggs and Mathews Environmental
 1700 Robert Road, Suite 100
 Mansfield, TX 76063
 Phone: 817-563-1144
 Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 11006.903 N 12198.615	Hand Penetrometer, lsf	Penetration Blows/foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, lsf
Surface El.: 379.60 ft. msl Completion Depth: 90.0 ft. Date Boring Started: 10/4/10 Date Boring Completed: 10/4/10												
MATERIAL DESCRIPTION												
			SAND, silty, tan, [SP]									
			CLAY, red & grey, firm, moist w/sand seams, [CH]			16.0		74	23	51	85	
5			CLAY, sandy, reddish tan, firm, dry, [CL]									
						23.0		44	25	19	71	
10												
			CLAY, dark red to orange, stiff to very stiff, moist, w/sand seams, [CH]									
								68	31	37	63	
15												
			- dry, slickensided, w/black stains									
20												
			- slickensides									
25												
			- numerous slickensides			24.8		70	28	44	100	
30												
			- numerous slickensides									
35												
			- dry									
40												
45												
50												

BME LOG INCL. GSP J BSM DATA TEMPLATE.GDT 5/23/13

Drilling Contractor: **Texplor**
 Drilling Method: **HSA**
 Sampling Method: **CME Bbl**
 Geologist/Engineer: **T. Baker**
 Project No.: **101.05.112**

Groundwater Observations	
Date	Depth

Remarks: Seepage observed @ 60'; water level @ 21.5' after 24 hrs. & blocked @ 27'.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

LOG OF BORING NO. BME-01

Project Description: New Boston Landfill Expansion
Bowie County, TX

Biggs and Mathews Environmental
 1700 Robert Road, Suite 100
 Mansfield, TX 76063
 Phone: 817-563-1144
 Fax: 817-563-1224

Depth, feet	Samples	Symbol / USCS	Location: E 11006.903 N 12198.615	Hand Penetrometer, tsf	Penetration Blows/Foot	Moisture Content, %	Unit Dry Weight, lb/cu ft.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200 Sieve	Unc. Compressive Strength, tsf
			Surface El.: 379.60 ft. msl Completion Depth: 90.0 ft. Date Boring Started: 10/4/10 Date Boring Completed: 10/4/10									
			MATERIAL DESCRIPTION									
55	C11		CLAY, dark red to orange, stiff to very stiff, moist, w/sand seams, [CH] (continued)									
60	C12		CLAY, sandy, light grey & mottled reddish orange, stiff, moist, [CL]									
65	C13		- grey silty sand seams			22.7		30	15	15	60	
70	C14											
75	C15		SAND, silty, grey, fine to medium grain, dense, wet, [SM]			9.3						
80	C16											
85	C17		CLAY, dark grey, very stiff to hard, dry, [CH]									
90	C18											

BME LOG INI GPJ BEM DATA TEMPLATE.GDT 8/28/13

Drilling Contractor: **Texplor**
 Drilling Method: **HSA**
 Sampling Method: **CME BM**
 Geologist/Engineer: **T. Baker**
 Project No.: **101.05.112**

Groundwater Observations	
Date	Depth

Remarks: Seepage observed @ 60'; water level @ 21.5' after 24 hrs. & blocked @ 27'.



The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

ATTACHMENT 2



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PERMIT FOR MUNICIPAL
SOLID WASTE MANAGEMENT FACILITY
issued under provisions of Texas
Health & Safety Code Ann.
Chapter 361 (Vernon)

MSW Permit No.: 2332 TCEQ Docket No. 2007-1302-MSW

Name of Permittee: IESI TX Landfill LP
and 2301 Eagle Parkway, Suite 200
Site Owner: Fort Worth, Texas 76177

Facility Name: Jacksboro Landfill

Classification of Site: Type I Municipal Solid Waste Management Facility

The permittee is authorized to store, process, and dispose of wastes in accordance with the limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission and laws of the State of Texas and it replaces any previously issued permit. Nothing in this permit exempts the permittee from compliance with other applicable rules and regulations of the Texas Commission on Environmental Quality. This permit will be valid until canceled, amended, or revoked by the Commission, or until the site is completely filled or rendered unusable, whichever occurs first.

APPROVED, ISSUED AND EFFECTIVE in accordance with Title 30 Texas Administrative Code Chapter 330 as in effect prior to March 27, 2006.

ISSUED DATE: JAN 05 2010


For the Commission

2010 JAN 05 10:00 AM
TCEQ
COMMUNICATIONS SECTION

Table of Contents
Jack County
Jacksboro Landfill
MSW Permit No. 2332

I.	Size and Location of Facility	3
II.	Incorporated Application Materials	3
III.	Facilities and Operations Authorized	3
IV.	Facility Design, Construction, and Operation.....	5
V.	Financial Assurance	6
VI.	Facility Closure	7
VII.	Site Completion and Closure	8
VIII.	Standard Permit Conditions	8
IX.	Incorporated Regulatory Requirements.....	10
X.	Special Provisions.....	10
	ATTACHMENT A - Parts I through IV of the Permit Application Document.....	10
	ATTACHMENT B - Minor Amendments, Corrections, and modifications that may be issued	10

I. Size and Location of Facility

- A. The Jacksboro Landfill is located in Jack County, Texas, approximately 13 miles southeast of the City of Jacksboro and approximately 1.25 miles south of the intersection of State Highway (SH) 199 and Farm to Market (FM) Road 1156.
- B. The legal description is contained in Part I of the application found in Attachment A of this permit.
- C. Coordinates and Elevation of Permanent Site Benchmark:

Latitude: N 33° 04' 31.5163"
Longitude: W 97° 59' 30.0283"
Elevation: 1161.00 feet above mean sea level (msl)

II. Incorporated Application Materials

This permit is based on and the permittee shall follow Parts I through IV of the permit application submittals which are hereby approved subject to the terms of this permit and any other orders of the Texas Commission on Environmental Quality (TCEQ). These materials are incorporated into this permit by reference in Attachment A as if fully set out herein. Any and all revisions to these application materials shall become conditions of this permit upon the date of approval by the Commission.

Part V of the permit application shall be submitted upon completion of construction of the facility. The permittee shall maintain Parts I through V of the application as described in 30 TAC §330.51(a) at the facility and make them available for inspection by TCEQ personnel. [Chapter 330 rule citations here and forward in this permit were those in effect before the March 27, 2006 revisions.]

III. Facilities and Operations Authorized

- A. Days and Hours of Operation and Waste Acceptance

The facility is authorized to operate and accept waste 24 hours per day and seven days per week.

- B. Wastes Authorized at This Facility

The permittee is authorized to dispose of municipal solid waste resulting from, or incidental to, residential, commercial, institutional, municipal, manufacturing, industrial, recreational, and construction sources, including paper, food wastes, glass, aluminum, metals, plastics, grass clippings, other organic wastes, wood wastes, textiles, bricks, construction-demolition waste, and other inert materials. Class 2 and

Class 3 non-hazardous industrial solid waste that are identified in Part IV found in Attachment A of this permit may be accepted at this facility in accordance with Title 30 of the Texas Administrative Code (30 TAC) Section (§) 330.137. Certain special wastes that are identified in Part IV found in Attachment A of this permit may be accepted contingent upon such waste being handled in accordance with 30 TAC §330.136, including dead animals, slaughterhouse wastes, non-regulated asbestos containing material (non-RACM), empty containers, municipal water and wastewater treatment plant sludges, and grease or grit trap waste.

C. Wastes Prohibited at This Facility

The permittee shall comply with the waste disposal restrictions set forth in 30 TAC §330.5(e). Class I non-hazardous industrial solid wastes, regulated hazardous wastes, liquid wastes, radioactive wastes, bulk liquids, PCB wastes, infectious medical wastes, and any other waste not identified in Section III.B. of this permit shall not be accepted at this facility.

D. Waste Acceptance Rate

Authorized solid waste may be accepted for disposal at this site at the initial rate of approximately 156,000 tons-per-year (approximately 500 tons per day based on 312 days-per-year of operation) and increasing to a maximum acceptance rate of approximately 947,000 tons-per-year (approximately 3,035 tons-per-day based on 312 days-per-year of operation). The actual yearly waste acceptance rate is a rolling quantity based on the sum of the previous four quarters of waste acceptance.

E. Waste Volume Available for Disposal

The total waste disposal capacity of the landfill is based upon the information contained in Appendix IIIA (Site Life Calculations) of Part III found in Attachment A of this permit.

F. Facilities Authorized

The permittee is authorized to operate a Type I municipal solid waste landfill that utilizes a combination of a sector below-grade-excavation fill and aerial fill of the municipal solid waste landfill subject to the limitations contained herein. All waste disposal activities subject to permitting are to be confined to the following facilities, which shall include disposal units, structures, appurtenances, or improvements: access roads, dikes, berms and temporary drainage channels, permanent drainage structures, detention ponds, landfill gas management system, contaminated water management system, final cover, groundwater monitoring system, landfill liner system, and other improvements.

G. Changes, Additions, or Expansions

Any proposed facility changes must be authorized in accordance with the Texas Commission on Environmental Quality (TCEQ) permit amendment or modification rules, 30 TAC Chapters 305 and 330.

