TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 1, 2010

Mr. Cesar Trivino
La Fontana Springs LLC
27618 Natural Bridge Caverns Road
San Antonio, Texas 78266-2653

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: La Fontana Springs LLC; Located 27618 Natural Bridge Caverns Road; San Antonio, Texas
TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 57.01; Investigation No. 801588; Regulated Entity No. RN105699060

Dear Mr. Trivino:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Geological Consulting on behalf of La Fontana Springs LLC on April 23, 2010. Final review of the WPAP was completed after additional material was received on June 30, 2010. As presented to the TCEQ, the Temporary Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The above referenced WPAP is to achieve compliance for the alleged violation of constructing prior to approval of an Edwards Aquifer pollution protection plan (CCEDS Investigation No. 760548).

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 10.37 acres. The site contains approximately 1.27 acres (12 percent) existing impervious cover consisting of two buildings, sidewalks, and parking lot with associated access drive. One of the existing buildings was converted to a meeting

room/banquet room. This plan addresses the wastewater treatment from the commercial activity. An aerobic on-site sewage facility (OSSF) with associated spray irrigation system and spray fields will be utilized for wastewater treatment from the facility. According to a letter dated, January 16, 2009, signed by Robert Boyd, P.E., with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

This small business project will not have more than 20 percent impervious cover after the completion of construction. Silt Fence, Rock Berms and Straw mats, wood fiber blankets, designed using the TCEQ technical guidance document "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices" (July 2005), will be utilized as temporary BMPs during the construction activities.

GEOLOGY

According to the geologic assessment included with the application, the site is overlain with a very thin, poorly developed silty to clayey loamy type "C" soil, overlying the hard dense limestone substrate. The larger gravel sized material is generally weathered and broken limestone fragments consistent with the localized Edward's Kainer geology, dolomitic member. One man-made feature, a water well, was noted and assessed as sensitive. The San Antonio Regional Office did not conduct a site assessment.

SPECIAL CONDITIONS

I. The applicant requested a waiver to the requirement for other permanent BMPs for this small business project because the development will have less than 20 percent impervious cover. Based on the TCEQ's Review of the proposed activities and the site conditions, the required waiver is hereby granted. If the percent impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site as described in the Pollution Abatement Plan may no longer apply and the property owner must notify the San Antonio Regional Office of these changes.

II. Any OSSF system installed at the site must comply with all applicable provisions required by 30 TAC 285.40.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. One well exists on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.

14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

15. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.

19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

20. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Ms. Stacy Tanner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4078.

Sincerely,

for Mark R. Vickery, P.G.
Executive Director
Texas Commission on Environmental Quality

MRV/SMT/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

cc: Mr. Jon Gaynor, Geologic Consulting
Mr. Jim Klein, P.E., City of New Braunfels
Mr. Tom Hornseth, P.E., Comal County
Mr. Karl J. Dreher, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

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If you have any questions or require additional information, please contact Ms. Stacy Tanner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4078.

Sincerely,

Mark R. Vickery, P.G.
Executive Director
Texas Commission on Environmental Quality

MRV/SMT/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

cc: Mr. Jon Gaynor, Geologic Consulting
Mr. Jim Klein, P.E., City of New Braunfels
Mr. Tom Hornseth, P.E., Comal County
Mr. Karl J. Dreher, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 26, 2010

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: Edwards Aquifer, Comal County
PROJECT NAME: La Fontana, located at 27618 Natural Bridge Caverns Road, San Antonio, Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 57.01

Dear Mr. Hornseth:

The referenced application administratively complete on April 23, 2010, is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval.

Please forward your comments to this office by May 22, 2010.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

Lynn M. Bumguardner
Water Section Manager
San Antonio Regional Office

LMB/eg

№0057 01

La Fontana Springs Event Center
WPAP Submission

RECEIVED
APR 2 8 2010
COUNTY ENGINEER

March 24, 2010

27618 Natural Bridge Cavern Rd.
San Antonio, Texas 78266-2653

La Fontana Springs LLC.
Cesar Trivino - President

La Fontana Springs Event Center
WPAP Submission

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Temporary Stormwater Section

La Fontana Springs Event Center
WPAP Submission

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Stabilization Measures

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Appendix 6: 1"=100' Scale Detailed Site Engineering Map (A. Hays 2010)

General Information Form
For Regulated Activities on the
Edwards Aquifer Recharge and Transition Zones
and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B)
Effective June 1, 1999

REGULATED ENTITY NAME: La Fontana Springs LLC.
COUNTY: Comal STREAM BASIN: Guadalupe River Basin/ Comal\Creek

EDWARDS AQUIFER: _x_ RECHARGE ZONE
__ TRANSITION ZONE

PLAN TYPE _x_ WPAP __ AST __ EXCEPTION
__ SCS __ UST __ MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Cesar Trivino
Entity: La Fontana Springs LLC.
Mailing Address: 27618 Natural Bridge Caverns road
City, State: San Antonio, Texas Zip: 78266-2653
Telephone: 210-643-7535 FAX: 830-714-7453

Agent/Representative (If any):

Contact Person: Jon Gaynor
Entity: geological consulting
Mailing Address: 17407 Saddlebrush Tr.
City, State: Houston, Texas Zip: 77095
Telephone: 713-858-3435 FAX: 832-486-6480

2. __ This project is inside the city limits of _____.
__ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
_x_ This project is not located within any city's limits or ETJ.

3. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

29 miles NW of downtown San Antonio. 17 miles north on I35, exit 175 to FM3009 - Natural Bridge Caverns Rd., 9.3 miles NW along Fm 3009 to 27618 Natural Bridge Caverns Rd. Just south of FM 3009 and Fm 1863 (hwy 46)

4. _x_ **ATTACHMENT A - ROAD MAP**. A road map showing directions to and the location of the project site is attached at the end of this form.

5. _x_ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind this sheet. The map(s) should clearly show:
_x_ Project site.
_x_ USGS Quadrangle Name(s).

__x__ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
__x__ Drainage path from the project to the boundary of the Recharge Zone.

Attachment B is the USGS topographic map with USGS geological map overlay at 1:70,000 scale for convenience in the report. A 1"=2000'scale showing the drainage path from the subject property to the down dip limits of the Edwards outcrop is included as Appendix 5. The original USGS Edwards Aquifer Map (2005) is also attached Appendix 2 in the back of this report.

6. __x__ Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TCEQ must be able to inspect the project site or the application will be returned.**

7. __x__ **ATTACHMENT C - PROJECT DESCRIPTION**. Attached at the end of this form is a detailed narrative description of the proposed project.

8. Existing project site conditions are noted below:
__x__ Existing commercial site
__ Existing industrial site
__ Existing residential site
__x__ Existing paved and/or unpaved roads
__ Undeveloped (Cleared)
__ Undeveloped (Undisturbed/Uncleared)
__ Other: _____

PROHIBITED ACTIVITIES

9. __x__ I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:

(1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
(2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
(3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
(4) the use of sewage holding tanks as parts of organized collection systems; and
(5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

10. __x__ I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:

(1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
(2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
(3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

11. The fee for the plan(s) is based on:

_x_ For a Water Pollution Abatement Plan and Modifications, the total acreage of the site where regulated activities will occur.

___ For an Organized Sewage Collection System Plans and Modifications, the total linear footage of all collection system lines.

___ For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.

___ A Contributing Zone Plan.

_x_ A request for an exception to any substantive portion of the regulations related to the protection of water quality.

___ A request for an extension to a previously approved plan.

A request is made to the Executive Director of TCEQ for a waiver of permanent BMP's based on the pre-1974 development and the less than 20% impervious cover for a commercial property.

12. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

___ TCEQ cashier

___ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)

_x_ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

13. _x_ Submit one (1) original and three (3) copies of the completed application to the appropriate regional office for distribution by the TCEQ to the local municipality or county, groundwater conservation districts, and the TCEQ's Central Office.

14. _x_ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the executive director.

___ No person shall commence any regulated activity until the Contributing Zone Plan for the activity has been filed with the executive director.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **GENERAL INFORMATION FORM** is hereby submitted for TCEQ review. The application was prepared by:

