GRAVES DOUGHERTY HEARON & MOODY

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January 11, 2022

Via US. Mail, Certified Return Receipt Request

The Honorable Tana E. Tijerina
Webb County Judge
Webb County Commissioners Court
1110 Victoria St. Ste #201
Laredo, Texas 78040

Re: On-Site Sewage Facility for Fuel America Travel Center on IH-35; Appeal of Department Decision

Dear Judge Tijerina,

This letter is sent on behalf of Laredo Holdings Investments, LLC ("Laredo Holdings"). Laredo Holdings seeks to authorize an On-site Sewage Facility (OSSF) at 23183 IH-35, Encinal, TX 78019 in Webb County ("Site"). On June 11, 2020, an application was submitted to Webb County's Planning Department to permit an OSSF at the Site. Webb County denied this application on July 9, 2020. *This appeal of the Planning Department's denial is submitted to the Commissioners Court of Webb County pursuant to Section 13 of the Order Adopting Rules of Webb County, Texas for On-Site Sewage Facilities.*[1]

The proposed facility meets the general requirements for authorization of an OSSF, for which Webb County has been delegated authority to implement pursuant to 30 Tex. Admin. Code (TAC) §285.10 and Tex. Health & Safety Code §366.031.[2] As such, the appeal of the County's decision, and the permitting of the proposed facility is in your jurisdiction.

As part of this appeal, Laredo Holdings will explain why the Planning Department erred in denying the application and provide additional information upon which the Commissioners Court can reverse the department's decision and issue the permit. Laredo Holdings will work with the County to address any ancillary issues regarding the proposed disposal at the Site prior to authorization.

[1] *See* Exhibit A - TCEQ Order making Webb County and Authorized Agent and attaching an Order Adopting Rules of Webb County, Texas for On-Site Sewage Facilities.

[2] *Id.*

We also take this opportunity to inform the County that planning for and remaining in compliance with local, state, and federal requirements is a top priority. As such, Laredo Holdings has initiated the process to apply for a ***30 TAC Chapter 217 permit with the TCEQ.*** *While Laredo Holdings is planning for and seeking this authorization, the OSSF at the Site still qualifies for the County's Chapter 285 permit. Laredo Holdings seeks the 285 authorization* ***while a 217 authorization is pending. Laredo Holdings will keep the County informed of the progress in obtaining the Chapter 217 authorization.***

I. Background for the Appeal

Op June 11, 2020, an application was submitted to Webb County's Planning Department to permit the OSSF at the Site. Webb County denied this application on July 9, 2020, based on estimates which were not representative of the proposed use at the Site. The Department also failed to consider additional conditions applied to the proposed facility which would make the OSSF technically incapable of disposing of more than 5,000 gallons per day (gpd), the maximum amount for an OSSF permit from the County. In a follow-up letter from the Planning Department dated November 30, 2020, Webb County focused on prior permitting history instead of considering engineering options which would keep the system in the County's jurisdiction.

In this appeal, Laredo Holdings will provide the County with (i) the correct method(s) to estimate flow from the proposed site; (ii) technical design parameters that would prevent the OSSF at the Site from releasing more than the threshold, and (iii) enforceable special conditions, authorized by the Texas Commission on Environmental Quality, that will require that the system operate consistent with the planning materials keeping the OSSF in the County's jurisdiction.

The Commissioners Comi will find that the Depaiiment erred, and that issuance of the permit is supported by these three considerations.

II. Applicable Standard

As of June 28, 2006, Webb County has been an authorized agent charged with implementing and enforcing the OSSF program in Webb County. To date, Webb County has not relinquished this authority, but yet, the County has urged Laredo Holdings to contact TCEQ to authorize an OSSF under its jurisdiction. Laredo Holdings' disposal does not amount to TCEQ-level permitting.

Webb County is the permitting authority for any OSSF that does not treat or dispose of more than 5,000 gallons of sewage each day.[3] TCEQ permits OSSFs if "one or more systems that cumulatively treat and dispose of more than 5,000 gallons of sewage per day on one piece of propeti y."[4] The standard is not the capacity to treat, but rather, that the OSSF does "not treat or

[3] 30 TAC §285.2(44)(A); *see also* 30 TAC §285.3.
[4] 30 TAC §285.3(g).

dispose of more than 5,000 gallons of sewage" on a daily basis. OSSF treatment or disposal above 5,000 is permitted by the TCEQ, and any below 5,000 is permitted by Webb County.

The County may issue permits with ***special conditions*** that keep the system operating consistent with the planning materials keeping the OSSF in its jurisdiction.[5] Failure to comply with these special conditions is an enforceable violation of the permit.[6]

III. The Application Should be Issued for Three Reasons

A. The Department applied an incorrect method to estimate flow.

The Department chose a calculation to estimate flow at the Site that is not representative of the use. The OSSF will be used at a modern-day travel center. When the Depatiment reviewed the application, they incorrectly applied calculations for a "store" referring to a common retail facility with one or two restrooms, something like a small Department store. The County cannot reasonably expect Laredo Holdings' uses to be accurately reflected in this methodology.

Laredo Holdings proposed more representative methodologies. In Laredo Holdings' last submittal to the County, the Applicant proposed five scenarios where different ways to approach this problem were employed. The reference documents in the submittal included TCEQ's Table III, Chapter 285, EPA's OSSF manual and the Retail Site Analysis study performed by IMST (the IMST Study), an analytical traffic study applicable to the location of the Site. Each of the five scenarios uses the applicable guidelines and the IMST Study to generate a more conservative and accurate approach to flow than the Depatiment' s estimation.[7] Each scenario results in estimations under 5,000 gpd, and the County may use the assumptions in these scenarios as permit special conditions as necessary.

B. Technical design parameters will keep treatment and disposal under 5,000 gallons per day.

The County may issue permits with special conditions that keep the system operating consistent with the planning materials keeping the OSSF in its jurisdiction. [8] Laredo Holdings plans to install a commercial HOOT MTS/IFAS WWTP, computer controls and SCADA systems on the OSSF. The detailed plans for the OSSF design are attached to this appeal in

[5] 30 TAC §285.3(a)(4) ("The permitting authority may require conditions to a permit in order to ensure that the permitted OSSF system will operate in accordance with the planning materials and system approval. Failure to comply with these conditions is a violation of the permit and this chapter. Any violation of a condition of a permit that would be considered an alteration as defined in §285.2(2) of this title (relating to Definitions) would require a new permit.").

[6] *Id.*

[7] *See* Exhibit B - Daily Flow Analysis.

[8] *Id.*

Exhibit C.[9] The Engineering Report dated September 15, 2020, and sealed by a licensed professional engineer supports the OSSF design and is provided in Exhibit D.[10]

The HOOT MTS is designed for domestic strength, so it appears to have the capacity to treat more when in fact the larger capacity is used to add more air and treatment time (because of the higher wastewater strength). Daily flows into the HOOT MTS are moderated by a 12,000-gallon flow equalization tank (EQ) which allows for higher flow days to be stored until lower flow days where it can be treated and discharged at the 5,000 gpd rate. Notification by SCADA to the operator or store personnel will be based on the level in this EQ tank and not daily flows. The HOOT MTS will be set to treat less than 5,000 gpd as required for this type of permit.

Finally, the output to the field drip dispersal system is regulated by a PLC (computerized) controller that manages the daily flows to the field and records flows to each zone and overall daily flow. This controller will not allow any more flow to the field than it is programmed to do. Consistent with a special condition that keeps the system operating consistent with the planning materials pursuant to the regulations, nothing random can occur with this system.

Due to COVID-19, Laredo Holdings was not given the opportunity to explain this system to the County prior to the July 9, 2020, denial. Having this opportunity would clarify that this system would not dispose of more than 5,000 gpd.

C. Laredo Holdings will operate pursuant to special conditions for usage under the threshold.

Special Conditions and the system design will limit how much Laredo Holdings will "treat" or "dispose." The proposed facility will not "treat" or "dispose" of more than 5,000 gpd. With the HOOT MTS system, Laredo Holdings will meet this requirement. The County has authority to issue the permit subject to the requirements that Laredo Holdings (i) design and install these methods of control, including, but not limited to, the HOOT MTS system shown in Exhibit D; (ii) submit monthly reports of flow to the County; and (iii) require Laredo Holdings to restrict intensive water usage, such as use of shower facilities. The County has authority to keep this permit in its jurisdiction by adopting these special conditions or others required by the County ***under 30 TAC §285.3(a)(4).*** The County has not explained why implementing special conditions is not an option.