IV. Facility Design, Construction, and Operation

- A. Facility design, construction, and operation and/or maintenance must comply with the provisions of this permit; Commission Rules, including 30 TAC §§330.51 through 330.58, 330.62 through 330.64, 330.111 through 330.139, 330.200 through 330.206, 330.230 through 330.242, 330.250 through 330.256, 330.280 through 330.284, and 330.300 through 330.305; special provisions contained in this permit; and Parts I through IV of the application found in Attachment A of this permit, and shall be managed in a manner to protect human health and the environment.
- B. The entire waste management facility shall be designed, constructed, operated, and maintained to prevent the release and migration of any waste, contaminant, or pollutant beyond the point of compliance as defined in 30 TAC §330.2 and to prevent inundation or discharge from the areas surrounding the facility components. Each receiving, storage, processing, and disposal area shall have a containment system that will collect spills and incidental precipitation in such a manner as to:
1. Preclude the release of any contaminated runoff, spills, or precipitation;
 2. Prevent washout of any waste by a 100-year storm; and
 3. Prevent run-on into the disposal areas from off-site areas.
- C. The site shall be designed and operated so as not to cause a violation of:
1. The requirements of §26.121 of the Texas Water Code;
 2. Any requirements of the Federal Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements of §402, as amended, and/or the Texas Pollutant Discharge Elimination System (TPDES), as amended;
 3. The requirements under §404 of the Federal Clean Water Act, as amended; and

4. Any requirement of an area wide or statewide water quality management plan that has been approved under §208 or §319 of the Federal Clean Water Act, as amended.
- D. Contaminated water shall be handled, stored, treated, disposed of, and managed in accordance with 30 TAC §330.55(b)(6), 30 TAC §330.56(o), and Part III, Attachment 15 found in Attachment A of this permit. Other methods may be considered for approval as a modification to this permit.
- E. Best management practices for temporary erosion and sedimentation control shall remain in place until sufficient vegetative cover has been established to control and mitigate erosion on areas having final cover. Vegetative cover will be monitored and maintained throughout the post-closure care period in accordance with Part III Attachment 13 found in Attachment A of this permit.
- F. Storm water runoff from the active portion of the landfill shall be managed in accordance with 30 TAC §§330.55(b)(3) and 330.133(b), and as described in Part III found in Attachment A of this permit.
- G. All facility employees and other persons involved in facility operations shall be qualified, trained, educated, and experienced to perform their duties so as to achieve compliance with this permit. The permittee shall comply with 30 TAC §330.52(b)(9) and as described in Part I found in Attachment A of this permit. The permittee shall further ensure that personnel are familiar with safety procedures, contingency plans, the requirements of the Commission's rules and this permit, commensurate with their levels and positions of responsibility, in accordance with Part III and Part IV found in Attachment A of this permit. All facility employees and other persons involved in facility operations shall obtain the appropriate level of operator certification as required by recent changes in the statute and applicable regulations.
- H. The facility shall be properly supervised to assure that bird populations will not increase and that appropriate control procedures will be followed. Any increase in bird activity that might be hazardous to safe aircraft operations will require prompt mitigation actions.

V. Financial Assurance

- A. Authorization to operate the facility is contingent upon compliance with provisions contained within the permit and maintenance of financial assurance in accordance with 30 TAC Chapter 330, Subchapter K and 30 TAC Chapter 37.

- B. Within 60 days prior to the acceptance of waste, the permittee shall provide financial assurance instrument(s) for demonstration of closure of the landfill in accordance with 30 TAC §§330.253(d)(6) and 330.281. The closure cost estimate of \$904,795.63 (2005 dollars) is based on estimates as described in Part III Attachments 8 and 12 found in Attachment A of this permit. The financial assurance instrument shall be in an amount that includes the inflation factors for each calendar year following 2005.
- C. Within 60 days prior to the acceptance of waste, the permittee shall provide financial assurance instrument(s) for demonstration of post-closure care of the landfill in an amount for the entire landfill facility. The post-closure care cost estimate of \$963,316.20 (2005 dollars) is based on estimates as described in Part III Attachments 8 and 13 found in Attachment A of this permit. The financial assurance instrument shall be in an amount that includes the inflation factors for each calendar year following 2005.
- D. The owner and/or operator shall annually adjust closure and/or post-closure care cost estimates for inflation within 60 days prior to the anniversary date of the establishment of the financial assurance instrument pursuant to 30 TAC §§330.281 and 330.283, as applicable.
- E. If the facility's closure and/or post-closure care plan is modified in accordance with 30 TAC §305.70, the permittee shall provide new cost estimates in current dollars in accordance with 30 TAC §§330.253(d)(6), 330.254(b)(3)(D), 330.281, and 330.283, as applicable. The amount of the financial assurance mechanism shall be adjusted within 45 days after the modification is approved. Adjustments to the cost estimates and/or the financial assurance instrument to comply with any financial assurance regulation that is adopted by the TCEQ subsequent to the issuance of this permit, shall be initiated as a modification within 30 days after the effective date of the new regulation.

VI. Facility Closure

Closure of the facility shall commence:

- A. Upon completion of the disposal operations and the site is completely filled or rendered unusable in accordance with Part III Attachment 7 found in Attachment A of this permit;
- B. Upon direction by the Executive Director of the TCEQ for failure to comply with the terms and conditions of this permit or violation of State or Federal regulations. The Executive Director is authorized to issue emergency orders to the permittee in accordance with §§ 5.501 and 5.512 of the Water Code regarding this matter after

considering whether an emergency requiring immediate action to protect the public health and safety exists;

- C. Upon abandonment of the site;
- D. For failure to secure and maintain an adequate bond or other financial assurance as required; or
- E. Upon the permittee's notification to the TCEQ that the landfill will cease to accept waste and no longer operate at any time prior to the site being completely filled to capacity.

VII. Site Completion and Closure

The landfill shall be completed and closed in accordance with 30 TAC §330.250 and the applicable portions of 30 TAC §§330.253 through 330.256. Upon closure, the permittee shall submit to the Executive Director documentation of closure as set out in 30 TAC §330.253. Post-closure care and maintenance shall be conducted in accordance with Part III Attachment 13 found in Attachment A of this permit, for a period of 30 years or as otherwise determined by the Executive Director pursuant to 30 TAC §330.254(b).

VIII. Standard Permit Conditions

- A. Parts I through IV, as described in 30 TAC §330.51(a), which comprise the Permit Application for MSW Permit No. 2332 are hereby made a part of this permit as Attachment A. The permittee shall maintain Parts I through IV and Part V, as described in 30 TAC §330.51(a), at the facility and make them available for inspection by TCEQ personnel. The contents of Part III of Attachment A of this permit shall be known as the "Approved Site Development Plan," in accordance with 30 TAC §§330.54 and 330.55. The contents of Part IV of Attachment A of this permit shall be known as the "Approved Site Operating Plan," in accordance with 30 TAC §§330.57 and 330.114.
- B. Attachment B, consisting of minor amendments, modifications, and corrections to this permit, is hereby made a part of this permit.
- C. The permittee shall comply with all conditions of this permit. Failure to comply with any permit condition may constitute a violation of the permit, the rules of the Commission, and the Texas Solid Waste Disposal Act, and is grounds for an enforcement action, revocation, or suspension.
- D. A pre-construction conference shall be held pursuant to 30 TAC §330.64(c) prior to beginning any construction within the permit boundary to ensure that all aspects of

this permit, construction activities, and inspections are met. Additional pre-construction conferences may be held prior to the opening of the facility.

- E. A pre-opening inspection shall be held pursuant to 30 TAC §330.64(d).
- F. The permittee shall monitor sediment accumulations in ditches and culverts on a quarterly basis, and remove sedimentation to re-establish the design flow grades on an annual basis or more frequently if necessary to maintain the design flow.
- G. The tracking of mud off-site onto any public right-of-way shall be minimized.
- H. In accordance with 30 TAC §330.7(a), the permittee shall record in the deed records of Jack County, a metes and bounds description of all portions within the permit boundary on which disposal of solid waste has and/or will take place. A certified copy of the recorded document(s) shall be provided to the Executive Director in accordance with 30 TAC §330.7(b).
- I. Daily cover of the waste fill areas shall be performed with clean soil that has not been in contact with waste or with an alternate daily cover which has been approved in accordance with 30 TAC §§330.133(c) and 305.70. Intermediate cover, run-on, and run-off controls shall not be constructed from soil that has been scraped up from prior daily cover or which contains waste.
- J. During construction and operation of the facility, measures shall be taken to control runoff, erosion, and sedimentation from disturbed areas. Erosion and sedimentation control measures shall be inspected and maintained at least monthly and after each storm event that meets or exceeds the design storm event. Erosion and sedimentation controls shall remain functional until disturbed areas are stabilized with established permanent revegetation. The permittee shall maintain the on-site access road in such a manner as to minimize the buildup of mud on the access road and to maintain a safe road surface.
- K. In complying with the requirements of 30 TAC §330.123, the permittee shall consult with the local District Office of the Texas Department of Transportation or other authority responsible for road maintenance, as applicable, to determine standards and frequencies for litter and mud cleanup on state, county, or city maintained roads serving the site. Documentation of this consultation shall be submitted within 60 days prior to the acceptance of waste.
- L. The permittee shall retain the right of entry onto the site until the end of the post-closure care period as required by 30 TAC §330.62(b).