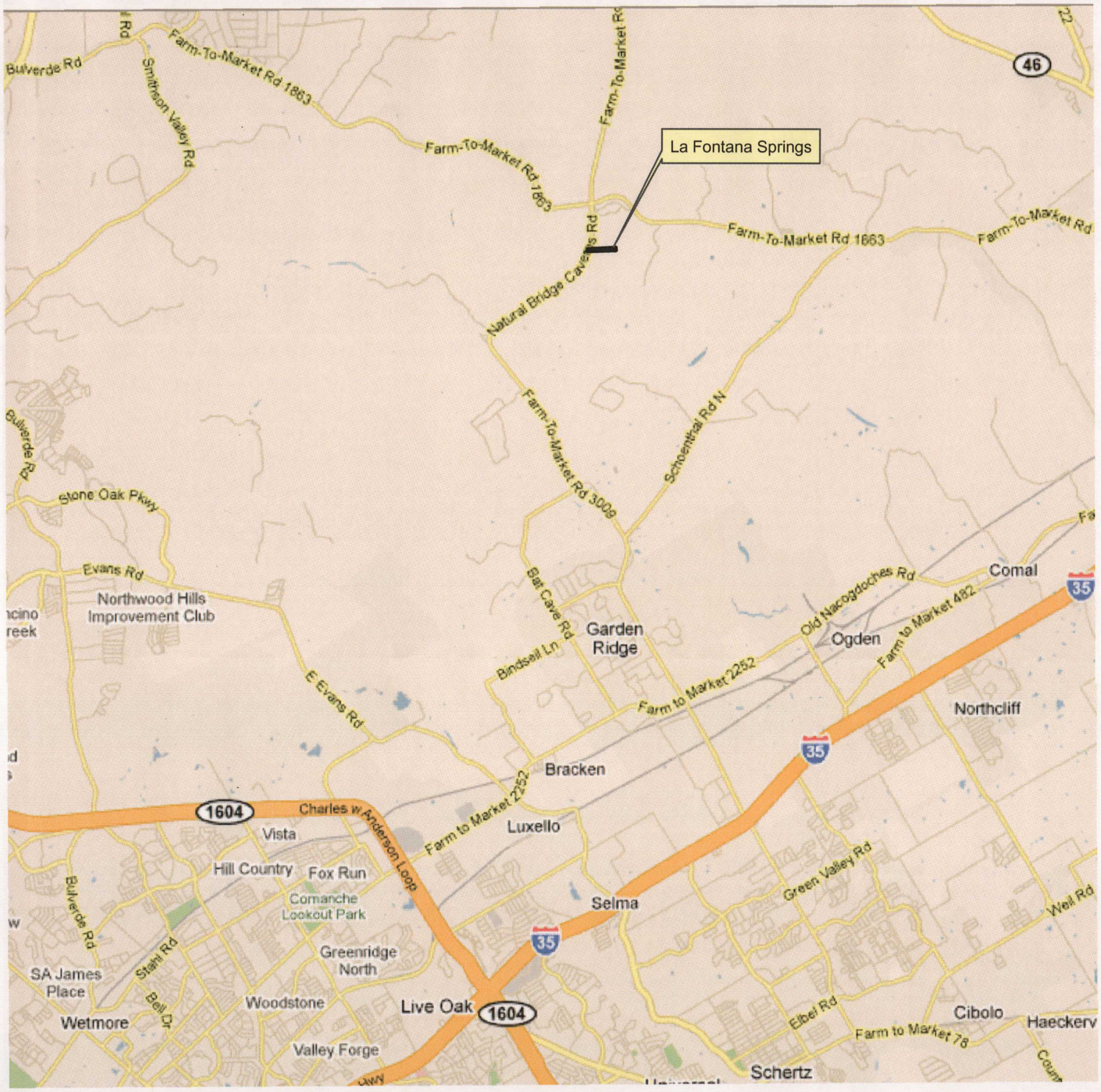
Jon Gaynor
Print Name of Customer/Agent

Signature of Customer/Agent

03/24/2010
Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

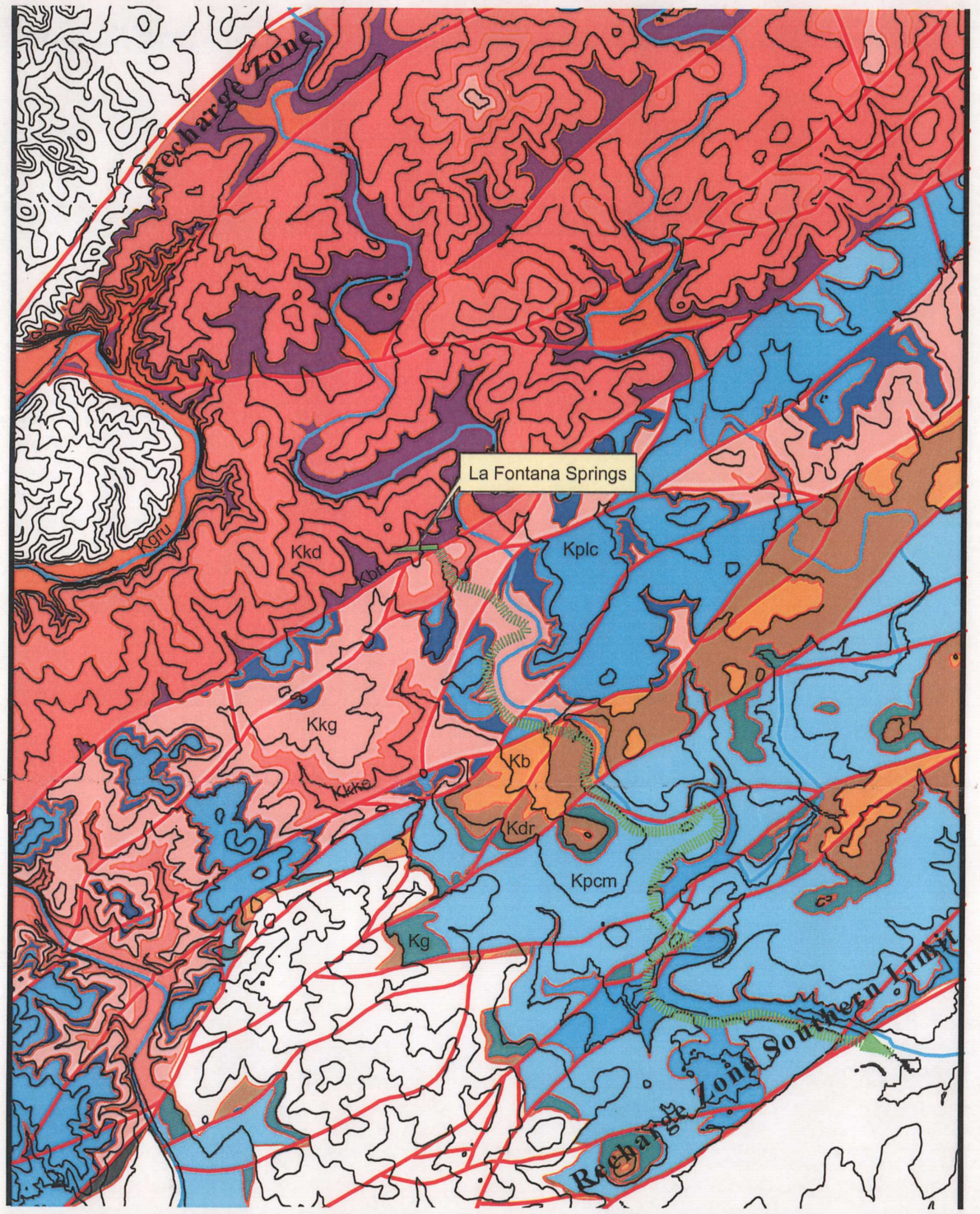


0 5,000 10,000 20,000 Feet

1:100,000

Attachment A: Road Map of the La Fontana Springs Event Center, Comal County, Texas.

Geo_Site_Google_Road2.mxd



N

0 5,000 10,000 20,000 Feet

1:70,000

Contour Interval = 50 feet

Legend

- Drainage Pattern
- Contour
- Property Boundary
- Fault

Geology

- Ku
- Knt
- Kef
- Kb
- Kdr
- Kg
- Kpcm
- Kplc
- Kprd
- Kkg
- Kkke
- Kkd
- Kkbn
- Kgru

Attachment B: Edwards Recharge Zone Map w/ Topographic Contours and Drainage Pattern Shown

(After Blome et. al. 2005, USGS, SI Map 2873)

see Appendix 5 for 1":2000'SCALE

Geo_Site_Geology2.mxd

La Fontana Springs Event Center
General Information

Attachment C

Project Description

The subject property lies outside the Garden Ridge City limits, but within Comal County, Texas and within the Edwards aquifer recharge zone. The property is located at 27618 Natural Bridge Caverns road, San Antonio, Texas 78266, and is operated as La Fontana Springs LLC., a commercial property, used as a banquet hall that provides services for weddings, birthdays, retirements and similar social events. The Event center, other than routine maintenance and cleaning, is only used on the weekends or Holidays to host celebrations. The usage averages of six days per month with an occupancy of 160 persons per event, which lasts for approximately 3-5 hours.

The property is 10.369 acres within the Edwards Norton Survey No. 760, Abstract No. 439 of Comal County, Texas. The property was conveyed to Cesar Trivino, on January 22, 2006, and La Fontana Springs LLC. was formed. At the time of purchase, the existing site had been developed for both commercial and residential uses. The existing development included a flat parking area, a steel building for deer blind manufacturing, a residence building, a second steel warehouse building, a water well /pump house and propane tank, and a conventional gravity feed septic system. This existing development was begun in 1973 in advance of the Edwards Aquifer regulations with installation of the residence, septic, driveways and parking area. Documentation of this is found on the following page *Statement of Ownership and Location* on record with Comal County. The exact timing of the subsequent expansion of impervious cover is difficult to precisely define, believed to be episodic over many years, but is being pursued by Mr. Trivino.

Following purchase by Mr. Trivino, reconstruction on the commercial steel building began in April 2007. The original steel commercial building was torn down and the banquet hall was built on top of the existing concrete slab. No extension to the impervious cover was added during this construction, as the existing foundation was not changed. As part of the banquet hall construction, an upgrade was done to the conventional OSSF into a modern aerobic system. Permits were applied for and technically approved by the Comal County Engineer. The approval was subordinate to approval by TCEQ. However, due to a lack of familiarity with the governing rules of the Edwards Aquifer recharge program, and that there was no increase to imperious cover, a WPAP was not sought when the conventional gravity drainage septic system was by-passed and the new aerobic septic was installed.
A settlement was made With TCEQ for an administrative order and a voluntary SEP was funded. This scope of work is the subject of the current WPAP application.

Proposed additional development for this site includes: 1) an increase in the capacity of the aerobic OSSF system, 2) moving the OSSF spray heads to a more optimum location, 3) slight increase in impervious cover for a meeting room, and 4) temporary stormwater BMP's during septic tank construction. There are no changes to grade and total construction area is limited to activity to installing the upgraded Aerobic septic tank and spray heads.

A waiver of permanent BMP requirements is requested from the Executive Director of TCEQ. A calculation of total impervious cover to pervious, undisturbed acreage, for the entire 10.369 acres results in a 12% ratio, well under the TCEQ guideline of 20%. The 1.27 total acres of impervious cover includes the proposed additional roof cover. No additional impervious cover is planned and therefore no additional sources of TSS are expected. This calculation of disturbed area treats the property as the development is new, when in actuality; the majority pre-dates the 1974 Edwards Aquifer rules. (See Statement of Ownership next page). The subject property has been developed in a responsible manner and the current owner has made enhancements to pervious cover to capture TSS. The current construction plan increased impervious cover less than 4% of the total 1.27 developed acres, or 0.4% of the total subject property. The stormwater runoff from the impervious covered area (driveways, parking area, roof cover, etc) almost exclusively drains to three large vegetated filter strips and to a landscaped area which all surround these developed structures. Numerous improvements are in place to reduce stormwater velocity and therefore erosion, and distribute TSS load to the vegetated areas.

A waiver is requested for the permanent storm water runoff BMP's due to the pre-1974 construction and the low imperious cover (12%) overall.

Doc# 200606035696

Texas Department of Housing and Community Affairs, Manufactured Housing Division

STATEMENT OF OWNERSHIP AND LOCATION

4 T 6

New Braunfels Title Co. G.F. # 73218ES

On January 1st of each year, a tax lien comes into existence on a manufactured home in favor of each taxing unit in the jurisdiction where the home is actually located on January 1st. In order to be enforced, any such lien must be recorded with the Manufactured Housing Division as provided by law. You may check our records through our website or contact us to learn of any recorded tax liens. To find out about the amount of any unpaid tax liabilities for a particular year, contact the tax office for the county where the home was actually located on January 1st of that year.

Certified Copy of Original Statement of Ownership and Location

Date Issued: 08/16/2006 Certificate Number: MH0176550

Manufacturer	Label/Seal No	Serial No	Weight	Size
REMBRANDT	TXS0595800	B30308	14200	14.0 X 60.0

Model	Date of Manufacture	Total Sq. Feet	Wind Zone	County Where Installed
REMBRANDT	08/09/1973	840	I	COMAL

The Owner(s) have elected to declare the manufactured home at

27618 NATURAL BRIDGE CAVERNS
SAN ANTONIO, TX 78266 as:

REAL PROPERTY

The home owner(s) have certified to the department that they own the real property on which the manufactured home is situated or that they hold a qualifying long-term lease.

This home will not be considered real property until, 1) this instrument has been filed in the real property records of the county in which the manufactured home is located, 2) a copy stamped "filed or recorded" provided to the Department, and 3) notification of the same provided to the County Appraisal District.

The owner has elected to treat the home or reserve it for this purpose and that the department no longer considers the home to be a manufactured home for the purposes of regulation under chapter 1201.216(a) of the Occupations Code.

LEGAL DESCRIPTION: SEE ATTACHED EXHIBIT "A"

Owner of Record

CESAR TRIVINO
LUIS G. TRIVINO
16235 MINER'S GAP
SAN ANTONIO, TX 78247-1142

Owner(s) must sign S.O.L. immediately upon receipt.

Cesar Trivino & Luis G. Trivino
Signature

By New Braunfels Title POA
Signature

This is a Certified Copy of the information recorded on the original Statement of Ownership and Location (SOL) issued by the Manufactured Housing Division (MHD) on the date indicated. Though the owner's signature on the Application for SOL is kept on file with MHD, the original SOL that MHD issues is not signed by the owner because it remains in MHD files, as mandated by statute. Though the signature appears on neither the original SOL nor this certified copy, this document is in recordable form "as is."