VI. Relief Requested

The OSSF at the Site is within the County's jurisdiction. With technical design materials showing that releases over 5,000 gpd are restricted, and enforceable permit special conditions restricting the use to less than 5,000 gpd, the OSSF meets the general requirements of TCEQ's

[9] *See* Exhibit C - OSSF Design.
[10] *See* Exhibit D- OSSF Application Engineering Report, September 15, 2020.

Chapter 285 and the County's regulations. ***<u>Further, the County authori zation will only be temporary while Laredo Holdings seeks a TCEQ authorization.</u>***

Laredo Holdings is prepared to accept a permit with the conditions outlined above, or others established by the County consistent with the regulations. These conditions will ensure that the County has complied with Ch. 285 in issuing the permit. Laredo Holdings respectfully requests that the Commissioners Court reverse the denial of the Planning Department and issue the OSSF permit to Laredo Holdings, and any such further relief it is entitled to by law.

Yours truly,

GRAVES, DOUGHERTY, HEARON & MOODY
A Professional Corporation

By:
Natasha J. Mm1in

Cc: Mr. Adelaida "Lalo" Uribe, III
Chief Executive Administrator
County Judge' s Office
1000 Houston Street, 3rd Floor
Laredo , Texas 78040

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The Honorable Tano E. Tijerina
Webb County Jud c
Webb County Co;missioncrs Coun
1110 Victoria St. Ste #20 I
Laredo. Texas 78040

Street and Apt. No., or PO Box ffo
Clty, Siate, ZIP+4•

PS Form 3800, April 2015 PS 7630-02-000-904 See Reverse for Instructions

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

IN THE MATTER OF THE APPLICATION OF THE COUNTY OF WEBB FOR A TEXAS HEALTH AND SAFETY CODE §366.031 ORDER	§ § § §	BEFORE THE EXECUTIVE DIRECTOR OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

On JUN 28 2006 the Executive Director of the Texas Commission on Environmental Quality ("Commission" or "TCEQ"), considered the application of the County of Webb, ("Applicant" or "Webb"), for an Order pursuant to §366.031, Texas Health and Safety Code ("Code"), and 30 Texas Administrative Code (TAC) §285.10 of the rules of the Commission.

No person has requested a public hearing on the application, therefore the Executive Director, on behalf of the Commission, is satisfied that the Applicant has satisfied the requirements of §366.031 of the Code and, therefore, the Commission finds that the Webb County Order should be approved.

FINDINGS OF FACT

1. The County of Webb drafted a proposed amendment to the current order which regulates on-site sewage facilities.

2. On March 26 and April 17, 2006 the County of Webb caused notice to be published, in a newspaper regularly published and of general circulation, in Webb's area of jurisdiction, of a public meeting to be held on Monday, April 24, 2006.

3. The County of Webb held a public meeting to discuss the proposed amendment on April 24, 2006.

4. Webb County Order regulating on-site sewage facilities was adopted on April 24, 2006.

5. A certified copy of the minutes was submitted to the Texas Commission on Environmental Quality.

6. A certified copy of Webb County Order was submitted to the Texas Commission on Environmental Quality.

7. The order 1s at least equivalent to the standards of the Texas Commission on Environmental Quality.

CONCLUSIONS OF LAW

1. The above facts are conditions sufficient to issue this order pursuant to §366.031 of the Code.

2. Section 5.102 of the Texas Water Code authorizes the Commission to issue orders and make determinations necessary to effectuate the purposes of Chapter 366 of the Health and Safety Code and / or within the Commission's jurisdiction and who provides no comment on other statutory authority.

3. Issuance of this order will effectuate the purposes of Chapter 366 of the Code.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENT AL QUALITY THAT:

1. The County of Webb is hereby authorized to implement Webb County Order which regulates on-site sewage facilities.

2. Any amendments to Webb County Order must be approved by the Texas Commission on Environmental Quality.

3. The Chief Clerk of the Commission is directed to forward a copy of this Order to the Applicant and all other parties and to issue the Order and cause it to be recorded in the files of the Commission.

Issued this date: lJUN 28 2006

Texas Commission on Environmental Quality

For The Commission

ORDER ADOPTING RULES OF WEBB COUNTY, TEXAS FOR ON-SITE SEWAGE FACILITIES

Adopted by the Webb County Commissioner Court on April 24, 2006

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ORDER ADOPTING RULES OF WEBB COUNTY, TEXAS FOR ON-SITE SEWAGE FACILITIES

ADOPTED April 24, 2006

PREAMBLE

WHEREAS, the Texas Commission on Environmental Quality has established Rules for on-site sewage facilities to provide the citizens of this State with adequate public health protection and a minimum of environmental pollution; and

WHEREAS, the Legislature has enacted legislation, codified as Texas Health and Safety Code, Chapter 366, which authorizes a local government to regulate the use of on-site sewage facilities in its jurisdiction in order to abate or prevent pollution, or injury to public health arising out of the use of on-site sewage facilities; and

WHEREAS, the Commissioners Court of Webb County, Texas finds that the use of on-site sewage facilities in Webb County, Texas is causing or may cause pollution, and may injure the public health; and

WHEREAS, the Webb County Commissioners Court finds that the adoption of the proposed amended Order controlling or prohibiting the installation or use of on-site sewage facilities in the County of Webb, Texas is specifically exempt from the Texas Private Real Property Preservation Act pursuant to the provisions of Government Code §2007.003(b)(l l)(B); and

WHEREAS, a public notice published in a newspaper of general circulation on the **26th** day of **March, 2006** and the **17th** day of **April, 2006,** in accordance with the provisions of Chapter 285, Title 30 Texas Administrative Code, and the Webb County Commissioners Court convened in a regular session on the **24th** day of **April, 2006** to receive public comment; and

WHEREAS, the Commissioners Court of Webb County, Texas has considered the matter and deems it appropriate to enact an amended Order adopting Rules regulating on-site sewage facilities to abate or prevent pollution, or injury to public health in Webb County, Texas.

NOW, THEREFORE, BE IT ORDERED BY THE COMMISSIONERS COURT OF WEBB COUNTY, TEXAS:

SECTION 1. THAT the matters and facts recited in the preamble hereof are hereby found and determined to be true and correct;

SECTION 2. THAT the use of on-site sewage facilities in Webb County, Texas is causing a public health concern; and

SECTION 3. THAT an Order for Webb County, Texas be adopted entitled "Order Regulating On-Site Sewage Facilities," which shall read as follows:

ORDER REGULATING ON-SITE SEWAGE FACILITIES

SECTION 4. CONFLICTS.

Except for those provisions specifically retained herein, this Order repeals and replaces any other On-site Sewage Facility Order for Webb County, Texas.

SECTION 5. ADOPTING CHAPTER 366.

The County of Webb, Texas will fully enforce Chapter 366 of the Texas Health and Safety Code (H&SC) and Chapters 7 and 37 of the Texas Water Code (TWC), and associated rules referenced in Section 8 of this Order.

SECTION 6. AREA OF JURISDICTION.

(a) The Rules shall apply to all unincorporated areas of Webb County, Texas, except for an area regulated under an existing Rule.

(b) These Rules shall also apply to those incorporated cities or towns that have executed intergovernmental agreements with Webb County, Texas.

SECTION 7. ON-SITE SEWAGE FACILITY RULES.

Any permit issued for an on-site sewage facility within the jurisdictional area of Webb County, Texas must comply with the Rules adopted in Section 8 of this Order.

SECTION 8. ON-SITE SEWAGE FACILITY RULES ADOPTED.

The Rules, Title 30 Texas Administrative Code (TAC) Chapter 285 and Chapter 30, attached hereto, promulgated by the Texas Commission on Environmental Quality for on-site sewage systems are hereby adopted, and all officials, employees and authorized representatives of Webb County, Texas having duties under said Rules are authorized to perform such duties as are required of them under said Rules.

SECTION 9. INCORPORATION BY REFERENCE.

The Rules, 30 TAC Chapter 30 and 285 and all future amendments and revisions thereto are incorporated by reference and are thus made a part of these Rules. Copies of the current Rules are attached to these Rules as Appendix I.