- M. Inspection and entry onto the site by authorized personnel shall be allowed during the site operating life and until the end of the post-closure care period as required by §361.032 of the Texas Health and Safety Code.
- N. The provisions of this permit are severable. If any permit provision or the application of any permit provision to any circumstance is held invalid, the remainder of this permit shall not be affected.
- O. Regardless of the specific design contained in Attachments A and B of this permit, the permittee shall be required to meet all performance standards required by the permit, the regulations, and as required by local, state, and federal laws or ordinances.
- P. If differences exist between permit provisions, application materials (incorporated as Parts I through IV of Attachment A of this permit), and the rules under 30 TAC Chapter 330, then the permit provisions and the rules shall hold precedence over the application materials.
- Q. The permittee shall comply with the requirements of the air permit exemption in 30 TAC §106.534, if applicable, and the applicable requirements of 30 TAC Chapters 106 and 116.
- R. All discharge of storm water will be in accordance with the U.S. Environmental Protection Agency NPDES requirements and/or the State of Texas TPDES requirements, as applicable.

IX. Incorporated Regulatory Requirements

- A. To the extent applicable, the requirements of 30 TAC Chapters 37, 281, 305, and 330 are adopted by reference and are hereby made provisions and conditions of this permit.
- B. The permittee shall comply with all applicable federal, state, and local regulations and shall obtain any and all other required permits prior to the beginning of any on-site improvements or construction approved by this permit.

X. Special Provisions

In addition to the groundwater monitoring wells in Attachment 5 to the application that will monitor groundwater in the uppermost aquifer (Stratum II), 28 additional monitoring wells shall be installed within the Stratum I and I-A interval as shown in the Attached Special Provisions Table No. 1 and the accompanying map. The wells will be installed in accordance with the monitoring well details described in Part III, Attachment 5, of the application and will be sampled in accordance with the Groundwater Sampling and Analysis

Plan in Attachment 11 and in accordance with 30 TEX. ADMIN CODE §§ 330.230 through 330.238 and §§ 330.240 through 330.242.

Attachment A

Parts I through IV of the permit application effective with the date on the permit.

Attachment B

Special Provisions Table No. 1 and accompanying map.

Attachment C

Minor amendments, corrections, and modifications may be issued for MSW Permit No. 2332.

The minor amendment, modification, or correction document prepared and executed with an approval date shall be attached to this attachment. There is no limitation on the number of these documents that may be included in Attachment C of this permit.

ATTACHMENT B

Special Provisions – Table No. 1

Stratum 1-A
Groundwater Monitoring Well Locations

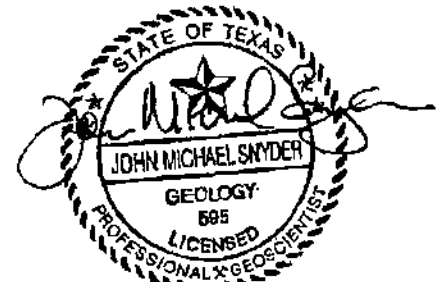
IESI TX Landfill LP
Jacksboro Landfill
Permit Application

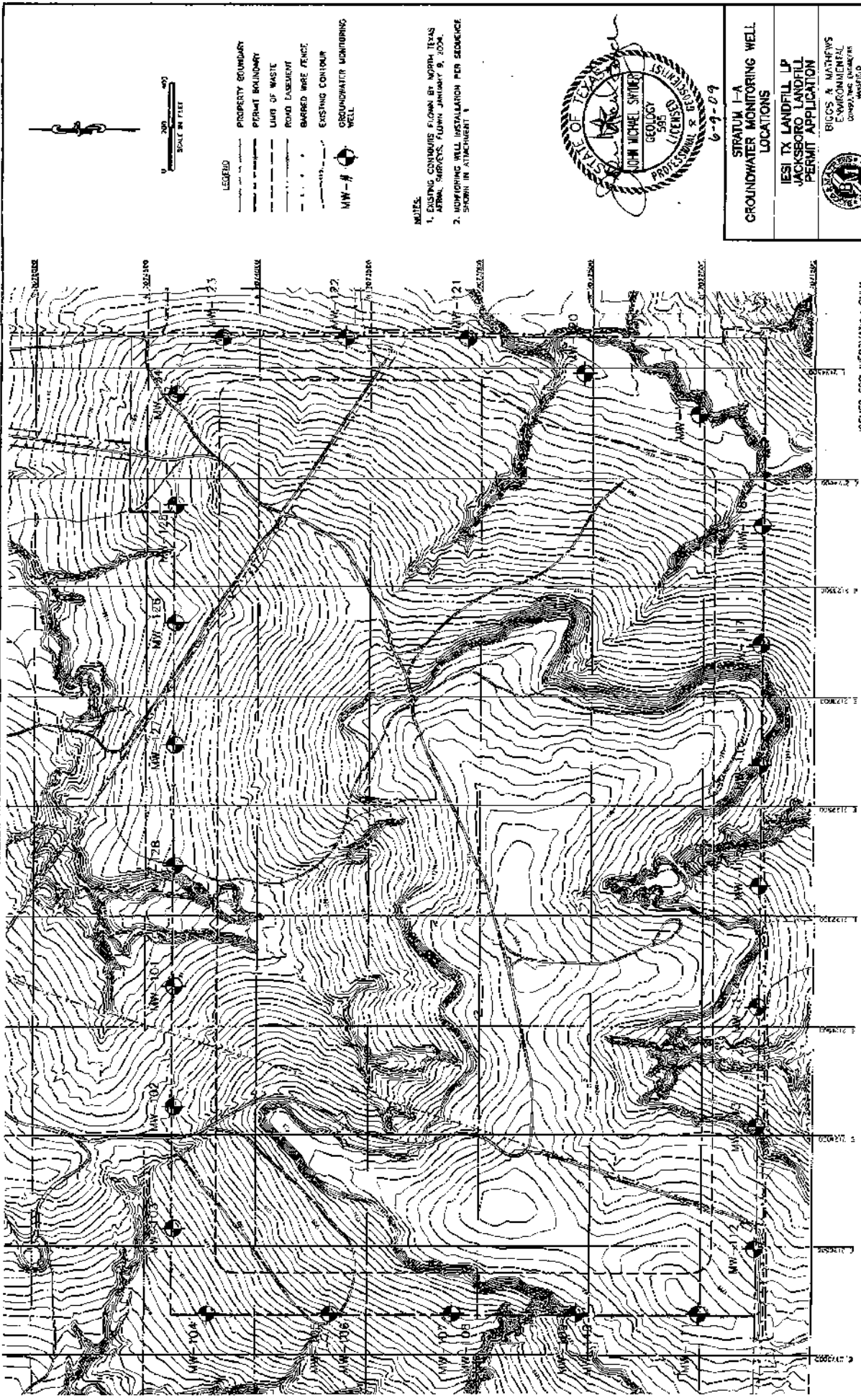
Special Provisions – Table No. 1

PROPOSED MONITORING WELLS				
MONITORING WELL NO.	GROUND ELEVATION (ft msl)	TOTAL DEPTH (ft bgs)	SCREENED INTERVAL (ft msl)	
			FROM	TO
MW-101	1184	34	1160	1150
MW-102	1198	30	1178	1168
MW-103	1185	25	1170	1160
MW-104	1180	22	1168	1158
MW-105	1200	24	1186	1176
MW-106	1200	50	1170	1150
MW-107	1220	35	1195	1185
MW-108	1220	55	1175	1166
MW-109	1242	52	1200	1190
MW-110	1242	72	1180	1170
MW-111	1264	59	1215	1205
MW-112	1252	62	1200	1190
MW-113	1222	47	1190	1175
MW-114	1212	47	1175	1165
MW-115	1208	43	1175	1165
MW-116	1214	49	1175	1165
MW-117	1191	41	1160	1150
MW-118	1156	21	1145	1135
MW-119	1142	17	1135	1125
MW-120	1138	23	1125	1115
MW-121	1141	21	1130	1120
MW-122	1150	40	1120	1110
MW-123	1158	38	1130	1120
MW-124	1166	31	1140	1135
MW-125	1172	42	1140	1130
MW-126	1162	27	1145	1135
MW-127	1170	25	1155	1145
MW-128	1170	20	1160	1150

Notes:

1. Well to be drilled by Texas licensed driller.
2. Installation and well development to be supervised by qualified geologist or engineer.
3. Fluids introduced into borehole must be treated clean water.
4. Steamclean procedures should be used for all equipment that enters boreholes such as tremie pipes or drill pipe.
5. Well development should continue until pH, specific conductance and temperature have stabilized.
6. All depths and elevations are estimated based on site characterization information in Attachments 4 and 5.





LEGEND

- PROPERTY BOUNDARY
- - - PERMIT BOUNDARY
- LINE OF WASTE
- - - ROAD EASEMENT
- - - BARBED WIRE FENCE
- - - EXISTING CONTOUR
- MW-#
- GROUNDWATER MONITORING WELL

NOTES:

1. EXISTING CONTOURS FLOWN BY NORTH TEXAS AERIAL SURVEYS, FLOWN JANUARY 9, 1934.
2. MONITORING WELL INSTALLATION PER SEQUENCE SHOWN IN ATTACHMENT 1.



6-9-09

**STRATUM I-A
GROUNDWATER MONITORING WELL
LOCATIONS**

**ESI TX LANDFILL LP
JACKSONVILLE LANDFILL
PERMIT APPLICATION**

**BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
LANDFILL PERMITS
DALLAS, TEXAS
817-597-1144**



ISSUED FOR INFORMATION ONLY

DATE: 06/09	REV: 06/09	SCALE: 1"=400'	DATE: 06/09
BY: JMS	CHKD: JMS	DATE: 06/09	DATE: 06/09

PROJECT: JACKSONVILLE LANDFILL	FIGURE: 1
--------------------------------	-----------

STRATUM I-A Groundwater Monitoring Well Locations

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 6, 2010

TO: Persons on the attached mailing list

RE: IESI TX Landfill LP
TCEQ Docket No. 2007-1302-MSW; SOAH Docket No. 582-08-1804
MSW Permit No. 2332

The above-referenced matter was previously approved by the Commission at its October 21, 2009 Agenda. The order concerning this matter was mailed with a draft copy of the permit on November 4, 2009. Enclosed is the signed copy of the permit.