Seller

SHEILA STUMAN
27618 NATURAL BRIDGE CAVERNS
SAN ANTONIO, TX 78266

Right of Survivorship: No

Lien(s) *The following liens, charges, or other encumbrances are reflected as having been created affecting the manufactured home.*

NO LIEN

NO LIEN

Rose Bertrand
ROSE BERTRAND

Timothy K. Irvine, Executive Director or his duly authorized designee.

This instrument was acknowledged before me this 16th *day of* August, 2006

DIANE L. ROBINSON
Notary Public, State of Texas
My Commission Expires
MARCH 03, 2008

Diane L. Robinson
Signature of Notary

Notary without Bond

Third Party Copy

Geologic Assessment
For Regulated Activities
on The Edwards Aquifer Recharge/transition Zones
and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

REGULATED ENTITY NAME: La Fontana Springs LLC

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: _X_ Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. _X_ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**.

2. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (*Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A*, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Silt loam to loam	C	1/2"-4"

* Soil Group Definitions (Abbreviated)

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

3. _X_ A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.

4. _X_ A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.

5. _X_ Appropriate **SITE GEOLOGIC MAP(S)** are attached:

The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1" : 400'

Applicant's Site Plan Scale 1" = 333 '
Site Geologic Map Scale 1" = 333 '
Site Soils Map Scale (if more than 1 soil type) 1" = NA '
There is only one soil type therefore a soil map is not submitted
Engineering Site Plan 1" = 333 '
A detailed 1'=100' Engineering drawing is attached as Appendix 6.

There is only one soil type therefore a soil map is not submitted

6. Method of collecting positional data:
   X Global Positioning System (GPS) technology.
   __ Other method(s).

7. X The project site is shown and labeled on the Site Geologic Map.

8. X Surface geologic units are shown and labeled on the Site Geologic Map.

9. X Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
   __ Geologic or manmade features were not discovered on the project site during the field investigation.

10. X The Recharge Zone boundary is shown and labeled, if appropriate.

11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):

   X There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
   __ The wells are not in use and have been properly abandoned.
   __ The wells are not in use and will be properly abandoned.
   X The wells are in use and comply with 16 TAC Chapter 76.
   __ There are no wells or test holes of any kind known to exist on the project site.

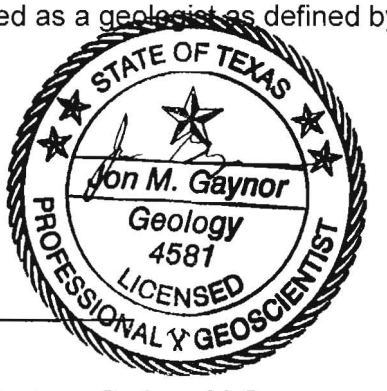
ADMINISTRATIVE INFORMATION

12. X One (1) original and three (3) copies of the completed assessment has been provided.

Date(s) Geologic Assessment was performed: Sept 12-13, 2009 and Feb 27, 2010 Date(s)

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Jon Gaynor
Print Name of Geologist



713-858-3435
Telephone

832-486-6480
Fax

Signature of Geologist

3-24-2010
Date

Representing: La Fontana Springs LLC.
(Name of Company)

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

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La Fontana Springs Event Center

Geological Assessment

TCEQ 0585 Table - Road Map of the Project Site

GEOLOGIC ASSESSMENT TABLE — **PROJECT NAME:**

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
53	29-42-28.13N	98-18-25.61 W	CD	19	Kw	0.8	0.5	0.8	-	-	-	-	o	10	29	X		x		hilltop*
8	29-42-27.60N	98-18-19.52 W	F	20	Kw	-	-	-	N65E		-	-		10	30	X		x		hilltop*

* Column 12 - hilltop is the most appropraite category for features #53 and #8 which is situated on a very gently dipping strata well above 100 year flood plain

Feature #53 is soil floored but does not have karst characteristics. May be related to tree root disturbance.

Feature #8 is an obscured portion of the mapped Bat Cave fault (Newcomb, Abbott, Collins) with no clear evidence of offset or infilitration.

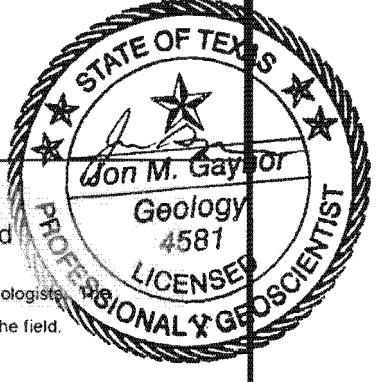
* DATUM WGS84

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed



I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date 3/24/10

Sheet 1 of 1

TCEQ-0585-Table (Rev. 10-01-04)

La Fontana Springs Event Center
Geological Assessment

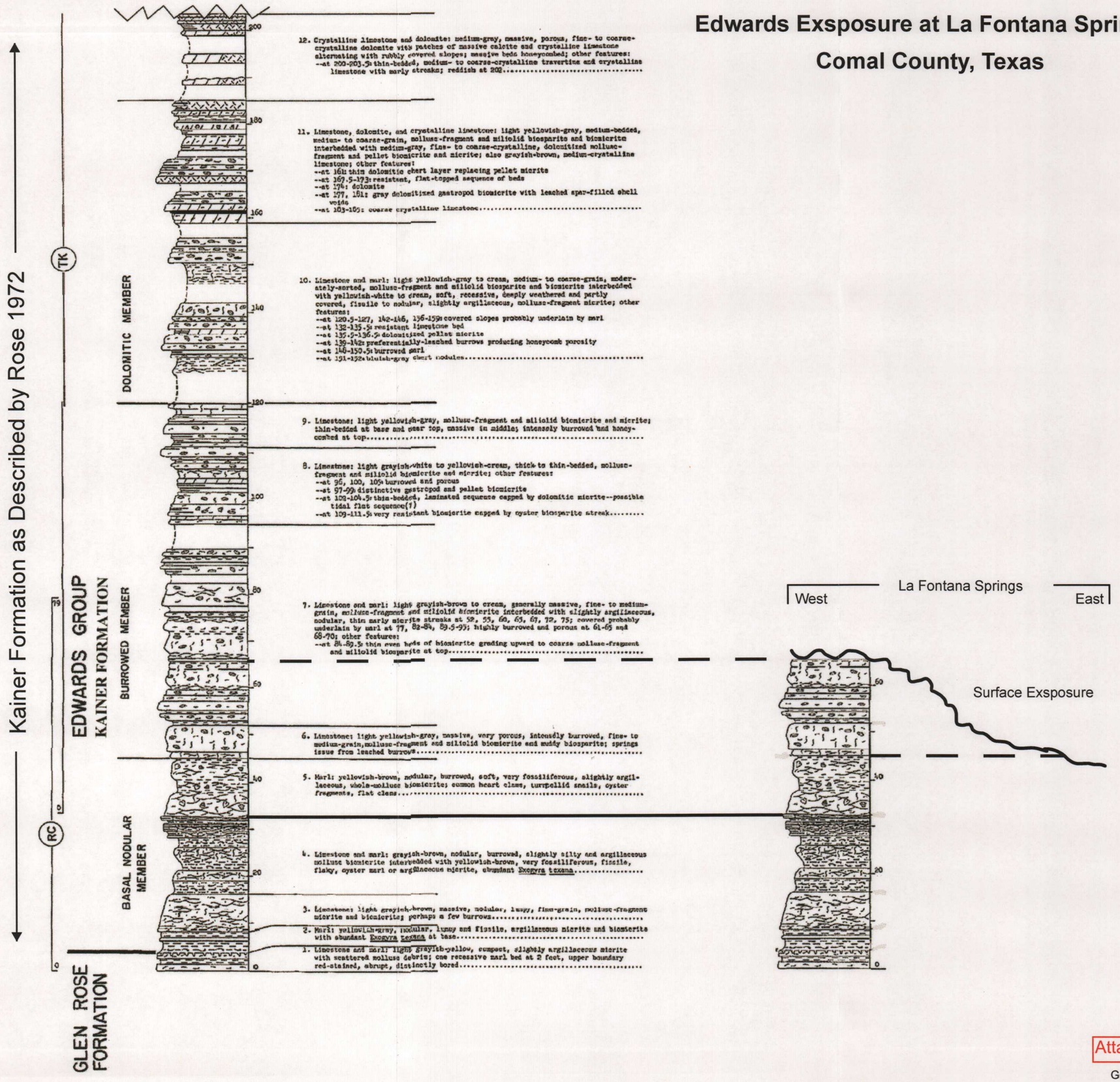
Attachment B

Soil Units

A single oil type is apparent at La Fontana Springs Event center and is very limited in thickness and character. The soil present is a poorly developed silty–clayey loam type "C" soil typically overlying hard carbonate rock of the Kainer Fm. The soil varies from absent to 1' thick with an average of 0.5" - 4" typically. Quaternary alluvium is preserved in some local topographic lows and varies to a few feet thick.

Due to the single soil type observed, a soil horizon map is not presented. Additional Detail can be found in the Geological Assessment.

Edwards Exsposure at La Fontana Springs
Comal County, Texas



Attachment C

Geo_Site_Strat_Col.mxd

Geological Assessment -La Fontana Springs LLC, Comal County Texas

Overview

A geological assessment as part of a WPAP for TCEQ was requested by the property owners of La Fontana Springs LLC. (LFS). The evaluation began as a preliminary site location via GIS systems and the location spotted on existing USGS geological and topographic maps. A literature search was conducted for all relevant Edwards Aquifer publications, which are listed in the bibliographic references section of this report. A field geological survey was conducted during two initial separate field visits, September 12-13, 2009. The first field visit was conducted following heavy rainfall, which allowed firsthand observations of drainage and runoff patterns. The follow-up visit allowed detailed investigation of earlier field observations. One sensitive feature was identified in the undisturbed part of the property. A visit was conducted on February 27, 2010 to investigate the infiltration potential of the identified sensitive feature.

Scope of Work

A general field assessment was performed which included a surface geological survey of the entire 10.369 acres, but emphasized the developed area (~2 acres) as a critical portion of the WPAP aquifer assessment. Arial photographs, USGS geological maps and topographic maps were used in conjunction with GPS locating to conduct a thorough surface survey. A series of 50 foot transects were defined All GPS work was performed applying the WGS84 datum and all supporting published maps and figures are all georeferenced to that datum. Table 1 summarizes the GPS way point locations recorded during the survey. Site map, Figure 1, illustrates the La Fontana Springs property boundaries, man made structures and the GPS way points.