SECTION 10. AMENDMENTS.

The County of Webb, Texas wishing to adopt more stringent Rules for its On-site Sewage Facility Order understands that the more stringent conflicting local Rule shall take precedence over the corresponding Texas Commission on Environmental Quality requirement. Listed below are the more stringent Rules adopted by Webb County, Texas:

(a) Regardless of the acreage, a permit shall be required for all new on-site sewage facilities.

(b) Residential subdivisions of tracts containing less than ten (10) acres that are required to be platted or replatted pursuant to the provisions of the Model Subdivision Rules adopted by the Webb County Commissioners Court pursuant to the Texas Water Code, Section 16.350 or the provisions of the Texas Local Government Code, Chapter 232 shall not be eligible for any exception to permitting or licensing requirements for on-site sewage facilities.

(c) Pursuant to the authority of the Texas Water Code, Section 17.934, and in order to encourage the development and use of organized disposal systems to serve the waste disposal needs of the citizens of Webb County and to prevent the pollution, protect the public health, and maintain and enhance the quality of ground water, the following requirements are made:

(1) No person may cause or allow the installation of an on-site sewage facility when any part of the facility is to be located within three-hundred (300) linear feet of an existing organized disposal system, unless one of the following requirements have been met:

(A) The person has received written denial of service from the owner or governing body of the organized system; or

(B) The person has received a written determination from the Designated Representative that it is not feasible for the person to connect to the organized disposal system.

(2) Whenever an organized disposal system is developed, constmctcd, or installed within three-hundred (300) linear feet from any part of an on-site sewage facility, that facility shall be connected to the organized system unless the person receives one of the exceptions as set forth in Section lO(c)(l)(A) or (B) of this Order.

SECTION 11. DUTIES AND POWERS.

The OSSF Inspector of Webb County, Texas must be certified by the Texas Commission on Environmental Quality before assuming the duties and responsibilities.

SECTION 12. FEES AND COLLECTION OF FEES.

Fees for permits and/or inspections are to he set by the Webb County Commissioners Court. No refunds of any amount shall be granted.

SECTION 13. APPEALS.

Persons aggrieved by an action or decision of the Designated Representative may appeal such action or decision to the Commissioners Court of Webb County, Texas.

SECTION 14. PENALTIES.

This Order adopts and incorporates all applicable penalty provisions related to on-site sewage facilities, which includes, but is not limited to, those found in Chapters 341 and 366 of the Texas Health and Safety Code, Chapters 7, 26, and 37 of the Texas Water Code and 30 TAC Chapters 30 and 285.

SECTION 15. SEVERABILITY.

It is hereby declared to be the intention of the Connnissioners Court of Webb County, Texas that the phrases, clauses, sentences, paragraphs, and sections of this Order are severable, and if any phrase, clause, sentence, paragraph, or section of this Order should be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, or sections of this Order, since the same would have been enacted by the Connnissioners Court without incorporation in this Order of such unconstitutional phrases, clause, sentence, paragraph, or section.

SECTION 16. EFFECTIVE DATE

This Order shall be in full force and effect from and after its date of approval as required by law and upon the approval of the Texas Commission on Environmental Quality.

On motion ofCommissioner6L/her,e:z.. seconded by CommissionerS'·c./a,oftc..1 duly put and carried, this **ORDER IS HEREBY ADOPTED** by the Commissioners Court of Webb County, Texas, dulx convened and acting in its capacity as governing body of Webb County on this 24 lh day of 1-1 pr;l , 2006.

Honorable Louis H. Bruni
Webb County Judge

Honorable Frank Sciaraffa
Webb County Commissioner Pct. 1

Honorable Judith G. Gutierrez
Webb County Commissioner Pct. 2

Honorable Jerry Garza
Webb County Commissioner Pct. 3

Honorable Cindy Cortez Brunner
Webb County Commissioner Pct. 4

APPROVED AS TO FORM:

Honorable Homero Ramirez
County Attorney

ATTESTED BY:

Honorable Margie Ramirez Ibarra
Webb County Clerk

LWRE

LIGHTHOUSE WATER RESOURCE ENGINEERING

Daily Flow Analysis

Daily flow from a facility can be estimated in several ways. This can include charts provided by the US EPA, State of Texas, Webb County, analytical studies base on calibrated models and historical flow data from a similar facility.

The following is a summary showing the results based on charted data. A similar facility was not available for use in this analysis.

US-EPA. The data available for estimating flow from a modem travel center is limited. The principle charts are based on 1998 data.

Table 3-4. Typical wastewater flow rates from commercial sources

Facility	Unit	Flow, gallons/unit/day Range	Flow, gallons/unit/day Typical	Flow, liters/unit/day Range	Flow, liters/unit/day Typical
Airport	Passenger	2-4	3	8-15	11
Apartment house	Person	40-SO	50	150-300	190
Automobile service station'	Vehicle served	8-15	12	30-57	45
	Employee	9-15	13	34'"57	49
Bar	Customer	1-5	3	4-19	11
	Employee	10-16	13	38-61	49
Boarding house	Person	25-00	40	95-230	150
Department store	Toilet room	4Q0-600	500	1,500-2,300	1,900
	Employee	8-15	10	30-57	38
Hotel	Guest	40-60	50	150-230	190
	Employee	8-13	10	30-49	38
Industrial building (sanitary waste only)	Employee	7-16	13	2H1	49
Laundry (self-service)	Machine	45o-650	550	1,700-2,500	2,100
	Wash	4!'r55	50	170-210	190
Otl ice	Employee	7-16	13	2H1	49
Public lavatory	User	3-6	5	11-23	19
Restaurant {with toilet)	Meal	2-4	3	8-15	11
Conventional	Customer	8-10	9	30-38	34
Short order	Customer	3-8	6	11-30	23
Bar/cocktail loonge	Customer	2-4	3	8-15	11
Shopping center	Employee	7-13	10	28-49	38
	Parking space	t-3	2	4-11	8
Theater	Seal	2-,1	3	8-15	11

• Somo :systems ser.i,,g more than 20 people mlghl be reg\Jlalil<I under USEPA's Class V UnoorQ(ound InjaCllon Control (UIC) Progiam. See htlpJ,'t111·11.epa.gov,'safowa1orhiic.html for moro ill ormalioo.
• These data incorporafe lhe elleci or r, lures co lying 11-ih the U.S. Energy Polley Ac1 (EPACTI ol 1994.
' Disposal ol automotive wastes llia sub&Jrfaco wasle'11ater lnfillration systems is bannod by Class V UIC rogula1ions to p1otect ground walor. Soo hllpJ/t11i1.epa.gov/'salewa1e0nc.html for mor'a inlormallon.

Source: Crites and Tchobanoglous, 1998

State of Texas, TCEQ Chapter 285: The data available in the OSSF design guidelines in Chapter 285 are limited and not unlike Table 3-4 from the EPA Onsite manual. Neither table reflects modem day plumbing and facility usage as they truly are.

Table Ill. \Vast e wa ter Usage Rate.

This table.s h a ll be used for estimating the hydraulic loading mtes only. Sizing fo rm ulas a r b ase d on resid en li al $l1-engtli BOD 5. Com mercinl/ ins titu tionaf facilities rtm st p refrcnt t he ir was te:water to 14 0 BOD a p rio r to di s pos al unl ess secondary treatment quality is req uired. For design purp oscs, res taura nt wastewater will b e ass u m ed. to hnve a BOO_5 of at least 1.:w o mg/ I after e,ii. t ing the grease tra p or g rease interceptor,

Office buildin gs (no food or showers per occupant} Office buildings (,\lt h food service p r occupant)	5 10	4 8
Parks (w ith bathhouse per pe rs o n) Pa r ks (without ba th ho use per person}"	15 10	12 8
Restau ra nts - minim um effluent BOD,'i quality described above this table Retil aurant s (per seal) Res t urants(f food perseat)	35 1$	28 12
Schools (with food sen.fee & gyin pel' studen t) Schoo ls (withou t food sel'\rice)	25 15	20 12
Service sta tions (pet vehicle)	10	8
Stores. (per washroom}	!!OO	,60
s wimmi ng pool bathh ouses (per pel'son}	10	8
Tr a ve l tr ailer/ RVparks{p r space)	50	40
Vet clinics{per animal)	10	8
Const mction sites (per worker)	50	40