Should you have any questions, please contact Melissa Schmidt of the Texas Commission on Environmental Quality's Office of the Chief Clerk (MC 105) at (512) 239-3317.

Sincerely,

A handwritten signature in cursive script that reads "LaDonna Castañuela".

LaDonna Castañuela
Chief Clerk

LDC/ms

Enclosure

IESI TX Landfill LP
TCEQ Docket No. 2007-1302-MSW
SOAH Docket No. 582-08-1804

FOR THE APPLICANT:

William J. Moltz
Moltz Morton O'Toole, L.L.P.
106 East 6th Street, Suite 700
Austin, Texas 78701

John Gustafson, Vice President
IESI TX GP Corporation
2301 Eagle Parkway, Suite 200
Fort Worth, Texas 76177

Kenneth J. Welch, P.E.
Biggs & Matthews Environmental, Inc.
1700 Robert Road
Mansfield, Texas 76063

John Vay, Attorney
Building 2, Suite 300
1250 Capital of Texas Highway South
Austin, Texas 78746

INTERESTED PERSONS:

Marisa Perales
Lowerre, Frederick, Perales, Allmon & Rockwell
707 Rio Grande Street, Suite 200
Austin, Texas 78701

Kerry Russell
Russell & Rodriguez, L.L.P.
Building 2, Suite 200
1633 Williams Drive
Georgetown, Texas 78628

FOR THE EXECUTIVE DIRECTOR
via electronic mail:

Anthony Tatu, Senior Attorney
Ron Olson, Staff Attorney
Texas Commission on Environmental Quality
Environmental Law Division MC-173
P.O. Box 13087
Austin, Texas 78711-3087

Gale Baker, Technical Staff
Texas Commission on Environmental Quality
Waste Permits Division MC-124
P.O. Box 13087
Austin, Texas 78711-3087

FOR OFFICE OF PUBLIC ASSISTANCE
via electronic mail:

Bridget Bohac, Director
Texas Commission on Environmental Quality
Office of Public Assistance MC-108
P.O. Box 13087
Austin, Texas 78711-3087

FOR PUBLIC INTEREST COUNSEL
via electronic mail:

Scott Humphrey, Attorney
Texas Commission on Environmental Quality
Public Interest Counsel MC-103
P.O. Box 13087
Austin, Texas 78711-3087

FOR THE CHIEF CLERK
via electronic mail:

LaDonna Castañuela
Texas Commission on Environmental Quality
Office of Chief Clerk MC-105
P.O. Box 13087
Austin, Texas 78711-3087

* The Honorable Sarah G. Ramos
Administrative Law Judge
State Office of Administrative Hearings
P. O. Box 13025
Austin, Texas 78711-3025

* Courtesy Copy via inter-agency mail

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 6, 2010

John Gustafson, Vice President
IESI TX GP Corporation
2301 Eagle Parkway, Suite 200
Fort Worth, Texas 76177

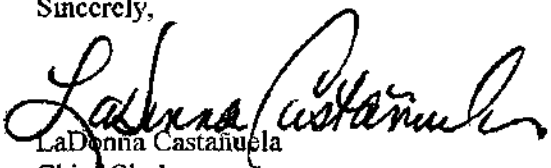
Re: IESI TX Landfill LP; Permit No. MSW-2332

Dear Mr. Gustafson:

Enclosed is a copy of the above referenced permit for a municipal solid waste facility issued pursuant to Chapter 361, Texas Health & Safety Code. The Site Development Plan, the Site Operating Plan, and all other documents and plans, including the application, prepared and submitted to support the permit application shall be considered a part of this permit and shall be considered as operational requirements of this permit.

If you have any questions concerning this letter or if we may be of any assistance to you regarding municipal solid waste, you may contact Gale Baker, MSW Permits Section, at MC-124, P.O. Box 13087, Austin, Texas 78711; telephone number (512) 239-6730.

Sincerely,


LaDonna Castañeda
Chief Clerk

LDC/ms

Enclosure

cc with enclosure: William J. Moltz, Moltz Morton O'Toole, LLP, 106 East 6th Street, Suite 700,
Austin, Texas 78701
Kenneth J. Welch, P.E., Biggs & Matthews Environmental, Inc., 1700 Robert Road,
Mansfield, Texas 76063
John Vay, Attorney, 1250 Capital of Texas Highway South, Building 2, Suite 300,
Austin, Texas 78746

ATTACHMENT 3

**JACKSBORO LANDFILL
JACK COUNTY, TEXAS
TCEQ PERMIT APPLICATION NO. MSW-2332**

PERMIT APPLICATION

**PART III - SITE DEVELOPMENT PLAN
ATTACHMENT 1
SITE LAYOUT PLANS**

Prepared for

IESI TX Landfill LP

Technically Complete October 25, 2006



11/14/06

Prepared by

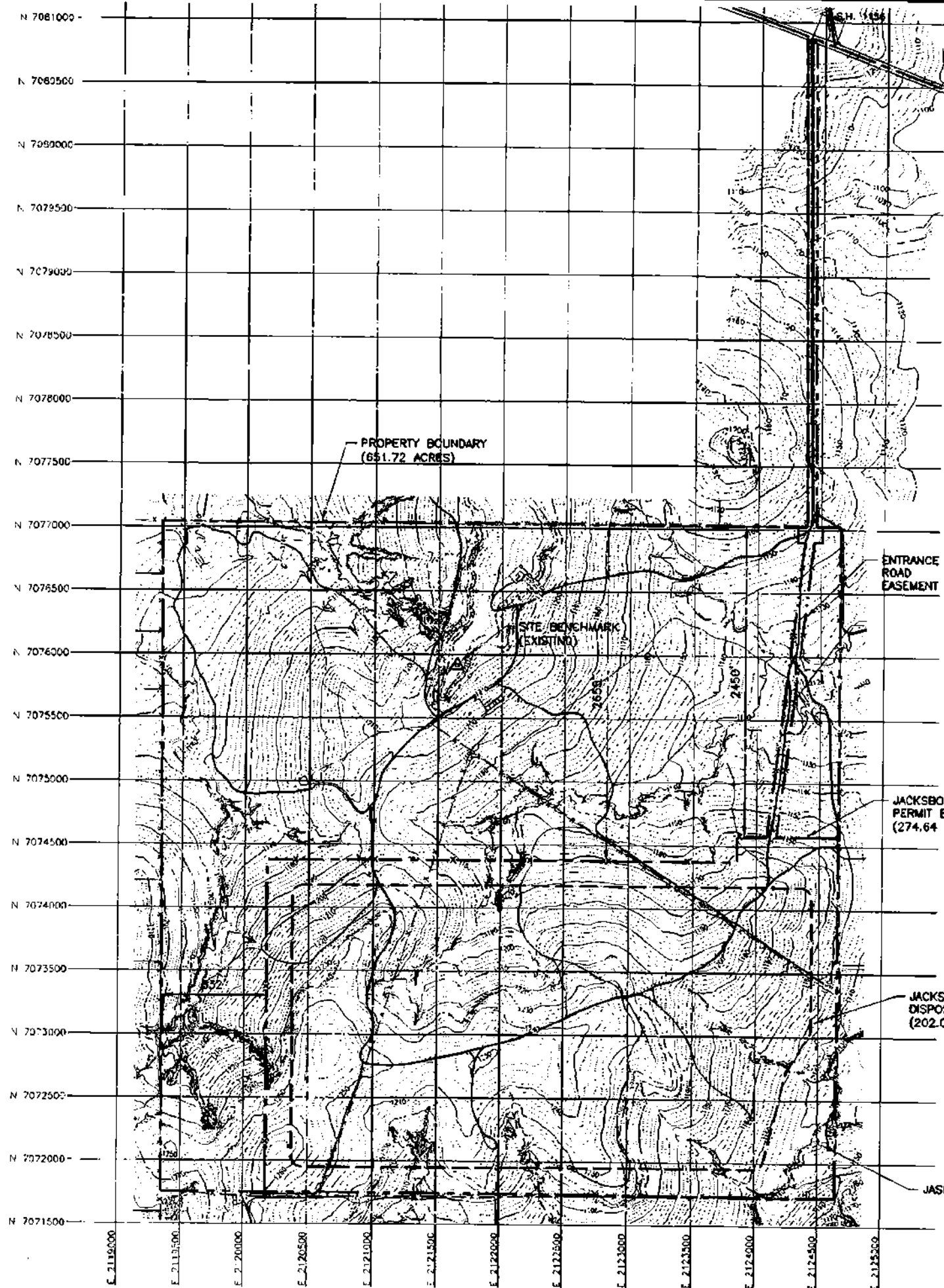
**BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road • Mansfield, Texas 76063 • 817-563-1144**

CONTENTS

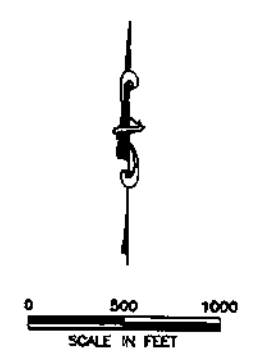
30 TAC §330.56(a)