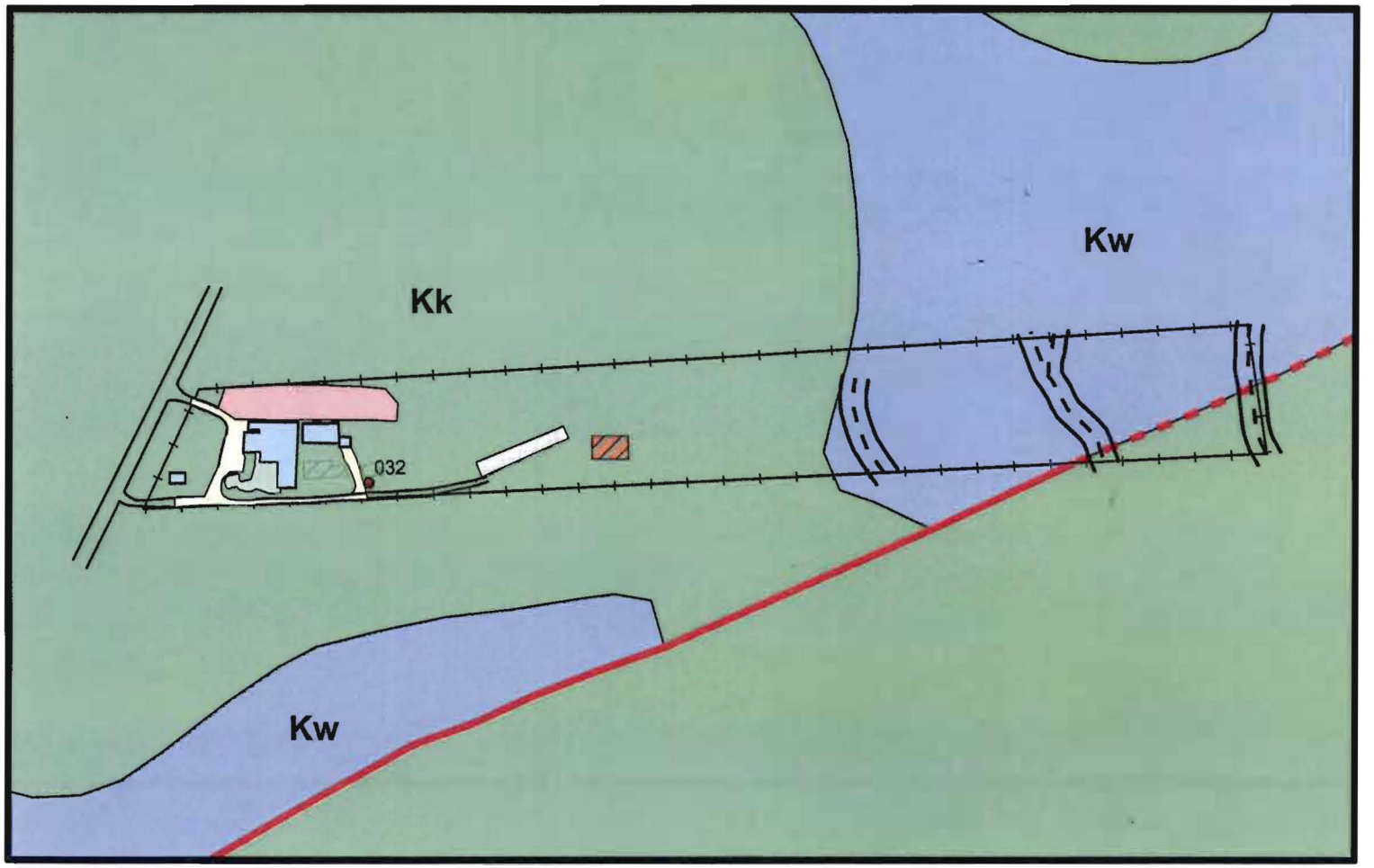
Soils Attachment:

The soil profile, as described in Attachment B, is a very thin, poorly developed silty to clayey loamy type "C" soil, overlying the hard dense limestone substrate. The soil ranges from zero to 4" thick. Rare, discrete, localized topographic lows have 0.5' to 1' of silty, sandy to gravely modern Quaternary alluvium characterized as rainfall runoff deposits. The larger gravel sized material is generally weathered and broken limestone fragments consistent with the localized Edward's Kainer geology, dolomitic member.

The soil cover varies from very thin to absent in the western portion of the property, the developed portion, to a loamy, silty-clayey humus-rich soil that varies from 0.5"-4" thick in the eastern 2/3 of the property, which is undisturbed and in native state. This eastern portion of the property has abundant native tree cover, composed largely of Juniper (juniperus ashei) and several species of Oaks, the most common being live oak (quercus virginiana). These native trees, minor grass cover and cacti have preferentially grown in the lower Kainer formation, Walnut (nodular member) throughout the region. This vegetative trend mimics the outcrop of the Walnut member, which can be seen on Figure 2, indicating a correlation between the outcrop geology and the vegetative cover.

Table 1
GPS waypoints La Fontana Springs Survey

Station	WGS-84 (Deg, Min, Sec.) Lat	Long
2	29-42-28.98N	98-18-39.14W
3	29-42-27.16N	98-18-39.90W
4	29-42-27.58N	98-18-39.77W
5	29-42-28.05N	98-18-39.56W
6	29-42-28.41N	98-18-39.29W
7	29-42-28.65N	98-18-34.80W
8	29-42-27.60N	98-18-19.52W
9	29-42-27.65N	98-18-15.97W
10	29-42-28.08N	98-18-16.17W
11	29-42-28.63N	98-18-16.24W
12	29-42-29.28N	98-18-16.35W
13	29-42-29.88N	98-18-16.34W
14	29-42-30.08N	98-18-16.36W
15	29-42-29.81N	98-18-17.61W
16	29-42-29.18N	98-18-19.22W
17	29-42-29.30N	98-18-20.22W
18	29-42-29.15N	98-18-20.69W
19	29-42-28.99N	98-18-23.03W
20	29-42-29.15N	98-18-24.69W
21	29-42-28.14N	98-18-26.72W
22	29-42-29.05N	98-18-28.46W
23	29-42-27.65N	98-18-28.83W
24	29-42-28.97N	98-18-30.50W
25	29-42-28.77N	98-18-33.35W
26	29-42-28.85N	98-18-35.50W
27	29-42-28.32N	98-18-36.13W
28	29-42-28.30N	98-18-37.14W
29	29-42-28.30N	98-18-37.83W
30	29-42-26.88N	98-18-37.36W
31	29-42-26.96N	98-18-36.76W
32	29-42-27.19N	98-18-35.44W
33	29-42-27.53N	98-18-35.62W
34	29-42-27.61N	98-18-35.19W
35	29-42-27.31N	98-18-34.54W
36	29-42-27.20N	98-18-33.94W
37	29-42-27.36N	98-18-33.70W
38	29-43-16.32N	98-10-42.28W
39	29-43-01.21N	98-18-35.89W
40	29-42-40.72N	98-18-34.95W
41	29-42-29.26N	98-18-17.04W
42	29-42-29.00N	98-18-18.38W
43	29-42-28.62N	98-18-19.50W
44	29-42-28.76N	98-18-20.43W
45	29-42-28.12N	98-18-21.08W
46	29-42-28.71N	98-18-21.69W
47	29-42-27.96N	98-18-21.75W
48	29-42-28.46N	98-18-23.33W
49	29-42-28.35N	98-18-23.94W
50	29-42-28.49N	98-18-24.88W
51	29-42-29.20N	98-18-26.75W
52	29-42-27.76N	98-18-27.81W
53	29-42-28.13N	98-18-25.61W
54	29-42-27.95N	98-18-24.69W
55	29-42-28.09N	98-18-22.92W
56	29-42-27.72N	98-18-22.45W
57	29-42-28.06N	98-18-19.75W
58	29-42-27.42N	98-18-20.91W
59	29-42-28.55N	98-18-20.32W
60	29-42-28.91N	98-18-20.51W
61	29-42-29.70N	98-18-20.60W
62	29-42-27.27N	98-18-26.67W
63	29-42-27.56N	98-18-33.11W
64	29-42-27.19N	98-18-33.31W
65	29-42-28.02N	98-18-31.33W
66	29-42-28.27N	98-18-31.31W
67	29-42-27.43N	98-18-35.96W
68	29-42-28.72N	98-18-36.15W
69	29-43-16.44N	98-10-40.42W



0 245 490 980 Feet

1:4,000

Legend

- 032 - Septic Tank Location
- Proposed Spray Head Area
- Vegetated Filter Strip

Areas

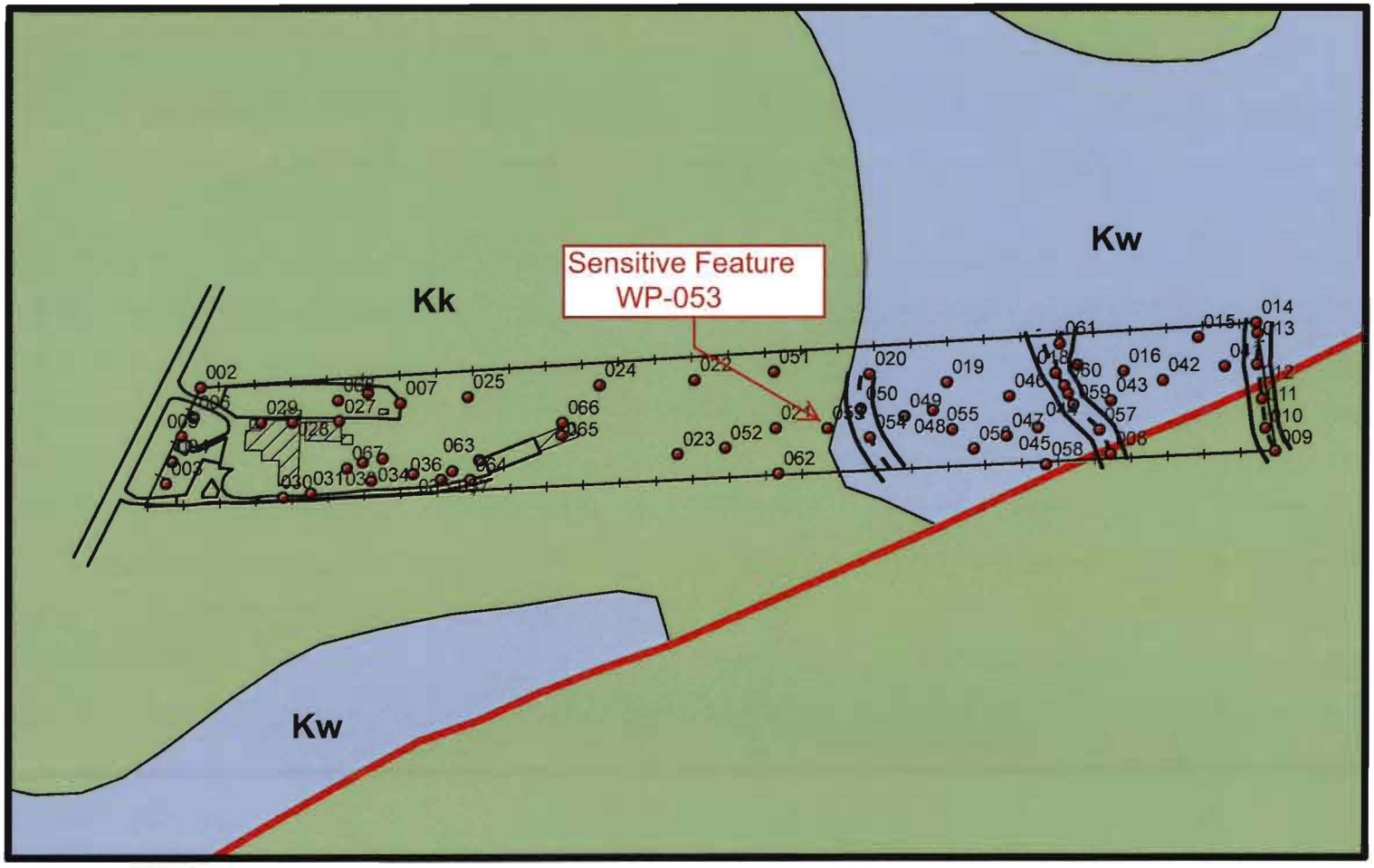
- Area A - Paving
- Area B - Roof Tops
- Area C - Parking Gravel
- Area D - Landscaped
- Area E - Roof Top
- Properly Boundary
- Kk Kainer Formation
- Kw Kainer/Walnut (No Data Member)

Fault Type

- Obscured
- Observed
- Flow Ways Drainage

Figure 1: Surface Geology & Area Calculations at La Fontana Springs, Comal Co.