Analytical Data Analysis: This method is based on a representative analytical study applicable (calibrated) to this general location on I-35 done by IM:ST Corp. The figures represent average monthly values for the year. Low/High represent traffic flow upper and lower limits.

lnte.rstate 35 — **LOW**

Laredo, Texas 78041

SALES PER MONTH (Analytical Low)	YEAR 1	YEAR 2	YEAR
Gasoline Volume (Gallons)	83,804	**85,456**	86,23
Diesel Volume (Gallons)	453,827	462,203	466,43
Convenience & Travel Store Sales	$200,985	$204,773	$206,81
Fast Food Sale s	$130,017	$137,300	$138,66
Trutk Wash Sales	$68,074	$69,330	$69,96

Int er state 35 — HIGH

Laredo, Texas 78041

SALES PER MONTH (Analytical High	YEAR 1	YEAR 2	YEAR
Gasoline Volume (Gallons)	102,427	104,446	105,39
Diesel : Volume (Gallons)	560,188	571,236	576,49
Convenience & Travel Store Sal es	$245,649	$250,279	$252,77
Fast Food Sal e s	$161 ,205	$168,748	$172,74
Trnck Wash Sales	$84,028	$85,685	$86,47

These figures represent the anticipated sales based on volume of traffic into FATC according to the IMST study. The analysis does not explicitly identify the number of vehicles or cost of meals. The following are used to create a conservative estimate of vehicles and customers who would visit FATC over a month.

- Fast Food Chair Count-indoor and outdoor; 68 seats
- Average meal price; $6.00
- Average car fill-up; 15 gallons,
- Average truck fill-up; 150 gallons.
- Average Shower 15 minutes at 1 gpm = 15 gallons
- Maximum Daily wastewater flow = 4,999 gpd
- Cars Assignment:
    - Assume 4 passengers per car
    - Assumes 2 gallons of wastewater generated by each person
- Trucks Assignment:
    - Assume 2 passengers per truck
    - Assume 2 gallons of wastewater generated by each person
- Restroom usage 2 gallons per visit:
    - Toilet 1.6 gpf,
    - Urinal 0.125 gpf
    - lavatory 0.28 g/use

Summary of Cars, Trucks and Fast Food Customers Based on IMST Analytical Model (High Volume) and Assigned Fill-up and Average Meal Price.

Cars	234
Trucks	128
Fast Food Customers	960

DAILY WASTEWATER GENERATION METHODS

Method 1. Fast Food Based on Seating Capacity and Food Prep/Cleanup

68 Seats x 12 gallons per seat= 816 gallons per day
Food prep and cleanup= 1,200 gallons per day**
**added to reflect anticipated kitchen needs not reflected in seats alone.

Total Fast Food
= **2,016 gallons per day** (based on seating and restaurant prep and cleanup)

Method 2. Fast Food (Estimated by Anticipated Income)

960 Customers x 2 gallons (restroom usage) = 1,920 gallons per day
Food prep and cleanup= 1,200 gallons per day

Total Fast Food
= **3,120 gallons per day** (using IMST model).

Method 3. **Use US EPA and TCEQ Chapter 285**

Both recommend 8 gallons per vehicle. This is an outdated number based on old data. However, the higher value helps to accommodate other activities.

(234 cars+ 128 trucks) x 8 gallons/vehicle/day
= **2,896 gallons per day**

Method 4. Add Restaurants Food Prep/Cleanup to EPA and TCEQ Method

2896 gpd (EPA/TCEQ) + 1,200 gpd (food prep/cleanup) = **4,096 gpd****

**This leaves 903 gallons (for showers)/ 15 gallons per shower = 60 showers per day

4096 gpd (vehicle and food prep/cleanup)+ 903 gpd (showers)
=4,999 gpd.

Method 5. Adjust Trucks to 4 gpd per Truck (max 2 people per truck)

Vehicles:	234 cars x 8 gpd/car + 128 trucks x 4 gpd/truck = 2,384 gpd
FF Prep/cleanup	1,200 gpd
Subtotal	3,584 gpd

Remainder will go to showers@ 15 gallons per usage. (4,999 gal-3,584 gal)/15 gal/shower = 94 shower events.

Facility has 11 shower rooms. Assume 8 uses per day = 15 gal/showers x 11showers = 1,320 gallons

Final Total: 2,384 gal (vehicles)+ 1,200 gal (food pre/cleanup)+ 1.320 gal (showers)

= 4, 904·gpd (generated wastewater)

LWRE

LIGHTHOUSE WATER RESOURCE ENGINEERING

Wastewater Treatment Design

The goal is to reduce the combined Influent strength from the store, restrooms and fast food stations to a residential strength or below 140 BOD at a typical loading of approximately 4,995 Gallons per day. This estimated flow has been affirmed based on water meter readings of similar establishments and the included loading table. Treatment In excess of the Gallons Per Day of flow Is needed because the strength of waste generated exceeds typical household strength.

Based on an analysis of the flow and waste strength we have determined we need to reduce approximately 25 lbs. of 5 Day Biochemical Oxygen Demand {BOD:.), lSS to the level of Typical Septic Tank Effluent.

tt is the responsibility of the client to ensure that the grease traps are in a scheduled maintenance program and regularly pumped. The client is responsible to ensure than no greater than 30 mg/l of FOG Is discharged from the trap Into the treatment system,

No other treatment parameters (nitrogen or dlslnfectron) are being deslgned for In this proposal.

Grease Trap:

- Is 3,000 gallons, Is required.

Pre Treatment:

- Will be an additional 3,000 gallon tank with a 6/P Inlet The grease trap wlll be joined with the sanitary lines and combine into this tank, gravity flow through, and connect to the 6" outlet pipe, This 6" Hne Wlii then gravity flow across the parking lot and into the first treatment tank.

PO Box 5667 • Bryan, TX 77805-5667 • 979.779.6500 • fax 979.779.6505 • TBPE Firm No. 21045

Equalization Basin Package that Includes:

- 1 2,00 0 Gallon Pre cast Tanks (2 x 6,0 00 allon castl'ngs).
- URAi 33 Duplex blow ers w it h 3 HP Motors
- Blower Cont rol Panel-
  - *a* NEMA 4X Duplex Control Pane l, Three Phase} 208 Volt.
- All piping for Duplex Aeration and Duplex Met r Dosed Pum ping.
- Charcoal Fi lt ered Vent Cover.
- Stllllng Well for Float switches
- Two, 2[11] Solids Transfer pumps (Gould s GSD 0511's) for duplex eq ualizat io n.
- Rho m bus fFS M eter Dosing Pump Cont ro l Panel-
  - o **NEMA 4X** Duplex Contro l Panel, Single Phase, 120 Volt

Aeration Chamber Packages Includes:

- 15,000 Gallons of Aera tion Ch ambers, In 2.5 Castings.
- 96" x24" Al uminum Ped est rian Rated (300 lb. per square foot) to cov er openings on trea tm ent plant. (48[11]x24[1] over MTSl Clarifier)
- Fine Air Di ff user :assem bly package.
- M l'scellaneou s mou n t ing h ardw are, bo ots and cl am ps kit.
- All piping kits fo r tr eatment plant.
- Blowe r Package ! nd udes
  - o Duplex URAl-33 blowers with 5 HP m otors
  - o Blow er Fra me with S.S. **Hardware** and Aluminum housin g
- Blowe r & Systems Controls In clude
  - o NEMA 4 X, Duplex Cont ro l Panelt 208 volt, 3 Phas e.

Cla rifier

- 10, 000 GPO Rated Cla rifier.
- Aluminum Double Weir Trough & Baff le, and Baffled Stllll ng Well.
- 60"x72'·' Pede st r tan Rated Hatch
- 3" Air Lift Ret u rn Activated Sludge line.
- 2 x 2" Air lift Adjustable Su rf ace Skimmer and Re t u rn Line.

September 15, 2020

Pump Tank

- 5,000 Gallon Pump Tank
- 2 x 3 " Sleeves for Electrical Pass Through
- USF 24' x 30" 300 PSF Pedestrian Rated Aluminum Hatch over Pumps
- Pumps, Controls for this Tank are provided by and separate from this bid.

Other Items

- Aluminum, Galvanized and Stainless Electrical Panel Rack and Load Center.
- Cellular Telemetry Package to Monitor critical system (treatment & drip) functions that will contact service provider before an alarm.