- 1A - General Site Plan
- 1B - Site Layout Plan
- 1C - Sector Sequencing Plan
- 1D - Sector Development Section
- 1E - Sector 1 Development
- 1F - Sector 2 Development
- 1G - Sector 3 Development
- 1H - Sector 4 Development
- 1I - Landfill Completion Plan
- 1J - Excavation Plan
- 1K - Entrance Road Plan
- 1L - Site Entrance Facilities Plan
- 1M - Landfill Road Details





- LEGEND**
- PROPERTY BOUNDARY
 - PERMIT BOUNDARY
 - LIMIT OF WASTE
 - x-x-x- BARBED WIRE FENCE
 - 980 EXISTING CONTOURS
 - STREAM CHANNEL
 - ▲ SITE BENCHMARK (EXISTING)




- NOTES:**
1. AERIAL SURVEY FLOWN 01-09-04 BY NORTH TEXAS AERIAL SURVEYS, INC. EXISTING CONTOURS ALONG PROPERTY ACCESS ROAD, NORTH OF THE PROPERTY AND SOUTH OF STATE HIGHWAY 199 FROM 1983 USGS TOPOGRAPHIC MAP, GISTOWN AND PERRIN QUADRANGLES.
 2. PROPERTY BOUNDARY DESCRIPTION BASED ON LEGAL DESCRIPTION PREPARED BY LAWSON LAND SURVEYING.
 3. PERMIT BOUNDARY AND ENTRANCE ROAD EASEMENT BASED ON LEGAL DESCRIPTION PROVIDED BY LANDTEC ENGINEERS, LLC.
 4. ENTIRE PROPERTY BOUNDARY IS FENCED WITH BARBED WIRE.
 5. SITE BENCHMARK INFORMATION (EXISTING)
 NORTH CENTRAL TEXAS STATE PLANE NAD83
 N 7075916.83000
 E 2121644.68000
 ELEV 1242.57
 6. EXISTING SITE BENCHMARK LOCATED WITHIN OVERALL PROPERTY BOUNDARY. PERMANENT SITE BENCH MARK WILL BE ESTABLISHED WITHIN THE JACKSBORO LANDFILL PERMIT BOUNDARY PRIOR TO CONSTRUCTION AS SHOWN ON ATTACHMENT 1B.



GENERAL SITE PLAN

**IESI TX LANDFILL LP
 JACKSBORO LANDFILL
 PERMIT APPLICATION**



BIGGS & MATHEWS
 ENVIRONMENTAL
 CONSULTING ENGINEERS
 MANSFIELD
 DALLAS • WICHITA FALLS
 817-563-1144

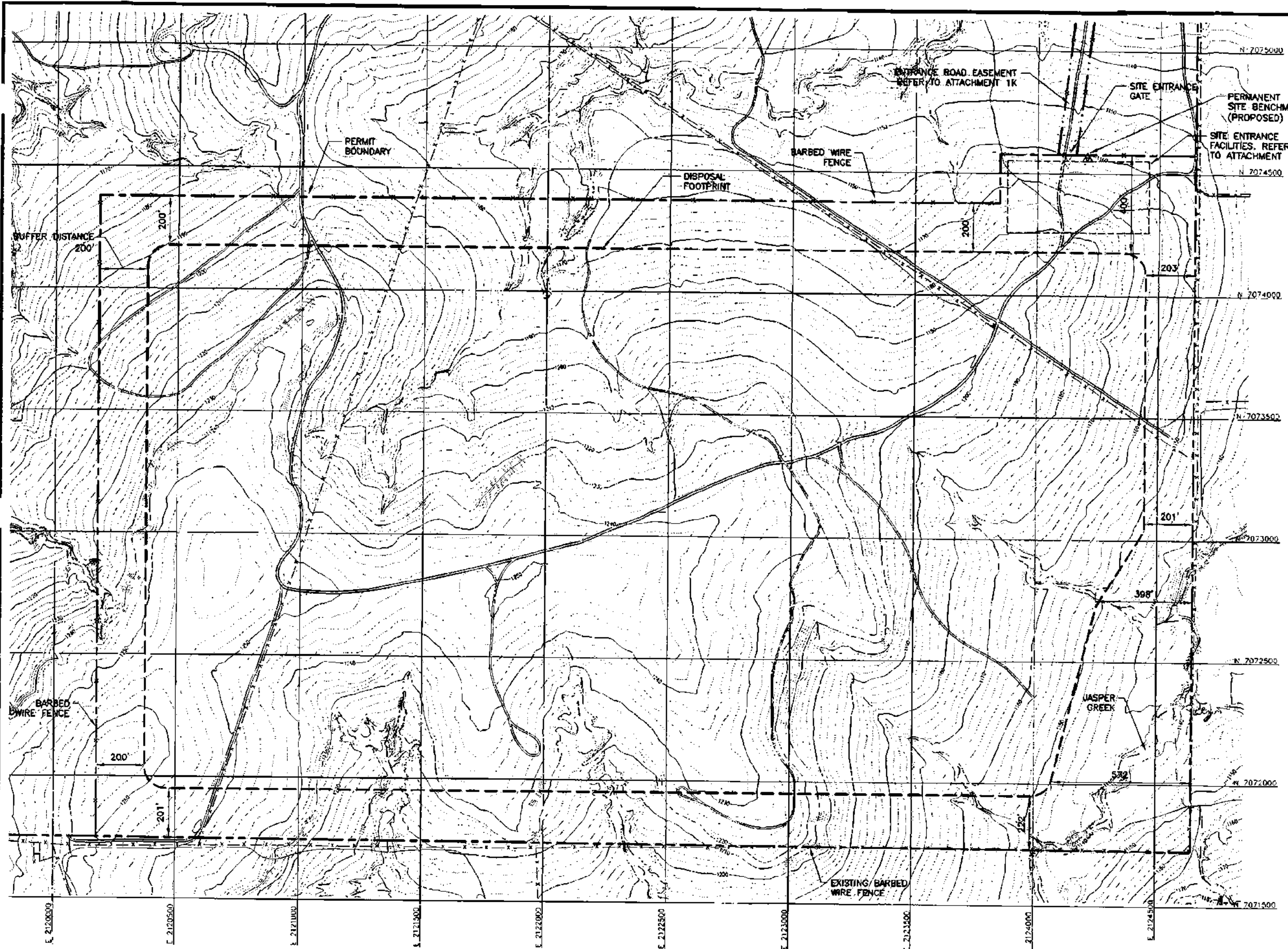
ISSUED FOR PERMITTING PURPOSES ONLY

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REV	DATE	DESCRIPTION	DWN BY	RES BY	CHK BY	

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- LEGEND**
- — — — — PROPERTY BOUNDARY
 - — — — — PERMIT BOUNDARY
 - — — — — LIMIT OF WASTE
 - — — — — ROAD EASEMENT
 - x - x - x - BARBED WIRE FENCE
 - — — — — EXISTING CONTOUR
 - — — — — SITE GRID
 - ▲ SITE BENCHMARK (PROPOSED)

- NOTES:**
1. BUFFER DISTANCES VARY ALONG PERMIT BOUNDARY. DIMENSIONS SHOWN FROM LIMIT OF WASTE TO PERMIT BOUNDARY
 2. ENTIRE PROPERTY BOUNDARY IS FENCED WITH BARBED WIRE.
 3. BARBED WIRE FENCE WILL BE INSTALLED ALONG PERMIT BOUNDARY AND ENTRANCE ROAD EASEMENT AS SHOWN.
 4. SITE ENTRANCE GATE WILL BE INSTALLED AT LOCATION SHOWN.
 5. MAINTENANCE GATES SHALL BE INSTALLED ALONG WEST AND NORTH PERMIT BOUNDARY. PERSONNEL GATES/CROSS-OVER WILL BE INSTALLED ALONG SOUTH AND EAST PERMIT BOUNDARY. TWO LOCATIONS EACH SIDE.
 6. PERMANENT SITE BENCHMARK INFORMATION (PROPOSED)
 NORTH CENTRAL TEXAS STATE PLANE NAD83
 N 7074563.44
 E 2124201.67
 ELEV. 1161.00