Geo_Site_Area_Calc.mxd



Surface Gology & Survey Waypoints at La Fontana Springs, Comal Co.

Figure 2 - Geology Overlay and Way Points - La Fontana Springs

0 225 450 900 Feet

1:4,000

Legend

- Property Boundary
- Geo_Outline

Faults

- As Mapped
- Inferred

Geology

- Qal
- Qt
- Kk
- Kw

Satellite Image of the La Fontana Springs Area w/ Geologic Map Overlay

(Geology after Collins 2000) Image - June 28, 2005

Figure 3

Geo_Site_Sat_Image.mxd

La Fontana Springs Event Center
Geological Assessment

Site Geology

Supporting Figures for the geological assessment:

Attachment A - Location road map indicating La Fontana Springs (LFS) property
Attachment B- The regional USGS Edwards geological map with LFS location
Attachment C – Stratigraphic Column – representative of LFS geology
Figure 1- Existing Development and Impervious Cover at LFS
Figure 2- The site survey map of LFS with waypoints
Table 1 – GPS waypoint coordinates
Figure 3 – Satellite map with overlay of geological outcrops as seen at LFS
Figure 4 - The USGS topographic contours with the LFS location
Figure 5 – FEMA Flood Plain map with LFS plotted
Figure 6- A composite map of the USGS geology with the recorded survey man-made structures and the GPS way point survey
Appendix 1 – 1:100,000 Scale geological map of New Braunfels, Collins 2000
Appendix 2 – 1:200,000 Scale Geological Map of the Edwards, Blome 2005
Appendix 3 – 1:1000 Scale Firm map, Comal Co. FEMA, 2006
Appendix 4 – 7.5 Minute Topographic Map, Bat Cave Quadrangle, Texas, USGS 1988

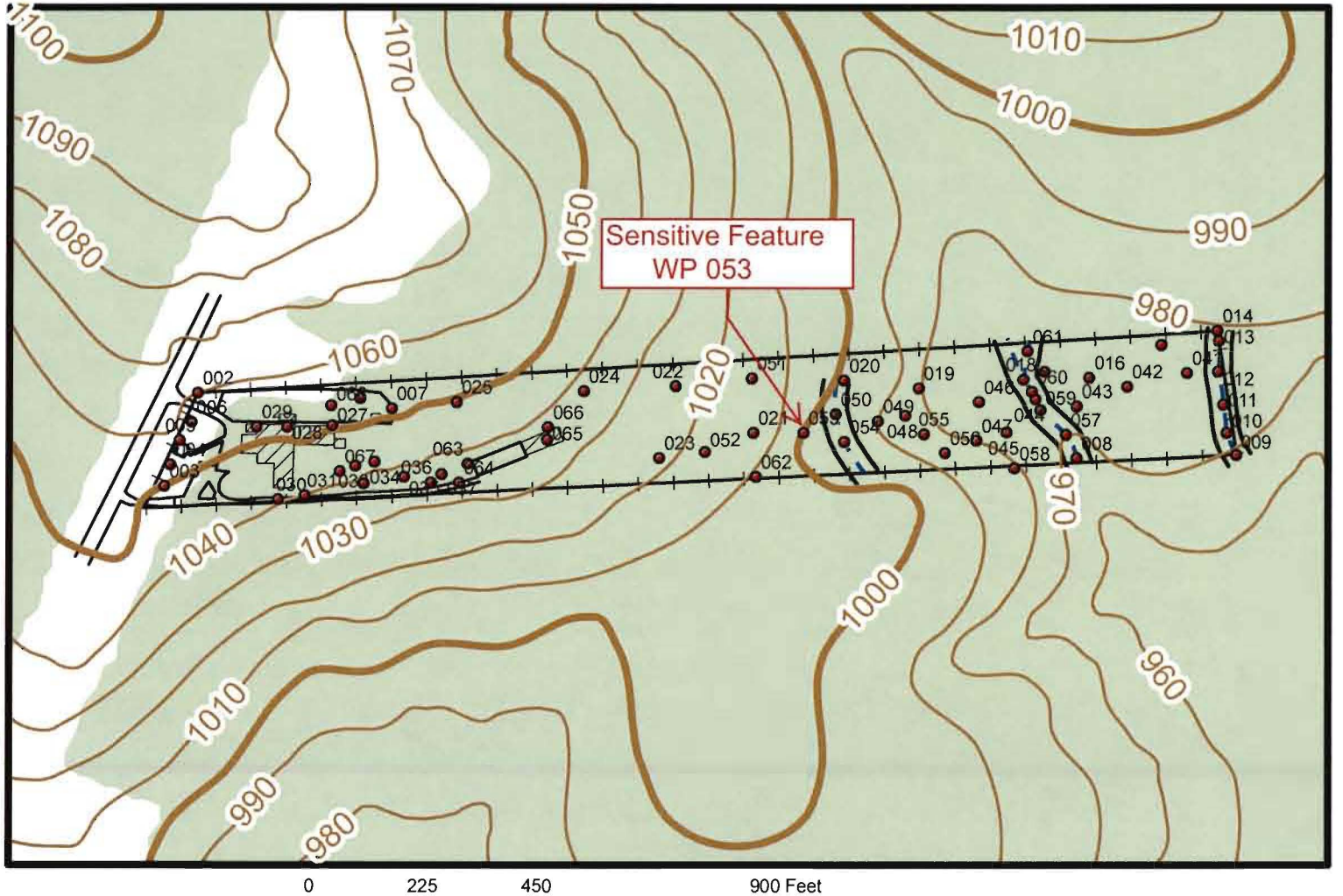
The LFS property is a developed property with numerous manmade structures as shown in Figure 1. The property was surveyed for geologically sensitive features by walking transects of approximately 50' from East to West. These transect points are shown along the eastern and western most boundary lines on Figure 2. Approximately 40 GPS waypoints were recorded and digital photographs taken of representative geological outcrops. The surface geology of the LFS property is entirely within the Kainer formation, a lower member of the Edwards as shown in the stratigraphic column (Attachment C). The lower bounding unit to the Kainer, the Glen Rose, is not exposed within the subject property; the nearest exposure is in the downcut portion of the creek ½ mile east of the property and ~ 2 miles west in Cibolo Creek. The entire property is within the Edwards recharge zone as defined by the USGS Edwards Aquifer map (Attachment B).

Structure:

The LFS property is part of the San Marcos Platform within the Balcones fault zone. The local geology has SE structural dips ~ 1-2 ^{0}. The property sits slightly downdip of the topographic high along Natural Bridge Caverns road (#3009) as defined by the satellite imagery in Figure 3 and the topographic contours on Attachment B and detailed in Figure 4. The western portion of the property is developed with numerous man-made structures as show in Figure 1, covering the surface outcrops with gravel driveways and buildings. Nearby undisturbed outcrop, found along the NW boundary adjacent to waypoints 002, 068 and 026 indicate very shallow structural dip to the SE. The surface geology, grey color, smooth weathering habit, and chemical field tests are consistent with the Kainer formation, Dolomitic member. No obvious faults are evidenced in this area. A careful review of accessible outcrop failed to identify any sensitive features in the developed portion of the LFS property. The entire 10.369 acres of LFS lies outside the 100 year flood plain as shown in the FIRM map as Zone "X" which has a < 0.2% annual chance of flood (see Figure 5).

A distinct boundary is evident in the eastern half of the 10+ acre property. This boundary is evidenced by a change in weathering pattern- weathering karren surfaces, buff color change and heavy vegetative

cover, which can be seen in Figure 6 and compared with Figure 3. The boundary runs ~ N-S and is located just east of Waypoint 062. Field identification correlates this to exposure of the Kainer, Walnut (Nodular member). This observation is consistent with the USGS geological map of Blome (2005), Attachment B.



1:4,000

Contour Interval 10 Feet

Legend

- Waypoints

Contours

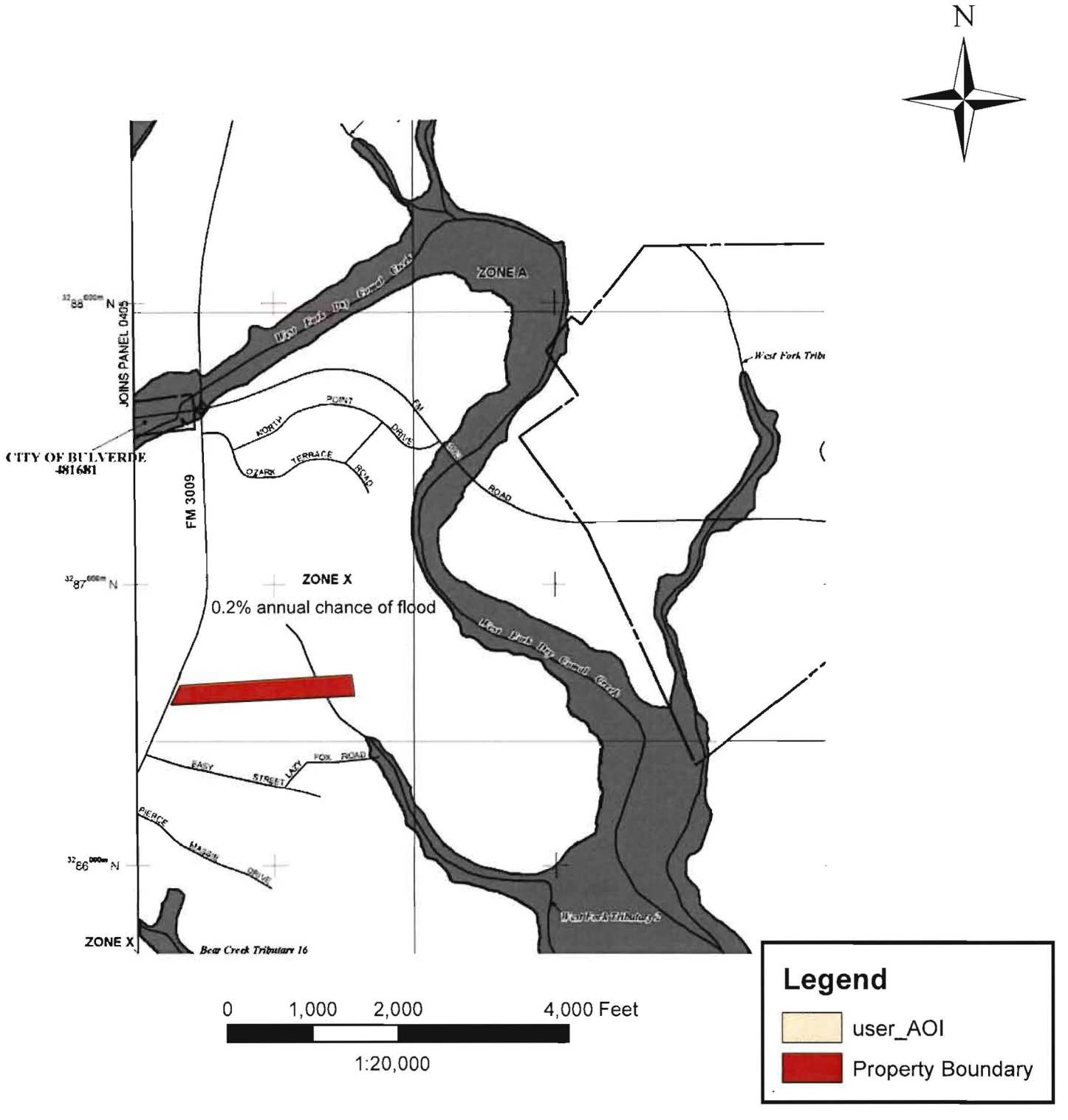
- Major
- Minor
- Surface Water Flow Way
- Man Made Structure
- Property Boundary