LWRE

LIGHTHOUSE WATER RESOURCE ENGINEERING

Report Cover

OSSF APPLICATION ENGINEERING REPORT

FUEL AMERICA TRAVEL CENTER

121 High Caliber Estates Rd, Encinal, TX

Prepared by:

James F. Prochask:a, MS-PE

September 15, 2020

LWRE

LIGHTHOUSE WATER RESOURCE ENGINEERING

September 15, 2020

Ms. Diana Cantu, DR
Webb County Planning Department
1110 Washington St., Suite 302
Laredo, TX 78040

Subject: OSSF Engineering Report for Fuel America Travel Center, Encinal TX

MMT Ventures, LLC. is constructing a new convenience store for Fuel America Travel Center (FATC), to be located at 121 High Caliber Estates Rd. The facility will be a full-service truck and travel center. The facility will consist of a main building serving trucking and automobile patrons who will be pumping fuel, making casual purchases of food, drinks, and sundries. Trucking customers will have a private lounge with multiple showers and toilets. In addition, the store will have a food court with three independent companies providing takeout meals and snacks. Potable water will be provided via an onsite public water supply that is supplied by two onsite wells. The wastewater produced at this facility will be treated by a commercial 15,000 GPD extended aeration system with fine air diffusion and fixed media for treating the expected *BODs.* The treated effluent will be dispersed on the site via subsurface drip dispersal.

Soil and Site Conditions:
The soil and site evaluations were conducted in two parts. The initial site soil investigation in the form of numerous geophysical boring was conducted by Castle Engineering and Testing on March 5, 2019. The primary task of this investigation was to supply the facility architects and engineers with the data necessary for the design of the building foundation, tank farm and parking areas. These borings were also used in the soil and site investigation for the OSSF. The standard form for OSSF SITE EVALUATION is included in the application package with a separate table for the borings done specifically for the drip dispersal areas.

Two sets of local borings were made as shown on the plans. The first borings were done on May 5, 2020 in the Lot 2 designated drip dispersal area and on June 11, 2020 in the Lot 1 designated drip dispersal areas. The soil texture puts shows it to be a sandy loam near the surface and transitions to a sandy clay loam over the lower half of the boring. The soil consistency suggests that the sandy nature is continuous throughout the entire boring and that this should be good for subsurface dispersal. The expected burial depth of the drip tubing will be between 8" and 10". The OSSF SITE EVALUATION classification was done using the upper 24" from the site evaluation done in the drip dispersal design areas and the nearby deeper borings done by Castle Engineering and Testing.

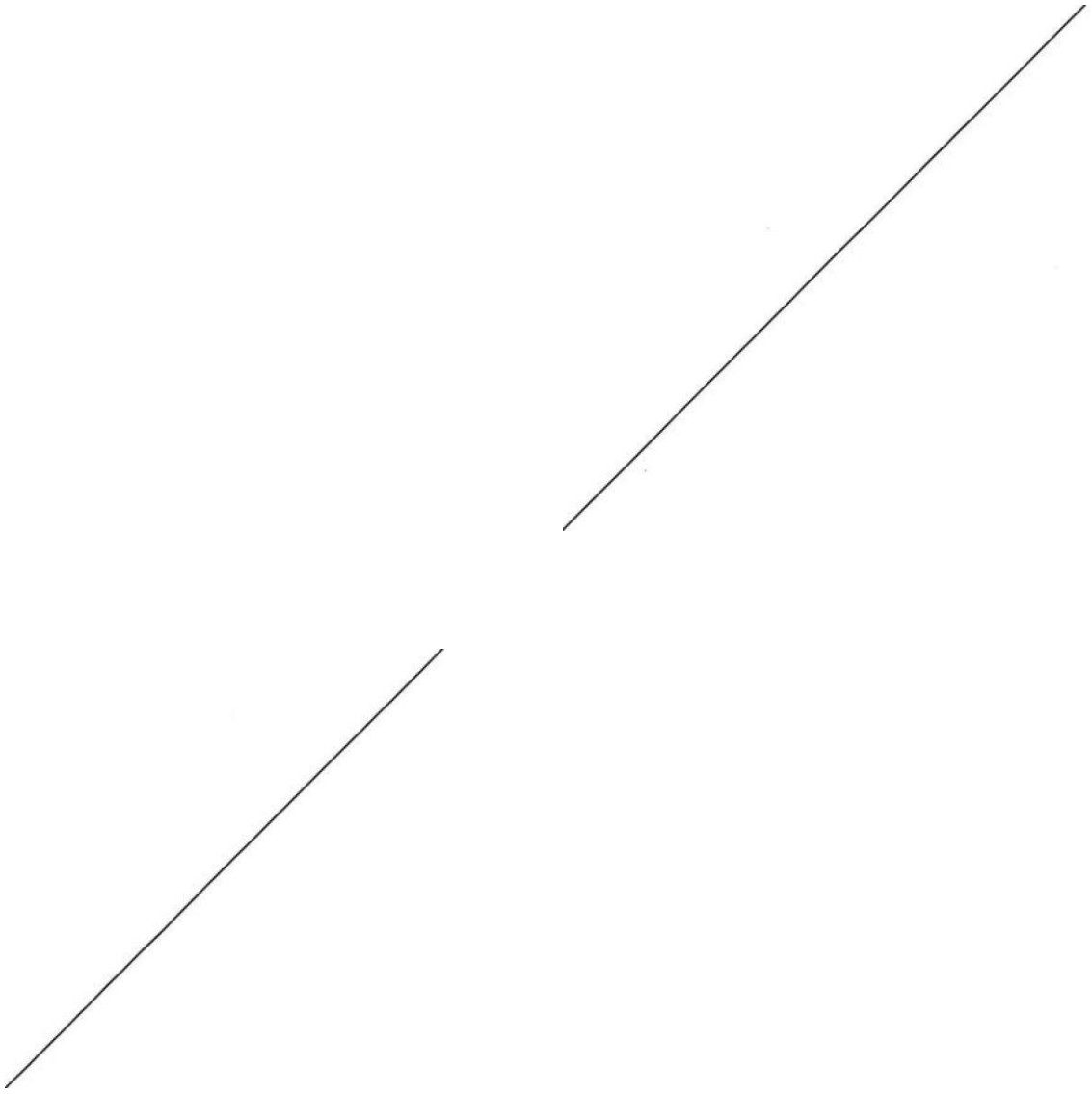
The USDA NRCS soil survey map and report shows the soil in this area is a DvB-Duval very fine sandy loam. The mapping shows that typically the sandy loam condition exists in the upper 15 inches and transitions to a sandy clay loam to depths of about 50 inches. The results of the shallow and deep soil borings agree with the NRCS soil mapping. This gives additional support to the findings onsite.

The potential soil loading rate based on the site soil survey findings can be between 0.2 and 0.25 gpd/ft^2. A loading rate of 0.2 gpd/ft^2 will be used in Lot 2 for drip dispersal. No strong evidence of a seasonal high-water table was found during any of the soil boring activities.

SEE SITE AND SOIL EVALUATION SECTION OF APPLICATION PACK.AGE.

Flood Zone: The building site in Lot 1 is not in a designated flood zone. Lot 2 has a small portion of its area that is within a FEMA mapped flood zone. This is in the southwest comer near the I-35 access road and is shown on the plans. The OSSF system is not in a flood zone nor a flood way. There is sufficient topographic relief to isolate the building, driveways, and parking areas of the convenience store. Please see the drawing showing these aspects.

The OSSF drip dispersal system will be in Lot 2 as shown on the plans. It will be located no closer than 250' to the mapped edge of the FEMA flood zone.



Daily Wastewater Flow Analysis

Daily flow from a facility can be estimated in several ways. This can include charts provided by the US EPA, State of Texas, Webb County, analytical studies base on calibrated models and historical flow data from a similar facility.

The following is a summary showing the results based on charted data. A similar facility was not available for use in this analysis.

US-EPA. The data available for estimating flow from a modem travel center is limited. The principle charts are based on 1998 data.