SITE LAYOUT PLAN

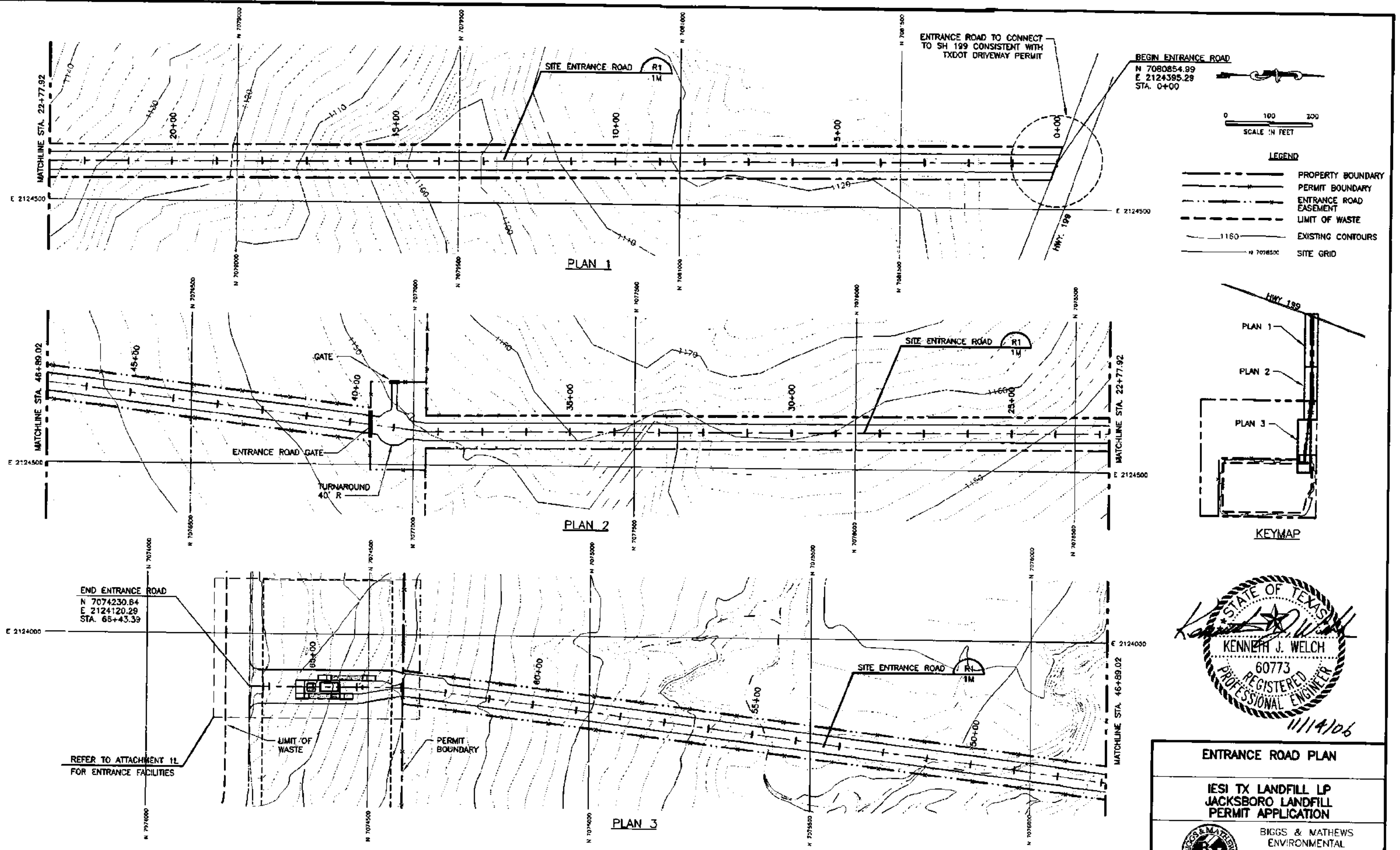
**IESI TX LANDFILL LP
 JACKSBORO LANDFILL
 PERMIT APPLICATION**



ISSUED FOR PERMITTING PURPOSES ONLY

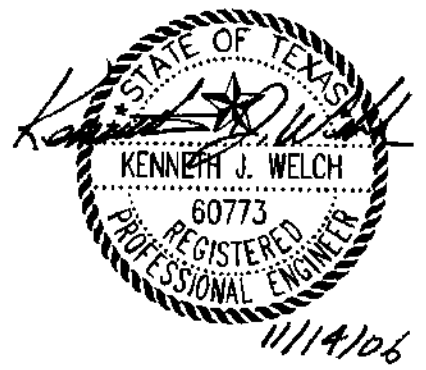
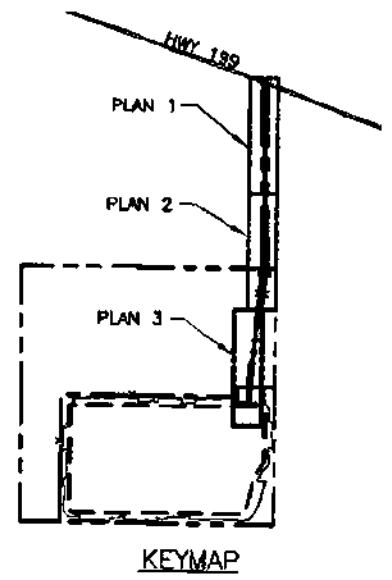
REVISIONS							DSM	KJW	DATE	02/05	ATTACHMENT
REV	DATE	DESCRIPTION	OWN BY	DES BY	CHK BY	APP BY	OWN	RMP	SCALE	GRAPHIC	1B
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LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- ENTRANCE ROAD EASEMENT
- LIMIT OF WASTE
- EXISTING CONTOURS
- SITE GRID



ENTRANCE ROAD PLAN

**IESI TX LANDFILL LP
JACKSBORO LANDFILL
PERMIT APPLICATION**

BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
MANFIELD
DALLAS + WICHITA FALLS
817-563-1144

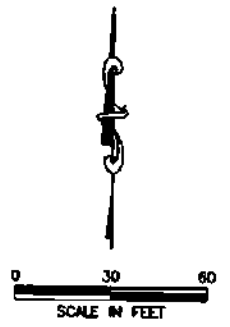
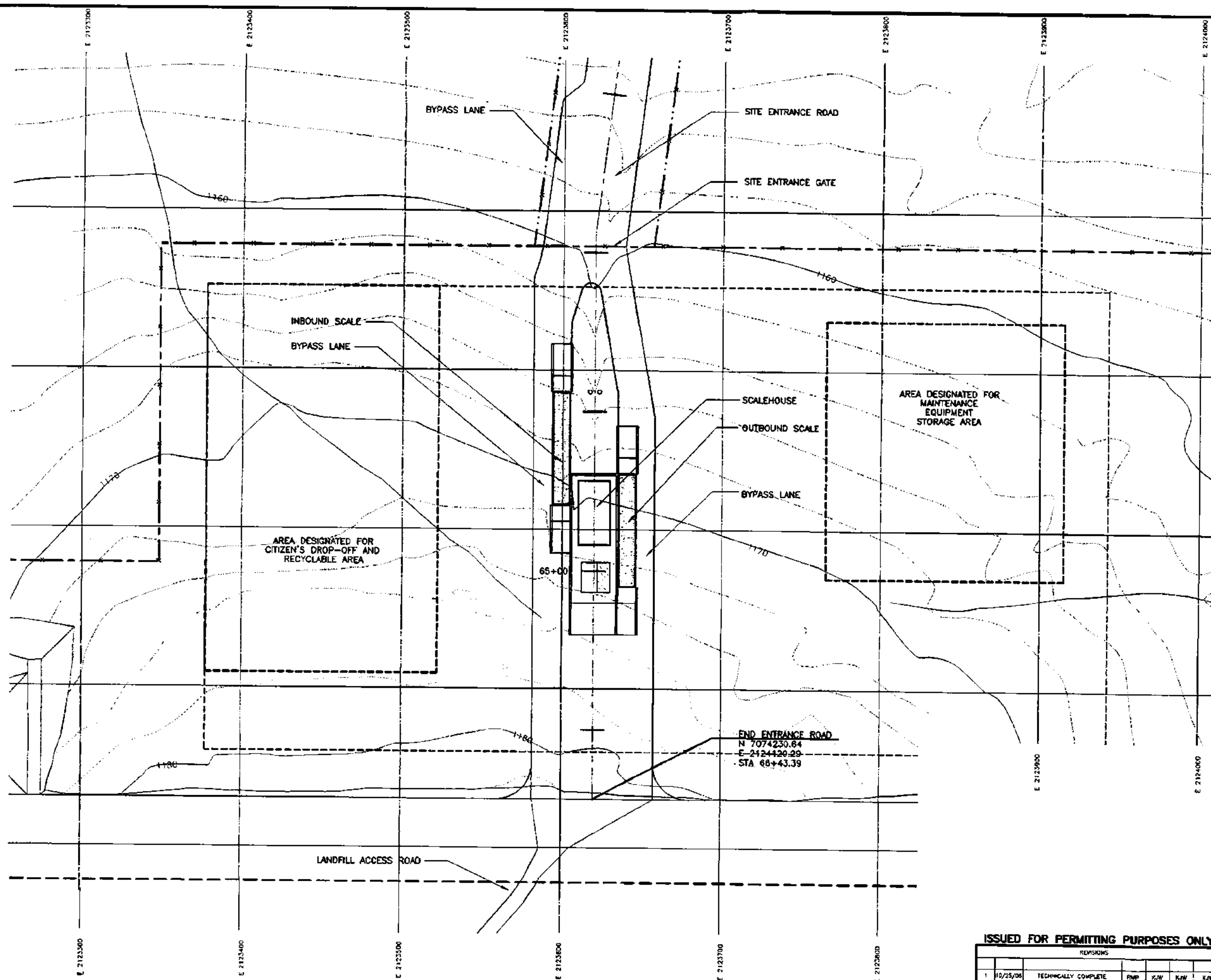
ATTACHMENT
1K

ISSUED FOR PERMITTING PURPOSES ONLY

REVISIONS						
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OSK	K/JW	DATE :	02/05	ATTACHMENT
DWN	CLW	SCALE :	GRAPHIC	
CHK	K/JW	DWG :	EntrancePlan.dwg	

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- LEGEND**
- PERMIT BOUNDARY
 - LIMIT OF WASTE
 - 1160 EXISTING CONTOURS
 - N 7072000 SITE GRID
 - SHEET FLOW

- NOTES:**
1. REFER TO ATTACHMENT IK FOR ENTRANCE ROAD PLAN.
 2. AREA DESIGNATED FOR CITIZEN'S DROP-OFF AND RECYCLABLE AREA TO BE DEVELOPED BASED ON WASTE ACCEPTANCE NEEDED.
 3. AREA DESIGNATED FOR MAINTENANCE/EQUIPMENT STORAGE AREA TO BE DEVELOPED BASED ON LANDFILL OPERATIONS.