Topographic Map of the La Fontana Springs Property

(Source: USGS Bat Cave 7 1/2' Quad. Dated - 1988)

Figure 4

Geo_Site_Topo.mxd



100 Year Flood Map, La Fontana Springs, Comal Co.

From: FEMA Flood Insurance Rate Map, Dated March 10, 2006

Figure 5

Geo_Site_Flood_Plain_cropped.mxd

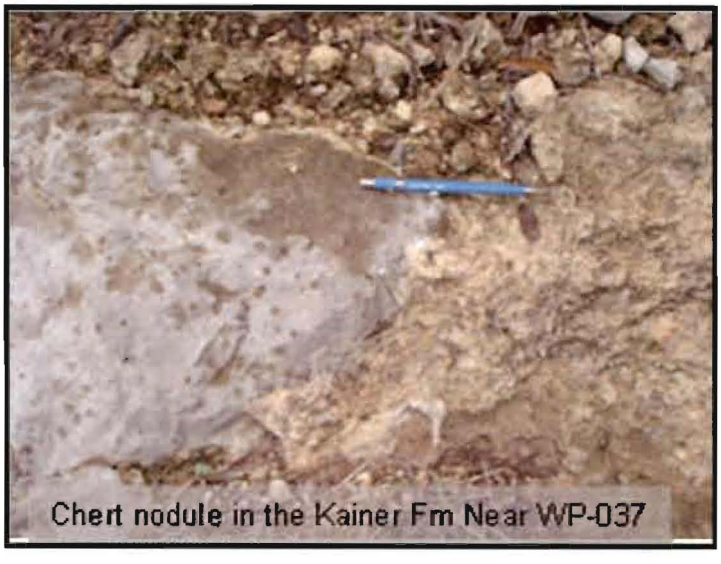
Three distinct surface water runoff conduits are evident on this property. These "flow ways" are characterized by N-S trending; very slight local topographic troughs, bedrock floored, which move runoff rain water from north to south across the subject property. The topographic high position of LFS, discussed earlier, does not drain a significant updip catchment area. There is no evidence of any preferential percolation or conduit into the subsurface along these features. The three "flow ways" are indicated in Figures 1 and 2, as dashed lines. During the field visits, evidence of the recent rains showed the "flow ways" had been carrying varying amounts of soil material; from below average to above average compared with the sheetflow runoff on the property. These "flow ways" are carrying runoff water from the adjacent property north of LFS to the properties south. A cursory inspection of the northerly property, the source of the runoff, indicated no nearby manmade structures or sources of potential water contamination. The following photos are representative of the "flow ways" seen at LFS.

The geological map (Attachment B and Figure 2) indicate a Balcones related NE-SW trending fault crossing the SW-most corner of the subject property, is described as the Bat Cave fault, as mapped by Newcomb 1967 and Abbott 1973 and trends N65^{0}E. This fault is not an obvious feature at LFS lacking scarp offset, changes in drainage or vegetation patterns. However, the surface topography on the adjacent property directly south of the SE corner of LFS does show increased relief in the overlying stratigraphic members of the middle and upper Kainer. These units were not strictly mapped as part of this project (Attachment B and Appendix 2). Water table elevations as published by Petitt and George (1956) suggests hydrologic isolation across the fault due to different water levels on opposite sides of

the fault. The fault is listed a feature in form 585 table, but does not appear to have any conduit characteristics.

Stratigraphy:
The section exposed in outcrop at LFS is wholly within the lower part of the Kainer formation. There appears to be a geological contact separating the western portion (developed) from the larger eastern portion (undisturbed). The western portion is characteristic of a thinned lower Kainer dolomitic member and the eastern portion is characteristic of the underlying Walnut (nodular member) as described by Rose (1972). The stratigraphically higher portions of the Kainer, the Grainstone and Kirschberg evaporate members are not present at the subject location. Blome et. al. (2005) and Collins (2000) have compiled the geology of the Comal County area (Attachment B and Appendices 1 and 2), which has been confirmed in the field and is consistent with the outcrops seen at LFS.

The dolomitic member is composed of light gray weathered mudstone, limestone, marl with rare grainstone, finely crystalline with chert. The unit is described in the literature as deposited in supratidal to intertidal environments. The sedimentologic features, bedding thickness, presence of thin-bedded wavy algal-type bedding, and fossil debris, all support this environment of deposition. It is considered to be a non-fabric selective hydrostratigraphic porosity system for enhanced permeability and porosity. Cavern development in this member typically forms along fracture and fault trends, but these enhanced permeability features are not evident at the LFS property. The Kainer at LFS appears to be the approximately 20 -40' thick basal-most portion, based on the proximity to the underlying Walnut - nodular member described below. Much of the outcrop is obscured by the flat lying nature of the unit, the flat topographic setting of the subject property and man made cover.


Chert nodule in the Kainer Fm Near WP-037

The basal nodular member is a fine-grained, nodular limestone, grading from mudstone to wackestone with some minor grainstones, with limited interparticle porosity and limited permeability. The unit is characterized by gray mudstone, with nodular gray mudstone. A distinct change in heavy native tree cover and a change in weathering pattern (karren) is evidence of the change in surface geology. The nodular unit is considered to be the basal unit of the Kainer and suggestive that the entire Edwards in this area is on the order of 200' thick and sits on the Glen Rose. These observations are consistent with

mapping of Rose 1972 and Abbott 1973. Regionally, the nodular member has some non-fabric selective porosity and permeability enhancements. The Bat Caves and Natural Bridge Caverns are developed in this unit near Cibolo Creek and the Dry Comal Creek, and extend into the Glen Rose, as shown on Attachment B and Appendix 2.

Sensitive Feature

One possibly sensitive feature was identified during the geological assessment on Figure 2 at waypoint 053 in the Walnut (nodular member). This area is heavily treed and the feature identified is at the base of a tree. The feature is very small, approximately 12"x 6" x 8" deep, soil floored, but shows no evidence of karst texture, brecciation, collapse or secondary mineralization. Even though observed during a light rain, there was no evidence of water percolation; the feature is on a very slight topographic high (~2 ft) above the surrounding area. Due to the nearby topographic relief, the localized drainage area around this feature is very small, a few square yards. The feature may be tree-root related and not indicative of a karst or fracture genesis. Further, the stratigraphic position within the Nodular member of the Kainer suggests very limited Edwards thickness beneath this horizon before encountering the underlying Glen Rose formation. Fluid migration, if any would likely be along subsurface bedding until encountering the southerly mapped fault, Bat Cave, already described.

The attached photos document the sensitive feature at waypoint 053.

A follow-up investigation of this feature was conducted on February 27, 2010. Approximately 10 gallons of fresh, potable water was poured into the feature to determine an empirical connectedness to the subsurface. Table 2 below summarizes the findings of these infiltration rate tests. The feature absorbed the water variably over time, but at a higher rate than the nearby Walnut suggesting some degree of infiltration to the subsurface.

Table 2 - Empirical Percolation Test

Infiltration Test Gallons	Total Gallons	Time (min)
3	3	2
1	4	4
1	5	6
1	6	9
1	7	3
1	8	3.5
2	10	10.5
Total	10	3.8 min/gal average

Evaluation of Excavated Material: OSSF

An aerobic OSSF was installed prior to the geological assessment. The available excavated material was examined during the geological assessment. The examined material, which the septic tank is set into, is the Kainer formation, dolomitic member. The material is blocky in nature with little to no fabric-specific porosity or discernable permeability. Small (~0.5- 1cm) isolated solution enhanced vugs were found along a single discrete bedding plane approximately 16" below ground level. Examination of the excavated debris blocks in 3 dimensions, suggest predominately unconnected, non-touching vugs, solution enhanced bioturbation burrows. Personal communication with the excavation contractor, Ervine Construction, further supported the observation that the examined material was representative of the excavated area for the tank, the vugs were limited to a single thin zone, and no other features were reportedly observed. The lateral lines for the spray heads were considerably shallower and the geology in the area is consistent. Photos documenting the septic tank site, excavated blocky material and spray heads are attached below.

The original filing for the OSSF with Comal County Engineer is attached.

Material from excavated Septic tank hole. Evidence of vuggy porosity, interpreted as unconnected vugs solution enhanced from bioturbation burrows. The current construction proposal includes an

expansion of the septic tank capacity at the existing location and moving the spray heads to alternate location to the east as shown in Figure 1.

Possible Sources of Surface Water Contamination: Drainage

The developed portion of the property at LFS appears to have very limited impact on surface water quality. No other sources of surface water contamination were identified in the course of the geological assessment. The subject property has a low percentage of impervious cover, 12%, which equates to 1.27 acres. The impervious area is in the western developed portion of the property, consisting of driveways, parking areas and covered roofing. The drainage patterns for the impervious cover (Figure 2) flow almost exclusively to one of three vegetated filter strips or to an enhanced landscaped area. These areas are shown in Figures 1 and detailed in Figure 6 (Temporary Stormwater Section). These areas can be expected to capture most if not all of the stormwater runoff from the impervious cover. Very limited TSS load would be expected to move down gradient off the LFS property.

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Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: La Fontana Springs LLC.

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ___ Residential: # of Lots: ___
   - ___ Residential: # of Living Unit Equivalents: ___
   - _X_ Commercial
   - ___ Industrial
   - ___ Other: ___

2. Total site acreage (size of property): 10.369 acres

3. Projected population: 0 residential

4. The amount and type of impervious cover expected after construction are shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	17,567	÷ 43,560 =	0.403
Parking	21,125	÷ 43,560 =	0.485
Other paved surfaces	16,845	÷ 43,560 =	0.387
Total Impervious Cover	55,537	÷ 43,560 =	1.27
Total Impervious Cover ÷ Total Acreage x 100 =			12%

5. _X_ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.

6. _x_ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY
Complete questions 7-12 if this application is exclusively for a road project.