Chapter 3: Establlshfng Treatment System Performance Requirements

Table 3-4. Typical wastewater flow rates from commercial sources[a,b]

Facility	Unit	Flow, gallons/unlVday Range	Flow, gallons/unlVday Typical	Flow, llters/unll/day Range	Flow, llters/unll/day Typical
Airport	Passenger	2-4	3	8--15	11
Apartmenl house	Person	40-80	50	150-300	190
Automobile sel\lice stallon'	Vehicle seived	8--15	12	30-57	45
	Employee	9-16	13	34-57	49
Bar	Customer	1-5	3	4-19	11
	Employee,	10-16	13	1	49
Boatdlll(l house	Person	25-60	40	95-230	150
Department store	Toilet room	400-600	500	1,500-2,300	1,900
	Employee	8--15	10	30-57	38
Hotel	Guest	40--60	50	150-230	190
	Employee	8--13	10	30-49	38
Industrial building(sanitary waste only)	Employee	7-16	13	26--61	49
Laundry (self-service)	Machine	450-650	550	1,700-2,500	2,100
	Wash	45-55	50	170-210	190
Office	Employee	7-16	13	26--61	49
Pubilc lavatory	User	3-6	5	11-23	19
Restaurant (lYllh toilet)	Meal	2-4	3	8--15	11
Conventional	Customer	8--10	9	30-38	34
Short order	Customer	3-8	6	11-30	23
Bar/cocktail lounge	Customer	2-4	3	8--15	11
Shopping center	Employee	7-13	10	26-49	38
	Parking space	1-3	2	4-11	8
Theater	Seat	2-4	3	8--15	11

'Somo systems servillg nwe than 20people might be re9vlaIer.t under USEPA's Class V Under91oundInjection Control (UIC) Program. *e* h1p1o"t1\'1.opagov/safoll'a1eMic.hlm for moro i\lormalioo.
' These dala orporale the eHect of r.xture & cori'f i YhlQ I\ h the U.S. *Eootgy* Polley AC1(EPACT) ol 1994.
' lJi.sposal of automotive wastes i,ia subsurface wastewater Infillration sysloms is bannod by Class V UIC roguf11ions 10 protoct ground wa1or. Soo hUp:/."1\'1epa.gov/salewatedulo.hlml for more infonnation.

Source: Crites and Tchobanoglous, 1998.

State of Texas. TCEO Chapter 285: The data available in the OSSF design guidelines in Chapter 285 are limited and not unlike Table 3-4 from the EPA Onsite manual. Neither table reflects modem day plumbing and facility usage as they truly are.

Table Ill. \Va s te w at er Usage Rate.

This t ble sh all be used fm• estimating the hydraulic loading 1'.tles only. Sizing formulas are based on res jdent fal strength BOD $_5$· C.om merd ru/ in s titutionnJ facilities must pre treat their ·wastewater to 140 BOD ri pr ior to disposnJ unless secondary treatment quality is required. For design purposes res taurant wastewater will be ass 1med to bnve a B0 D$_5$ of at least 20 0 mg/ I after e::ii.iUng the grease trap or grease intercep tor.

Office b uildi ngs{no food or sho\\ rel's per occupan t) Office buildings (with food sen rice **per** occupant)	5 10	4 8
Parks (with bathhouse per person) Parks (with out bathl,ouse per person)	15 10	12 8
Restaumnbi - minimum effluent BOD_; quality descl'ibe d aba this table Res tau ra nts (per seat) Resta u ra nt s (fas t food per seatJ	!\S is	28 12
S chools (v,rith food stirv-ice & gym per stu dent) Schools (without food servire}	25 15	20 12
'9enrk e s tations (per ,·ehicle)	1U	8
,**Stores** (per ·washroom}	2.00	160
,s,,itnming pool bathhouses (per persun}	10	8
Travel .tr ailer/RV parks (pe1·space)	50	40
Vet clinics (per animal)	10	8
Construction sites (per ?f"Orker)	50	40

<u>Analytical Data Analysis:</u> This method is based on a study applicable and calibrated to this portion ofl-35 at Exist 32 for potential business traffic and sales. It was completed by IMST Corp of Houston. The figures represent average monthly sales for the year. Low/High represent upper and lower sales potentials resulting from the study.

Interstate **35**

Laredo, **Texas 78041**

LOW

SALES PER MONTH (Analytical Low)	YEAR 1	YEAR 2	YEAR 3
Ga,soline Volume (Gallons)	83,804	85,456	86,234
Diesel Volume (Gallons}	453,827	462,203	466,431
Convenience & Travel Store S,1.les	$200,985	$204,773	$206,814
Fast Food Sales	$130,017	$137,300	$138,662
Truck Wash Sales	$68,074	$69,330	$69,965

Interstate 35

Laredo, Texas 78041

HIGH

SALES PER MONTH (Analytical High)	YEAR	YEAR 2	YEAR
Gasoline Volume (Gallons)	102,427	104,446	105,397
Diesel Volume (Gallons)	560,188	571,236	576,492
Convenience & Travel Store Sales	$245,649	$250,279	$2s2,n2
Fast Food Sales	$161,205	$168,748	$172,742
Truck Wash Sales	$84,028	$85,685	$86,474

These figures represent the anticipated sales based on volume of traffic into FATC according to the IMST study. The analysis does not explicitly identify the number of vehicles or cost of meals. The following are used to create a conservative estimate of vehicles and customers who would visit FATC over a month.

- Fast Food Chair Count-indoor and outdoor; = 68 seats
- Average meal price;= $6.00
- Average car fill-up;= 15 gallons,
- Average truck fill-up;= 150 gallons.
- Shower= 15 minutes at 1 gpm = 15 gallon (11 showers@ 8 x per day)= 1,320 gpd
- Maximum Daily wastewater flow = 4,999 gpd
- Fast Food Kitchens 400 gpd per kitchen for food prep/cleaning (400 x 3) = 1,200 gpd
- Cars Assignment: Assume 4 passengers per car, 2 g/person wastewater = 8 gal
- Trucks Assignment: Assume 2 passengers per truck, 2 gal/person wastewater = 4 gal
- Inventory: 22 Toilets, 7 urinals, 12 lavatories, 11 (shower+ toilet+ lavatory)
- Restroom usage 2 gallons per visit:
    - Toilet 1.6 g/flush,
    - Urinal 0.125 g/flush
    - lavatory 0.28 g/use

Summary of Cars, Trucks and Fast Food Customers Based on IMST Analytical Model (High Volume) and Assigned Fill-up and Average Meal Price.

Cars	234 (936 patrons)
Trucks	128 (256 patrons)
Fast Food Customers	960 (patrons)

DAILY WASTEWATER GENERATION PREDICTION METHODS

Method 1. Fast Food Based on Seating Capacity and FF Prep/Cleanup

68 Seats x 12 gallons per seat = 816 gpd
FF prep and cleanup= 1,200 gpd ** Seats do no account for takeout.
Showers= 1,320 gpd

Total Fast Food (by Seats), FF Prep/Cleanup and Showers
= 3,336 gpd ww

Method 2. Fast Food (Estimated by Anticipated Income)

960 Customers x 2 gallons (restroom usage) = 1,920 gpd
Food prep and cleanup= 1,200 gpd
Showers = 1320 gpd

Total Fast Food FF Prep/Cleanup and Showers (using IMST model)
= 4,440 gpd ww

Method 3. Use US EPA and TCEQ Chapter 285

Both recommend 8 gallons per vehicle. This is an outdated number based on old data and does not characterize trucks appropriately. However, the higher value helps to accommodate other activities.

(234 cars+ 128 trucks) x 8 gallons/vehicle/day+ 1,320 gpd (showers)

= 4,216 gpd ww (EPA & TCEQ Chapter 285) and Showers

Method 4. Add Restaurants Food Prep/Cleanup to EPA and TCEQ Method

2896 gpd (EPA/TCEQ) + 1,200 gpd (food prep/cleanup)= **4,096 gpd****

**This leaves 903 gallons (for showers) / 15 gallons per shower= 60 showers per day

4096 gpd (vehicle and food prep/cleanup)+ 903 gpd (potentially available for showers)
= 4,999 gpd ww

Method 5. Adjust Trucks to 4 gpd per Truck (max 2 people per truck)

Vehicles:	234 cars x 8 gpd/car + 128 trucks x 4 gpd/truck = 2,384 gpd
FF Prep/cleanup	1,200 gpd
Subtotal	3,584 gpd

Remainder will go to showers@ 15 gallons per usage. (4,999 gal- 3,584 gal)/15 gal/shower = 94 potential shower events.