SITE ENTRANCE FACILITIES PLAN

**IESI TX LANDFILL LP
JACKSBORO LANDFILL
PERMIT APPLICATION**



**BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
MANFIELO
DALLAS + WICHITA FALLS
817-583-1144**

ISSUED FOR PERMITTING PURPOSES ONLY

REVISIONS		DSN.	KJW	DATE	02/05	ATTACHMENT
1	10/25/08	TECHNICALLY COMPLETE	RMP	KJW	KJW	1L
REV	DATE	DESCRIPTION	CHK BY	DES BY	APP BY	

DSN. KJW DATE : 02/05
 DWN. GLW SCALE : GRAPHIC
 CHK. KJW DWG : EntrancePlan.dwg

ATTACHMENT 4

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



**MODIFICATION TO
MUNICIPAL SOLID WASTE PERMIT NO. 2294
NORTH TEXAS MUNICIPAL WATER DISTRICT
NTMWD 121 Regional Disposal Facility**

Municipal Solid Waste Permit No. 2294 is hereby modified as follows:

Description of Change:

Revised screening berms for the NTMWD 121 Regional Disposal Facility as a result of the recent acquisition of the approximately 188-acre property south and west of the 121 RDF for use as a soil stockpile area. The property is adjacent to the south permit boundary of the entrance facilities and the west permit boundary along closed County Road 416. Screening berms along these permit boundary sections are no longer needed since NTMWD owns the adjacent property. The changes are describe as follows:

- A portion of the planned continuous screening berm along County Road 416 will be removed. The screening berm along FM 545 will end at its originally permitted termination point, approximately 600 feet north of the FM545/CR 416 intersection.
- A portion of the continuous screening berm along the south side of the entrance facilities will be reduced to its existing height of 5 feet. The 5-foot high portion of the screening berm along this south permit boundary will begin at the southwest corner of the entrance facility area and end approximately 2,560 feet east of its beginning point.

The details of this permit modification are contained in the application dated April 9, 2009.

Parts of Permit Modified:

1. Part III, Attachment 1 (Site Layout Plan), Title Page, revised 04/08/09.
2. Part III, Attachment 1, Table of Contents, Page ii, revised 04/08/09.
3. Part III, Attachment 1, Drawing 1.0 (Site Layout Plan), revised 04/08/09.
4. Part III, Attachment 1, Drawing 1.2 (Facilities), revised 04/08/09.
5. Part III, Attachment 1, Drawing 1.7 (Permanent Landfill Gas Monitoring), revised 04/08/09.
6. Part III, Attachment 2 (Typical Fill Cross Sections), Title Page, revised 04/08/09.
7. Part III, Attachment 2, Table of Contents, Page ii, revised 04/08/09.
8. Part III, Attachment 2, Drawing 2.0 (Fill Cross Sections Location Plan), revised 04/08/09.
9. Part III, Attachment 2, Drawing 2.3 (Buffer Zone – Screening Berm), revised 04/08/09.
10. Part III, Attachment 7 (Final Contour Map), Title Page, revised 04/08/09.

11. Part III, Attachment 7, Drawing 7.0 (Final Contour Map), revised 04/08/09.
12. Part III, Attachment 14 (Landfill Gas Management Plan), Title Page, revised 04/08/09.
13. Part III, Attachment 14, Table of Contents, Pages i-ii, revised 04/08/09.
14. Part III, Attachment 14, Drawing 14.1 (Permanent Landfill Gas Monitoring), revised 04/08/09.

This modification is a part of Permit No. 2294 and should be attached thereto.

APPROVED, ISSUED, AND EFFECTIVE in accordance with Title 30 Texas Administrative Code Section 305.70(l). No public notice is required for this modification. This modification is a minor change and does not substantially alter the permit.

ISSUED DATE:

JUN 15 2009


For the Commission

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 15, 2009

Mr. James M. Parks
Executive Director
North Texas Municipal Water District
P. O. Box 2408
Wylie, TX 75098-2408

Re: NTMWD 121 Regional Disposal Facility (RDF) - Collin County
Municipal Solid Waste - Permit No. 2294
Permit Modification – Screening Revisions
Tracking No. 12662764; RN101308781 / CN601365448

Dear Mr. Parks:

We have reviewed your application for a municipal solid waste permit modification dated April 9, 2009, requesting to revise screening berms at the 121 RDF as a result of the North Texas Municipal Water District (NTMWD) acquiring the approximately 188-acre property south and west of the 121 RDF for use as a soil stockpile area. The screening berms along these permit boundary sections are no longer needed since NTMWD now owns the adjacent property. The information presented is sufficient for a municipal solid waste permit modification.

Enclosed is a copy of the above referenced modification which is now part of your permit and should be attached thereto as part of Attachments A and B. The documentation prepared and submitted to support the modification request shall be considered as requirements of the permit.

If you have questions concerning this matter, please contact Mr. Gale Baker at (512) 239-6730. When addressing written correspondence, please use Mail Code 124 (MC 124).

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,

A handwritten signature in cursive script, appearing to read "Richard C. Carmichael for".

Richard C. Carmichael, Ph.D., P.E.
Manager, Municipal Solid Waste Permits Section
Waste Permits Division

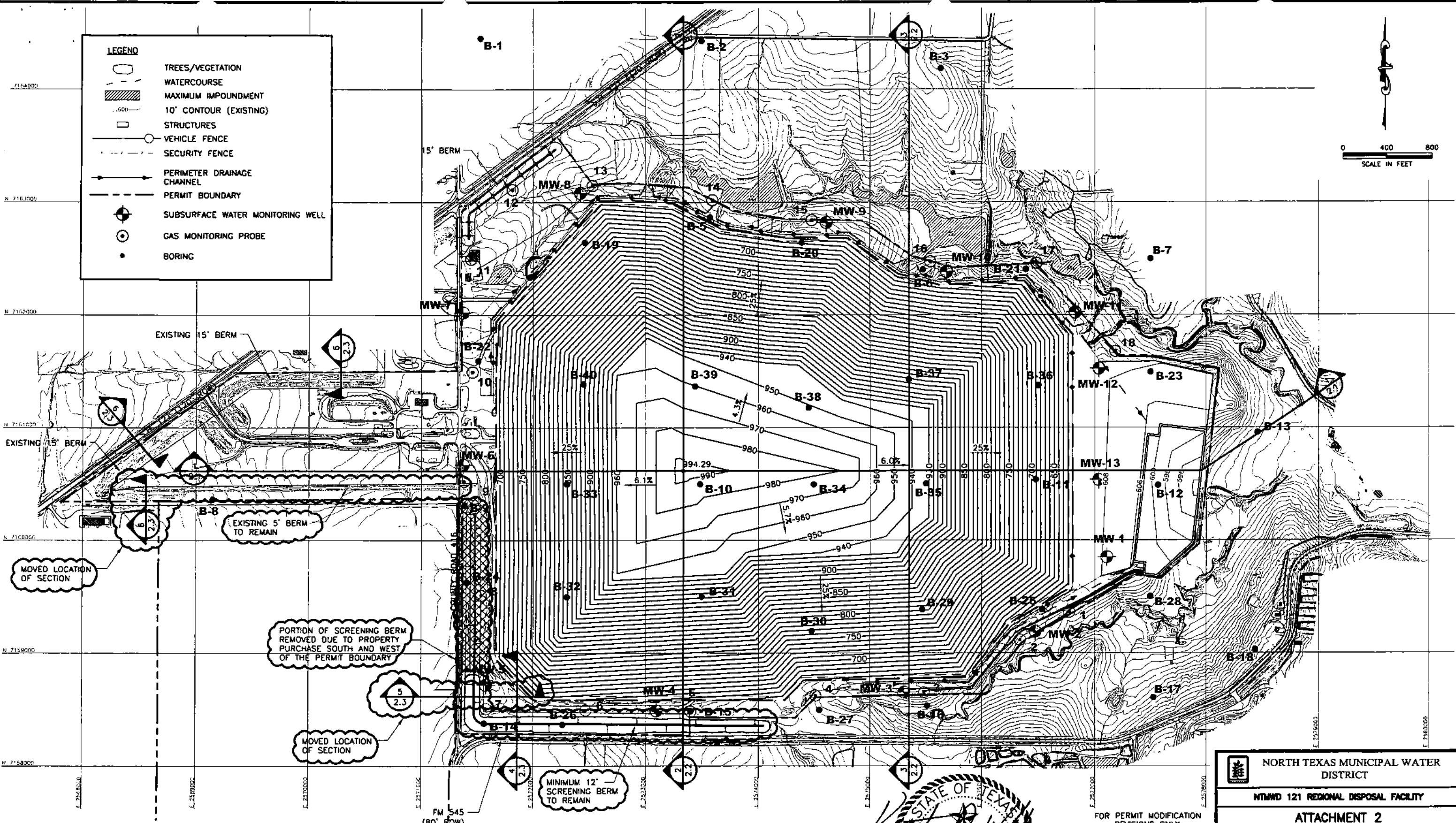
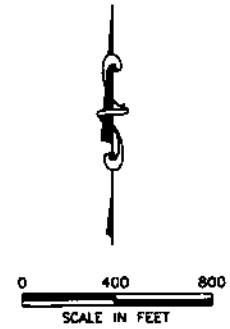
RCC/GLB/fp

cc: Mr. Joseph M. Stankiewicz, General Manager, NTMWD, Wylie
Mr. Jeff Mayfield, P.E., NTMWD, Wylie
Mr. Kenneth J. Welch, P.E., Biggs & Mathews Environmental, Mansfield