7. Type of project:
   - ___ TXDOT road project.
   - ___ County road or roads built to county specifications.
   - ___ City thoroughfare or roads to be dedicated to a municipality.
   - ___ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:
   - ___ Concrete
   - ___ Asphaltic concrete pavement
   - ___ Other: ___

9. Length of Right of Way (R.O.W.): ____ feet.
Width of R.O.W.: ____ feet.
L x W = ____ Ft^2 ÷ 43,560 Ft^2/Acre = ____ acres.

10. Length of pavement area: ____ feet.
Width of pavement area: ____ feet.
L x W = ____ Ft^2 ÷ 43,560 Ft^2/Acre = ____ acres.
Pavement area ____ acres ÷ R.O.W. area ____ acres x 100 = ___% impervious cover.

11. __ A rest stop will be included in this project.
__ A rest stop will **not** be included in this project.

12. __ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

13. **ATTACHMENT B - Volume and Character of Stormwater.** A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:

100% Domestic	530 gallons/day
__% Industrial	_____ gallons/day
__% Commingled	_____ gallons/day

TOTAL 530 gallons/day

Explanation: Cottage flow = 300 g/d, Event Center flow = 230 g/d, total = 530 g/d

15. Wastewater will be disposed of by:

_X_ **On-Site** Sewage Facility (OSSF/Septic Tank):

ATTACHMENT C - Suitability Letter from Authorized Agent. An on-site sewage facility will be used to treat and dispose of the wastewater. The appropriate licensing authority's (authorized agent) written approval is provided at the end of this form. It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.

__ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

_NA_ Sewage Collection System (Sewer Lines):

__ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

__ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

__ The SCS was previously submitted on _____.

__ The SCS was submitted with this application.

__ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to executive director approval.

The sewage collection system will convey the wastewater to the _____ (name) Treatment Plant. The treatment facility is:

__ existing.
__ proposed.

16. **NA** All private service laterals will be inspected as required in 30 TAC §213.5.

SITE PLAN REQUIREMENTS

Items 17 through 27 must be included on the Site Plan.

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 333' '.

18. 100-year floodplain boundaries
__ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
X No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):

Subject property is documented in Zone X, (0.02% probability of flood) as defined on the FIRM map Comal County. Flood plain map is shown in Figure 5 at the site scale and full size in Appendix 3. The 100year flood plain boundaries are beyond the area shown in the site plan at 1"=333'scale.

19. __ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.
X The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
X There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
__ The wells are not in use and have been properly abandoned.
__ The wells are not in use and will be properly abandoned.
X The wells are in use and comply with 30 TAC §238.
__ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:
X All **sensitive and possibly sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.
__ No **sensitive and possibly sensitive** geologic or manmade features were identified in the Geologic Assessment.
NA **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. Geologic or manmade features were found and are shown and labeled.
NA **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. No geologic or manmade features were found.

22. **X** The drainage patterns and approximate slopes anticipated after major grading activities.

23. **X** Areas of soil disturbance and areas which will not be disturbed.
The area of disturbance is limited to the excavation for the septic tank and installation of the spray heads as shown on the Construction Plan (Figure 6)

24. **X** Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
Temporary BMP's are planned for the proposed area for septic tank excavation and spray head installation, however, *No permanent BMP's are proposed and a waiver is requested due to the less than 20% impervious cover.*

25. **NA** Locations where soil stabilization practices are expected to occur.

26. NA Surface waters (including wetlands).

27. NA Locations where stormwater discharges to surface water or sensitive features.
X There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

28. **X** One (1) original and three (3) copies of the completed application have been provided.

29. X Any modification of this WPAP will require TCEQ executive director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **WATER POLLUTION ABATEMENT PLAN APPLICATION FORM** is hereby submitted for TCEQ review and executive director approval. The form was prepared by:

Jon Gaynor/Agent Al Hays /Engineer
Print Name of Customer/Agent

Signature of Customer/Agent 3-24-2010
Date

4-12-10

La Fontana Springs Event Center
Water Pollution Abatement Plan

Attachment A

Factor Affecting Water Quality

The following factors are anticipated to possibly adversely impact surface water and ground water quality:

- The disturbance of natural vegetated area will increase the potential for erosion.
- The increase in impervious cover will change the amount of natural infiltration capacity of the natural vegetation and pervious cover.
- The use of improved road surfaces and parking areas by vehicular traffic
- The accidental or improper discharge of the following:
  - Paving materials: Concrete, Asphalt, Crushed Limestone base
  - Cleaning solvents, and Detergents
  - Building materials
  - Petroleum based products, Paints and Paint solvents
  - Acids, Pesticides and herbicides

La Fontana Springs property is a conversion from a previously existing light manufacturing and private residential development to a social banquet hall. The environmental impacts are lessened for the following reasons:

- Very slight increase in impervious cover (<<1%)
- Enhancement of TSS reduction through vegetated filter strips and enhanced landscaping adjacent to all impervious cover areas.
- No change in native vegetation in undisturbed areas
- Carefully control of vehicular traffic and impacts
- Proper cleanup of all waste materials, including historic wastes
- Proper/very limited use of all paints, fertilizers and herbicides
- Conversion of historic conventional gravity septic to a modern aerobic system
- Implementation of temporary BMP's
- Implementation of voluntary permanent BMP's to reduce stormwater velocity and therefore erosion potential and avoid increased TSS.

Attachment B

Volume and Character of Stormwater

Drainage calculations, including runoff coefficients, for the post-construction conditions are based on the Drainage Area Map (Figure 6) enclosed in the Temporary Stormwater section of this report. The character of the storm water runoff is consistent with drainage from the gravel parking area and asphalt drive.

La Fontana Springs Event Center
Water Pollution Abatement Plan

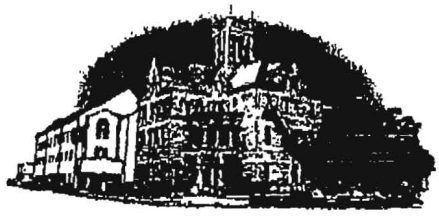
Attachment C

Suitability Letter from Authorized Agent

A suitability letter from the Comal County Engineer is included for the proposed waste disposal system proposed for this property. As outlined in the Project Description, an existing conventional gravity-drainage septic system was disconnected and an aerobic septic was installed. The new septic system was designed by a professional engineer and the design submitted the Comal County Engineer. Mistakenly, a WPAP was not submitted prior to construction.

The current project seeks approval to expand the total storage/processing capacity of the aerobic septic system. The total domestic water use is materially unchanged from the pre-construction estimate; however, the property is used for social events that often occur back to back over a weekend. The owners desire a less frequent evaporative pump-out cycle, therefore requiring additional storage capacity.

Attached is an executed multi-year maintenance contract with Aerobic Services of South Texas for the aerobic septic system to insure operability and compliance with regulations.



Comal County

OFFICE OF COMAL COUNTY ENGINEER

January 16, 2009

Mr. Cesar Trivino
16235 Miners Gap
San Antonio, TX 78247-1142

Re: La Fontana Springs Event Center Site Suitability Letter, within Comal County, Texas

Dear Mr. Trivino:

In accordance with TAC §213.5(b)(4)(F)(ii), Comal County has found that the entire referenced site is suitable for the use of private sewage facilities and will meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone as specified in TAC §285.40-42 based on the following information submitted to our office on October 27, 2008:

- The proposed OSSF design for the referenced site prepared by Jesse Guerra, P.E.

Typically a suitability letter is written based on information provided in a Water Pollution Abatement Plan prepared by a registered Professional Engineer and a Geologic Assessment prepared by a registered Professional Geologist. If we receive these items at some point in the future, it may reveal areas within the referenced site that are not suitable for the use of private sewage facilities and will not meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone.

Furthermore, according to TAC §285.42(a), if any recharge feature, not listed above, is discovered during construction of an OSSF, all regulated activities near the feature shall be suspended immediately. The owner shall immedintely notify the TCEQ San Antonio office of the discovery of the feature. All activities regulated under TAC §213 shall not proceed near the feature until Comal County, in conjunction with the TCEQ San Antonio office, has reviewed and approved a plan proposed to protect the feature, the structural integrity of the OSSF, and the water quality of the aquifer. The plan shall be sealed, signed, and dated by a professional engineer.

If you have any questions or need additional information, please do not hesitate to contact our office.

Revised 04/07/10 By Al Hays, PE, PhD
Applied for Revision to issued OSSF permit
with Comal Co. Engineer

Sincerely,

Robert Boyd, P.E.
Comal County Assistant Engineer

Cc: John Mauser, Environmental Investigator, TCEQ

195 David Jones Drive • New Braunfels, Texas 78130 • (830) 608-2090 FAX (830) 608-2009

Aerobic Services of South Texas
1528 E. Common St. Suite 10
New Braunfels, TX 78130

Phone: (830) 627-1785
Fax: (830) 629-9291
www.aerobicservices.com

Date: 10/28/2009

To: Trevino Leasar
27618 FM 3009
, TX
San Antonio, Tx 78266

Phone: 210 643-
Site: , , TX
County: Comal
Installer: ?
Agency: ~~Comal County Environmental Health~~ TCEQ
Mfg: Solar Hire

Subdivision: 7535

Permit No:
Installed: Sept 07

Contract Period
Start Date: 10-24-2009
End Date: 10-29-2010

Aerobic Services of South Texas
3 inspections per year - one every 4 months

Map Key:

Routine Maintenance and Inspection Agreement
Renewal Commercial Service Contract

GENERAL

This Work for Hire Agreement (hereinafter referred to this "Agreement") is entered into by and between the client named above (referred to as "Client") and Aerobic Services of South Texas (hereinafter referred to as "Contractor") located at 1528 E. Common St. Suite. 10 New Braunfels, Texas 78130 (830) -627-1785. By this Agreement the Contractor agrees to render professional service, as described herein, and the Client agrees to fulfill the terms of this Agreement as described herein. This contract will provide for all required inspections, testing and service for your Aerobic Treatment System. The policy will include the following:

1. 3 inspections/service call a year (one every four month),For a total of 3 over a year period including inspection, adjustment and servicing of the mechanical, electrical and other applicable component parts to ensure proper function. This includes inspecting control panel, air pumps, air filters, diffuser operation, and replacing or repairing any component not found to be functioning correctly. Any alarm situation effecting the proper function of the Aerobic process will be addressed within a 48-hour timeframe (weekends and holidays are excluded). After the contract for the two year services agreement expires, work on the remaining warranty does not include labor prices. Repair work on non-warranty parts will include price for parts and labor. The prices will be quoted before work is performed.

2. An effluent quality inspection consisting of visual check for color, turbidity, scum overflow and examination for odors. A test for chlorine residual and PH will be taken and reported as necessary.

3. If any improper operation is observed, which cannot be corrected at the time of the service visit, you will be notified immediately in writing of the conditions and estimated date of correction.

4. The Owner is responsible for cholrine tablets; will be filled before or during the service visit.

5. Any additional visits, inspections or sample collection required by specific Municipalities, Water/River Authorites, County Agencies, the TCEQ or any other authorized regulatory agency in your jurisdiction will be covered by this policy. Price includes BOD Lab Testing that is required by TCEQ.

At the conclusion of the initial service policy, our company will make available, for purchase on an annual basis, a continuing service policy to cover labor for normal inspection, maintenance and repair. According to state law, all owners of aerobic systems must maintain a factory authorized service provider for the lifetime of the system.

covered by this policy and will result in additional charges.