Facility has 11 shower rooms. Assume 8 uses per day= 15 gal/showers x 1lshowers = 1,320 gallons

Final Total: 2,384 gal (vehicles)+ 1,200 gal (food pre/cleanup)+ 1.320 gal (showers)

= 4,904 gpd ww IMST model and

Method 5 best represents the complexity of the daily operations at facilities like FATC. Much of the food is "takeout" such that the wastewater generated is not proportional to the available seating as it might be with "sit down" restaurants. The wastewater treatment system is designed to accommodate 4,999 gpd.

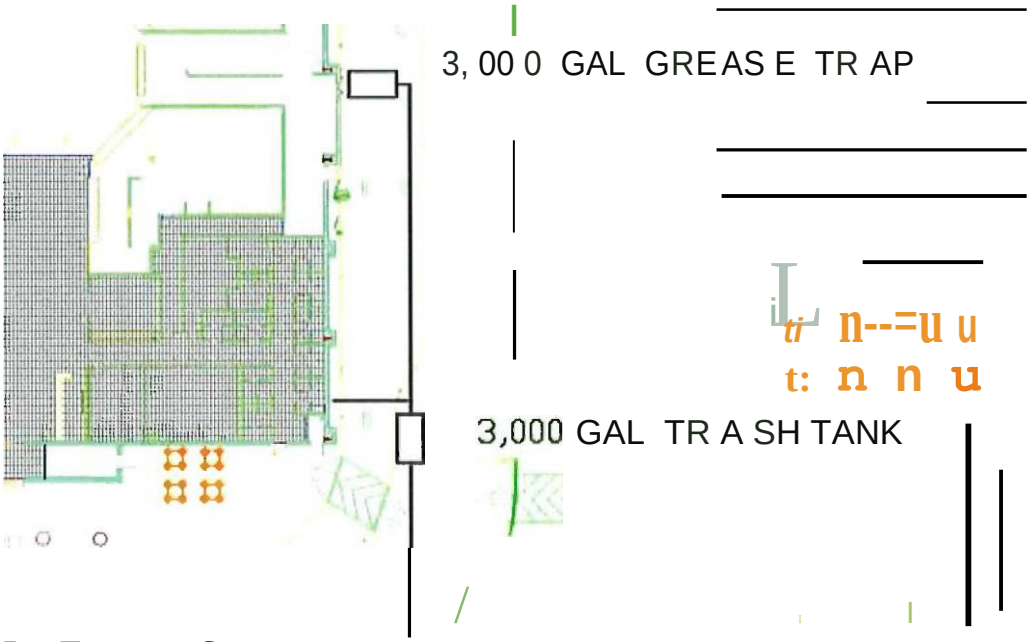
As a comparison, the anticipated low wastewater stream would be about 4,472 gpd. This only changes the number of cars and trucks. The showers and fast food kitchen waste flow are kept constant. The result is about 527+ gallons/day less than the maximum allowable of 4,999gallons/day.

WASTEWATER TREATMENT PLANT

Grease Traps: Grease traps will be Grease Trooper by ParkUSA or equivalent. The installation will be completed or observed by the OSSF installer ofr ecord. The building pad will be built up. This will allow the discharge invert points from the building to flow by gravity to the

grease traps and continue to the trash trap and flow by gravity to the WWTP flow EQ tank. Calculations supporting the tank selection is included using the Uniform Plumbers Code for Interceptor Tanks.

A minimum of one, 3,000-gallon grease trap must be installed. A 3,000-gallon trash trap will follow the grease trap and discharge from the southeast comer of the store. Tank lids must be traffic bearing. Flow from the trash trap will then move under the paved drive to the WWTP system with a minimum pipe slope of 0.125" per foot. All piping from the building and tanks will be 6". Flow will be from the trash trap to the flow equalization tank on the WWTP. The OSSF installer ofrecord will conduct or observe the installation.



Pre-TreatmentSystem

All wastewater generated by FATC will be sent to an extended aeration WWTP located near the drip dispersal field and across the store driveway. The pretreatment system will be capable of handling excessive inflows via a single 12,000-gallon flow equalization tank. The WWTP will be capable of treating high strength wastewater and is sized accordingly and not by the hydraulic requirements. The estimated strength will range between 70 ppm *BODs* and 1,200 ppm *BODs*. The previous flow and wastewater strength table shows the relative amounts of each discharge . The treatment process will be an extended aeration, Commercial 15,000 GPD plant (size based on *BODs* reduction and not daily hydraulic flow). The aeration basin is divided into three tanks equaling 15,000 gallons plus a 10,000 gpd clarifier. Final effluent quality will be a maximum of 140 ppm *BODs* as part of the TCEQ Chapter 285 Proprietary Drip Dispersal System. It is anticipated that the effluent quality will be in a range closer to 30 ppm *BODs* based on a calculated BOD Loading Factor (BLF) of 13.6. The design calculations based on anticipated flow and organic loading are as follows.

BOD	
Restaurant and food service:	1,200 ppm
Restrooms w/o showers	600 ppm
Showers	70 ppm
Treatment Goal	140 ppm

Fuel America Laredo Air and Basin Calculations

CFM Calculations

	Units	Gal. per	Gallons	ppm	Rate	Lbs.
Fast Food	3	400	1,200	1,200	8.34E-06	12.0
Cars	234	8	1,872	600	8.34E-06	9.4
Trucks	128	4	512	600	8.34E-06	2.6
Showers	11 x 8	15	1,320	70	8.34E-06	0.8

	O_2 rate per Lb.	Lbs.	Total Lbs. Needed
0_2 Needed per lb. of BOD	1.8	24.7	44.5

Effective BOD ppm	604.2
lbs. of 0_2 Needed	44.5
Cubic Feet of Air Needed (58.2 CF= 1 lb. of 0_2)	2,588.6
True CFM Needed@ 100% uptake at 720 min	3.6
Water Depth above diffusers (In feet)	8.0
Fine Air 0_2 transfer efficiency%	16.0
Actual CFM needed	22.5
Addltlonal Air Needed for Air Lift	18.0
Total CFM Needed	40.S

Basin Sizing Calculations

VA= (BOD X Q X 8.34)/BLF

VA= Volume of Aeration Basin In 1,000 ft^3

BLF = BOD Loading Factor

lbs. of BOD	24.7
Gallons Per Day	4,904 .0
Actual Gallons of treatment proposed	15,000.0
Cubic Feet proposed	2,005.3
Effective BLF	12.3

Diffuser Requirement Calculations

Total CFM	22.5
Total Diffusers	10.0
Rate Per Diffuser	2.2

WWTP Design Plans

A representative set of plans and specifications illustrating the WWTP and its equipage are found in the **WWTP DESIGN** section the permit application folder and include all tank dimensions. The treatment process will employ fine air diffusion and fixed media which will improve the final treated effluent quality; however, the calculations did not take this into account and used only standard aeration and basin volume in the calculations.