Enclosure

LEGEND

- TREES/VEGETATION
- WATERCOURSE
- MAXIMUM IMPOUNDMENT
- 10' CONTOUR (EXISTING)
- STRUCTURES
- VEHICLE FENCE
- SECURITY FENCE
- PERIMETER DRAINAGE CHANNEL
- PERMIT BOUNDARY
- SUBSURFACE WATER MONITORING WELL
- GAS MONITORING PROBE
- BORING



MOVED LOCATION OF SECTION

EXISTING 15' BERM

EXISTING 5' BERM TO REMAIN

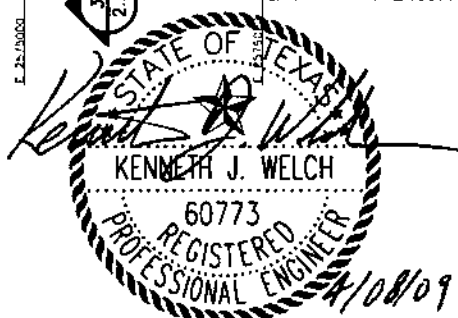
PORION OF SCREENING BERM REMOVED DUE TO PROPERTY PURCHASE SOUTH AND WEST OF THE PERMIT BOUNDARY

MOVED LOCATION OF SECTION

MINIMUM 12' SCREENING BERM TO REMAIN

NOTE:

- THE HEIGHT OF THE SCREENING BERM ALONG FM 545 WILL BE INCREASED TWO TO FIVE FEET ABOVE THE MINIMUM HEIGHT OF 12 FEET.
- EXISTING CONTOURS COMPILED FROM AERIAL SURVEY PROVIDED BY METROPOLITAN AERIAL SURVEYS, FLOWN ON APRIL 5, 2008.



FOR PERMIT MODIFICATION REVISIONS ONLY

DATE	REVISION	BY
04/09	REVISED SCREENING	SMC
03/08	REVISED SCREENING	SMC
06/02/04	PERMIT MODIFICATION	SMC

NORTH TEXAS MUNICIPAL WATER DISTRICT

NTMWD 121 REGIONAL DISPOSAL FACILITY

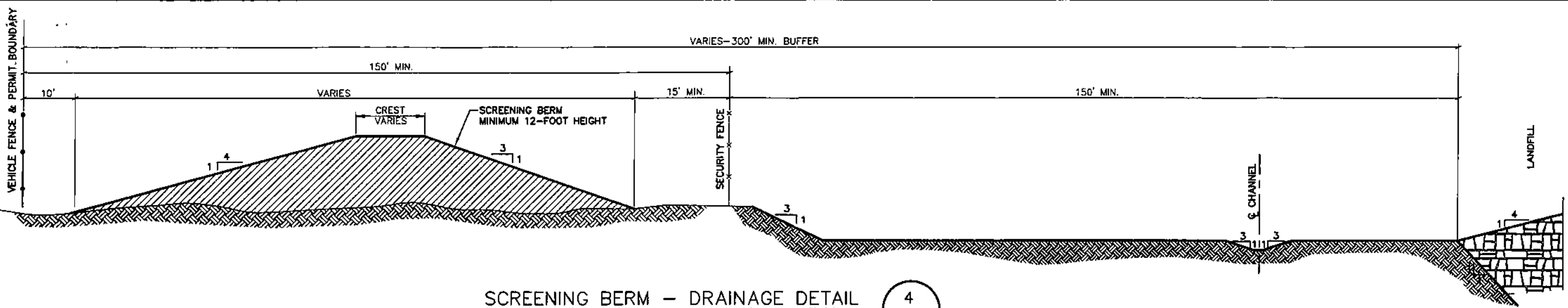
ATTACHMENT 2

FILL CROSS SECTION LOCATION PLAN

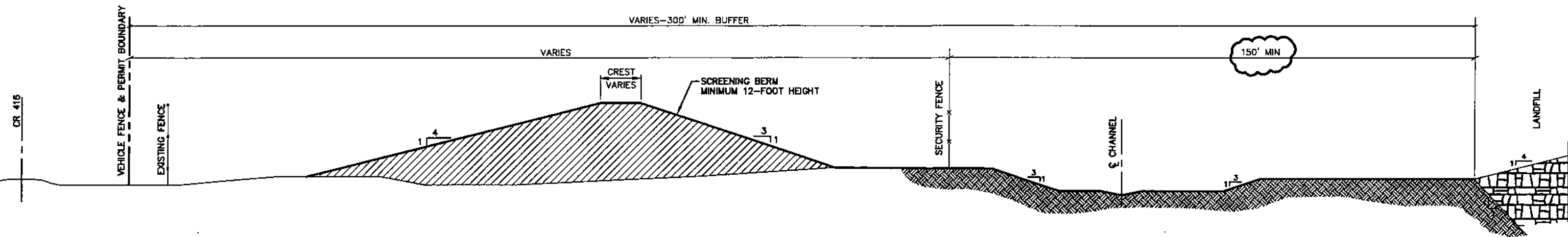
BIGGS & MATHEWS ENVIRONMENTAL CONSULTING ENGINEERS
DALLAS • WAXFIELD • WICHITA FALLS
817-583-1144

DESIGNED PLC	SCALE AS NOTED	DATE 11/01/2001
DRAWN TAS	JOB No. -	PRINT DATE -
CHECKED PLC	APPROVED RSK	DWG. 2.0

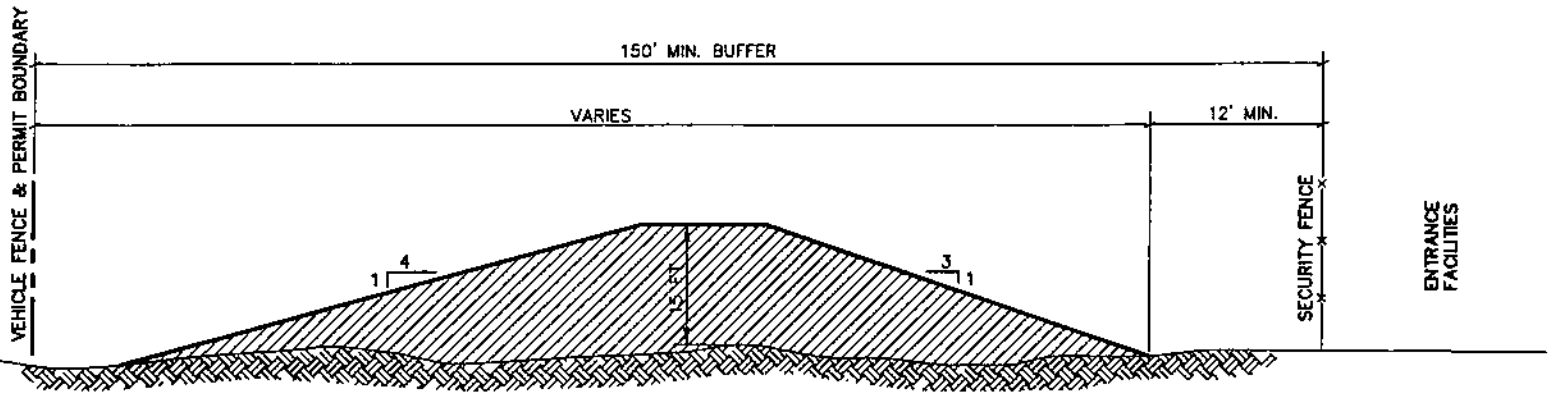
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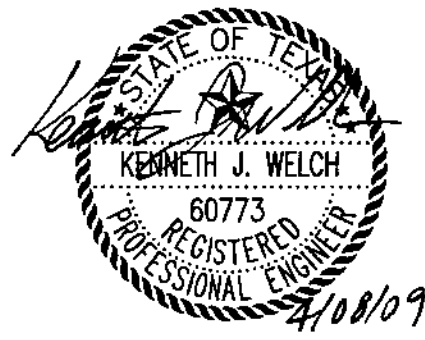
SCREENING BERM - DRAINAGE DETAIL
N.T.S. (4/2.0)



LANDSCAPE SCREENING - DRAINAGE DETAIL
N.T.S. (5/2.0)



ENTRANCE BERM DETAIL
N.T.S. (6/2.0)



FOR PERMIT MODIFICATION REVISIONS ONLY

DATE	REVISION	BY
04/06	REVISED SCREENING	BME
03/06	REVISED SCREENING	BME
11/01/01	ADDED DETAIL	

NORTH TEXAS MUNICIPAL WATER DISTRICT
NTMWD 121 REGIONAL DISPOSAL FACILITY
ATTACHMENT 2
BUFFER ZONE - SCREENING BERM

DESIGNED: PLC
SCALE: AS NOTED
DATE: 04/06/2001

DRAWN: TAS
JOB No.: -
PRINT DATE: -

CHECKED: PLC
APPROVED: RSK
DWC: 2.3

BIGGS & MATHEWS ENVIRONMENTAL CONSULTING ENGINEERS
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817-263-1144

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