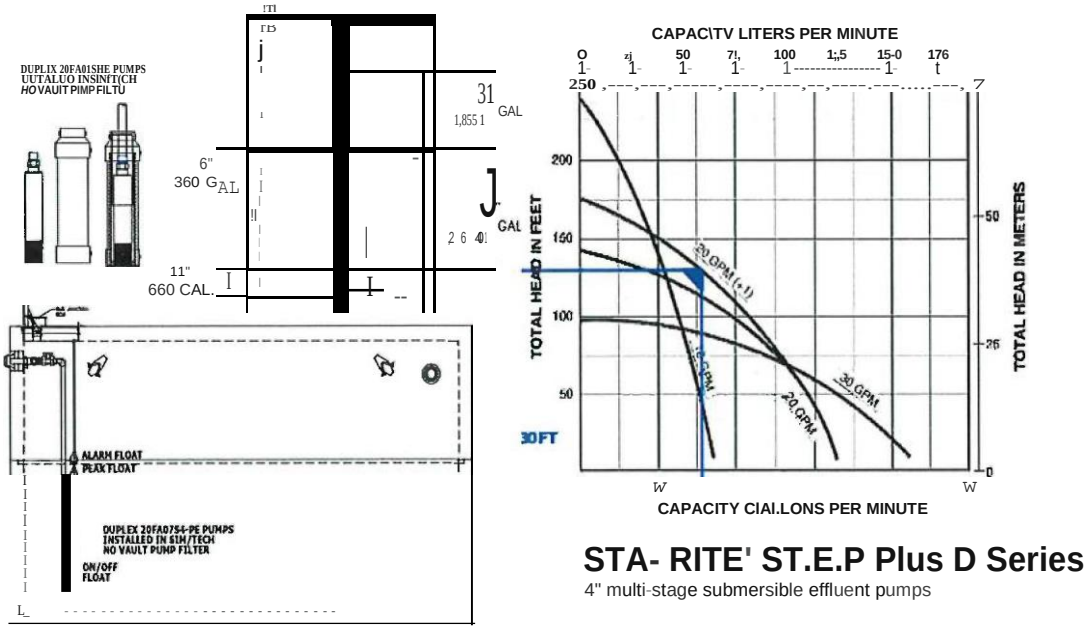
Tanks and Equipage

Flow from the trash trap moves beneath the driveway and into the (EQ) tank. The tank is 12,000 gallons in size with 2,500 gallons of storage above the high float. Two duplexing Gould's WW511 single stage lift pumps will be installed. The pumps will be controlled by an SJE Rhombus IFS Meter Dosing Pump Control Panel. Four floats will be set as follows above the bottom of the tank and between floats. The available storage below each float is shown:

14"	1,640 gallons (not available for pumping)
55"	6,446 gallons (normal pumping range)
4"	468 gallons (peak demand flux)
0"	High Water Alarm Float
21"	2,500 gallons (1/2 day storage above HWAF)

The two Goulds WW511 pumps move wastewater into the aeration treatment tanks. There effluent is treated in the two tanks and then moves into a 10,000 gallon per day hopper style clarifier. The treated effluent will flow via gravity to a 5,000-gallon pump tank. The tank will be equipped with duplex Sta-Rite STEP Plus D, 4" turbine pumps capable of pumping at combined rates of 30 gpm and 123 ft, TDH to the drip dispersal system during field flush. The pumps will be controlled by a JNM commercial CBDMC controller which allows both pumps to operate during field flushing cycles.

The pump tank will be controlled by three floats.



Measurements are form the tank bottom and then between floats. The available storage below the float is shown:

11"	792 gallons (not available for pumping)
44"	3,168 gallons (normal pumping range)
6"	432 gallons (peak demand flux)
O"	High Water Alarm Float
31"	2,226 gallons (1/3+day storage above HWAF)

This storage is complimented by the available storage in the flow equalization tank. Float positions may change depending tank casting used.

Drip Dispersal System

The design dispersal area required:

Q = 4,904 gpd

Ra= 0.2 gpd/ft^2

Absorptive (Area) = Q/Ra

Area= 4,904 gpd/0.2 gpd/ft^2

Area = 24,520 ft^2

Actual drip dispersal area 25,120 ft^2. (Rectangular field design)

Drip tubing will be NETAFIM BIOLINE WASTEWATER DRIP TUBING with an emitter flow of 0.61 gph on a 24" spacing along the tubing.

The dosing area will be divided into 6 similar sized zones. Each zone will be approximately 6,280 ft^2. Tubing laterals will be spaced 24" for a total of 12,560 linear feet of drip tubing. The average length of tubing per zone is 3,140 ft.

Average Drip Dispersal Flow per zone= 3,140 ft+ 2ft per emitter x 0.61 gph emitter flow+ 60 min/hour= **16.4 gpm**

The average zone dosing rate will be **16.4 gpm.** Zone Flush Rate will be **1.6** gpm per distal end for a flushing velocity of **2 ft/sec.** Each zone will have approximately **10** distal ends. The field flushing rate is:

10 x 1.6 gpm/distal end= 16.0 gpm
Total flow during field flush= 16.4 gpm + 16.0 gpm = **32.4 gpm**

fIELD L						
Z:NE	Sa FT	LFT TIJB£	SE Ri"1TE	f'LUSH RATE	DDST	TML Rt iTE
L	_(i,2EIO	3 ..L O	IS.9 Gflt-t	1.6 ,0 Gft-1	I[I1	31,9 CiPH
2	6.,2130	3,,L·410	m j3 (jpM,	1£.IEI GPM	Lai	3 1,5' GPH
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Drip Equipment and Installation
A commercial Drip-Tech drip dispersal system will be used. This is a proprietary system listed with TCEQ under 30 TAC §285.33(c)(4) for use with anaerobic and aerobic drip systems. Tubing, field valves and major drip equipment are part of the Drip-Tech system. Tubing will be installed in for equal zones totaling about 25,120 :ft2.

The treated effluent will be pumped to each of the four zones via duplexing turbine pumps located in the pump tank. All effluent will pass through a commercial ACT C200S automatic flushing filter system. Included within the ACT C200S is a flowmeter for tracking discharge to the 4 zones.

NETAFIM BIOLINE WASTEWATER DRIP TUBING will be the principle product for effluent dispersal. The tubing is 0.57" (17mm) diameter tubing with 0.61 gph emitter spaced at 24" along the tubing. The tubing will be buried at a minimum of 10" to provide long term protection for the tubing and better absorption of effluent with minimal chance of surfacing.

The 4 zones will be automatically flushed about every two weeks depending on the number of zone doses that occur. Flow from each zone will return the ACT C200S to be redirected to the flow equalization tank.

There are minor elevation differences across the drip dispersal site. It is anticipated that the elevation difference between the WWTS and the drip dispersal field will be approximately 2 ft. A 2" force main and 2" return main will be installed between these two sites. The hydraulic calculations recognize that during field flush water will originate and return to approximately the same place. The positive and negative head will basically cancel leaving friction head the driving force to be overcome by the pumps. During dosing, the elevation difference will be additive to the apparent pressure head at each zone control valve.

The ACT-Commercial BDMC Drip Dispersal Controller
The commercial CBDMC operates 1-2 pumps, 1-6 zones, an auto-flush filter, a field flush valve and auto-dialer.

Typical Model Number: **CBCMC2,0-1 /4ZONES+H** One to six zone model with heater connection.

Standard Operations:
The CBDMC is used to control smaller commercial drip dispersal systems having up to six zones. The operator sets the number of zones, time per dose, and number of doses per day. Once the main parameters are set, the CBDMC will check the status of the floats to determine whether it can initiate a dose at specific intervals of time. If the low float is up at the start of a dose interval, the CBDMC will initiate a dose. A dose starts with a short filter flush followed by opening a zone valve for the set length of time. If the high duty (mid) float was up at the start of the dose, additional time (4 min default) is added to the dose time. At a set interval of days (14 default), the CBDMC will field flush each zone once. This is accomplished by going into a normal dose but opening the field flush valve for a duration of six minutes at the start of the dose. The remainder of the dosing time is finished after the field flush valve closes.

Alarms:
The CBDMC monitors the floats and will issue alarms as they appear.

High Duty Alarm: If the high duty float is up, the Alarm LED will slowly pulse. This will clear when the high duty float drops down.

Float Order Alarm: If the CBDMC detects that a float is not operating correctly due to floats not appearing in order, the CBDMC will sound and flash an alarm that can be silenced. The alarm will clear if the float pattern returns to normal. Operations continue as normal if the low float still works properly.

High Water Alarm: If the CBDMC detects the high-water float, the CBDMC will try a couple extra doses per day to remedy the situation and avoid backing up/overflowing the tanks. An alarm will sound that can be silenced when the high-water float activates. If the high-water float does not drop within 24 hours, the alarm will sound again. The CBDMC must be reset to clear the dosing alarm.

Remote Monitoring: The CBDMC can be equipped with an output that triggers an auto-dialer or some remote monitoring system when a float or high-water alaim occurs.

A full set of plans illustrating the design of the drip dispersal system and applicable details is included with this application package.

Licensed Contractor and Maintenance Provider:
MMT Ventures, LLC. will choose one or more contractors to install the wastewater treatment plant and the drip dispersal system. Eric Thomas with King Septic Services will be the installer ofrecord, license #OS0026998. Kings Septic Service win be responsible for all aspects of the installation and maintenance for the first two years.

Please direct any questions directly to me by phone, email, and letter. I will make every attempt to promptly answer the question or provide you the requested documentation.

Contact Information :

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Sincerely,

James F Prochaska, MS-PE,
Principal Engineer

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