ACCESS BY CONTRACTOR
The contractor or anyone authorized by the contractor may enter the property at reasonable times without prior notice for the purpose of the above described services. The contractor may access the system components including the tanks by means of exavation for the purpose of evalutions if necessary. Soil is to be replaced with the excavated material as best as possible.

PAYMENT FOR SERVICES
The Client will pay compensation to the contractor for the services in the amount of $440 (Four Hundred Fourty Dollars). This compensation shall be payable in full upon acceptance of this agreement.

TERMIATION OF AGREEMENT
Either party may terminate this agreement within ten days written notice in the event of substantial failure to perform in accordance with terms by the other party without fault of the terminating party. If this Agreement is so terminated, the Contractor will immediately notify the appropiate health authoriy of the termination.

LIMIT OF LIABILITY
In no event shall the Contractor be liable for indirect, consequential, incidental or punitve damages, whether in contract tort or any other theory. In no event shall the contractor's liability for direct damages exceed the price for the services described in this Agreement.

DISPUTE RESOLUTION
If a dispute between the Client and the Designer arises that con not be settled in good faith negoitiations then the parties shall choose a mutually acceptable arbitrator and shall chare the cost of arbitration services equally.

ENTIRE AGREEMENT
This agreement contains the entire agreement of the parties, and there are no other promises or condtions in any other agreement either oral or written.

SEVERABILTY
If any provision of the Agreement shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of the agreement is invalid or unenforceable, but that by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

BUSINESS OWNER/ REPRESENTATIVE

Signature

(210) 643-7535
Phone #

SERVICE PROVIDER

Aerobic Services of South Texas, Inc.
1528 E. Common St. Suite 10
New Braunfels, TX 78132
(830) 627-1785

Signature Thomas Hampton

License# OS0024597

Aerobic Services of South Texas
1528 E. Common St. Suite 10
New Braunfels, TX 78130

Phone: (830) 627-1785
Fax: (830) 629-9291
www.aerobicservices.com

To: Ceasar Trivino
27618 FM 3009
San Antonio, TX 78266

Permit No:
System S/N:
Aerator S/N:
Contract Dates: 10/28/2009 - 10/28/2010
Inspection 2 of 3

Site: 27618 FM 3009 San Antonio, TX 78266

Agency:

County: Comal
Subdivision:

Manufacturer: Solar Aire
Owner Phone: (210) 643-7535
Installed: Warranty expires:

Inspection Type: Scheduled Inspection

Date Inspected: 2/18/2010

Test Method: Grab

Aerators: Operational
Filters: Operational
Irrigation Pumps: Operational
Disinfection Device: Operational
Chlorine Supply: Operational
Electric Circuits: Operational
Distribution System: Operational
Sprayfield Vegetation: Operational

Inspection Comments or Recommendations
psi 83

Changed Diffusers ☐ **Quantity: 0**

Added Chlorine: ☐

Sludge Levels
Tank 1: 24'"
Tank 2: 12'"
Tank 3: 6"

Alarm:

Chlorine Residual: 3.41

PSI: 0.0
CFM: 0.0

Water Meter: 0

☐ **Pumping Needed**
☑ **Service Completed**
☐ **Problem with System**

Inspector: jason - License: Expires:

Inspector signature:

Printed:3/9/2010

La Fontana Springs Event Center
Water Pollution Abatement Plan

Attachment D

Exception to the Required Geological Assessment

An exception to the required geological assessment is not requested for this site.

HAYS
ENVIRONMENTAL
ENGINEERING, INC.

Project: OSSF Design Revision
Client: Cesar Trevino
Date: 4-8-10 Comp. By: Al Hays, PE
Scale: _____ Page 0 of 18

DESIGN REVISION FOR AN OSSF SYSTEM AT LA FONTANA SPRINGS, LLC, NATURAL BRIDGE CAVERNS RD. NEAR SAN ANTONIO, TEXAS

OWNERS:

CESAR & NANCY TREVINO

SUBMITTED TO:

TCEQ REGIONAL OFFICE

& COMAL COUNTY

ENVIRONMENTAL DEPT.

4-7-10

STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED
PROFESSIONAL ENGINEER

SUBMITTED BY:

HAYS ENVIRONMENTAL ENGR., INC

4/9/10

1501 Cross Road • Kingsbury, Texas 78638 • 830-639-4420 • 830-639-4052 (fax)

HAYS ENVIRONMENTAL ENGINEERING, INC.

Project: OSSF Design Revision
Client: La Fontana Springs LLC
Date: 4/5/10 Comp. By: A. Hays
Scale: _____ Page 1 of 18

OSSF RE-DESIGN REPORT

for

LA FONTANA SPRINGS LLC

1. OBJECTIVE

To complete a redesign of this existing facility to accomodate both the events center and the "cottage" sewage effluents. The form of treatment is aerobic with surface irrigation of effluents.

2. GENERAL CONCEPTS

The existing 500 gpd aerobic treatment unit (ATU) will be assigned to handle effluent from the cottage only, with surface irrigation that is separate from all else. The events center effluent will be treated separately with another

ATU with irrigation.

3. DESIGN CRITERIA

a. Cottage effluent is 300 gpd for a 4-2 residence; the existing ATU is by Aqua Klear, 500 gpd domestic sewage, with existing surface irrigation nearby. The heads will be moved farther away from the ATU itself to avoid odor complaints!

All spray heads will be ≥ 150 ft. from any recharge feature.

b. Events center will be handled by a separate, new ATU plus Equalization and Trash chamber. The calculated loadings are given below.

c. Design Flow

Available Data = 9 events

People / Event ≐ 200

Events / weekend ≤ 3

People / weekend = 600 (near the absolute maximum.)

Water use / Person ≅ 2.7 gal. [from flow data table]

Water use / Weekend = 1620 gal. [design flow rate]

d. Design Waste Loading

Relative Strength BOD_5 ≐ 2.5 × 200 ≐ 500 ppm

Reference: CRC Handbook of Environmental Control, Vol. IV, p. 59; 1974.

Design Loading =

≐ (2.5 × 200 ppm) × 8.34 × 10^{-6} × 1620 gal/wk.

= 6.75 lbs BOD_5 / week (7 days)

= 0.96 lbs BOD_5 / day

e. ATU Organic Load Capacity

Capability = $\frac{750 \text{ gpd}}{500 \text{ gpd}}$ × 1.0 ppd ≐ 1.5 ppd BOD_5

(Hoot says: Avg. loading = 1.23; Peak = 1.88 ppd)

f. Comparison of Loads: $\left(\frac{1.5}{0.96}\right)$ = 1.56 ⇒ 56% extra BOD_5 Capability Available

{ Hoot Comparison of averages ⇒ 1.23/0.96 = 1.28; pk./avg. 28% extra capability available in the Hoot 750.

4-8-10

STATE OF TEXAS
A. J. HAYS JR.
32859
REGISTERED
PROFESSIONAL ENGINEER

g. The Equalization Tank will provide air and thereby mixing; the equalized volume is pumped into the ATU continuously, thereby improving treatment of wastes. This tank & equipment is by HOOT manufacturing from New Braunfels, Texas, 2000 gallon

h. The proposed ATU to treat the event center's wastewater is also a HOOT system, a model H-750 AN, CP, which pumps only at night, at about 3 am.

i. The irrigation system now in operation handles spray for both the cottage and the Events Center, combined, and is therefore under-designed. It now has only 1,810 sf of total spray area, based on ≈ 50.0 gpd of delivered effluent. Now, it needs 4,688 sf of spray area for the

NOTE:
A 200-gal. Trash Tank will be provided before the 2000-gal. equalization basin.

cottage, and the events center irrigation system requires 3,594 sf for delivery of an average of 230 gpd. The irrigation spray fields are to be re-located farther away from the ATUs - due to recent odor complaints from neighbors, see Site Plan, Exhibit A.

j. Calculations for the irrigation fields:

(1) Cottage - Flow = Q = 300 g.p.d.

Area = 300 / 0.064 = 4,688 sf

Two # nozzle heads are provided; r = 25' ea.

And One # nozzle low ✱ heads are used; r = 17'

See page 7 for details.

(2) Events Center - Area = $\left(230 \text{ gpd} / 0.064 \frac{\text{gal/day}}{\text{sf}}\right)$

Area = 3,594 sf

Area sprayed = πr^2 $\left\{\begin{matrix}\text{nozzle \#6, } r = 28' \\ \text{" \#1, } r = 21'\end{matrix}\right\}$

(3) Note: Existing spray heads should be

4-9-10
STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

abandoned after the new spray fields are installed and operating. These revised spray fields are more than 150' away from recharge features shown in Figure 8 and more than 100' from the well site.

K. Pump Calculations are shown on pages 7/18 through 10/18 following. The pump for the cottage is already installed and operating in the 500-gpd ATU and the second pump comes as standard equipment with the 750-gpd ATU system, that will serve the Events Center. The manufacturer has been consulted in regard to this specific application - that is, HOOT.

4-8-10

STATE OF TEXAS
Al Hays
A. J. HAYS, JR.
92839
REGISTERED PROFESSIONAL ENGINEER

AEROBIC SYSTEM DESIGN: COTTAGE

Date: 4-6-10 Designer: Al Hays, P.E.

1. Design Flow = Q = 300 gpd Surface Application? yes
2. Application Rate = R_a = 0.064 gpd / sf
3. Required Area to be Sprinkled = Q / R_a = A = 300 / 0.064 = 4,688 sf
4. Sprinkle in separate circles ? Y ✓ N ____
5. No. of Full Circles = n = 3 [A = pi x (radius)**2; pi = 3.141]
6. Radius = R = (A / pi)**0.5 = _____ = _____ ft.
7. Sprinkle in a confined rectangular space? Y ____ N ✓
8. Dimensions of confined space = L x W = ____ x ____ sf (See Drawing and table below for details.)

   a. No. of Heads 2 Type #3 Low ✗ Radius 24.6 ft. Flow Rate 3.0 gpm
   Pressure 30 psig Degrees Sprinkled by this head = 360 deg.

   b. No. of Heads 1 Type #1 Low ✗ Radius 17.0 ft. Flow Rate 1.2 gpm
   Pressure 30 psig Degrees Sprinkled by this head = 360 deg.

   c. No. of Heads _____ Type _____ Radius _____ ft.; Flow Rate _____ gpm
   Pressure _____ psig; Degrees Sprinkled by this head = _____ deg.

   d.. No. of Heads _____ Type _____ Radius _____ ft Flow Rate _____ gpm
   Pressure _____ psig; Degrees Sprinkled by this head = _____ deg.

   e. Total No. of Heads = _____ Radii = _____' Total Flow = _____ gpm

9. System Mfg.: HOOT ✓ Southern _____ Cajun Aire ____ Other _____
   Type or Brand of Sprinkler Head = K-Rain Low angle ✓ Other _____
10. Pump Tank Level Settings: Pump Off Level 20 in. above btm.
    Pump On Level 39.1 " " "
    [Alternatively, see Figure 2 _____] Alarm On Level 43.5 " " "
11. Treatment Capacity: 300 gpd BOD: ~200 ppm ✓ Greater _____

12. Engineer's Seal: Date: 4-6-10

STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

Al Hays, P.E.

PUMP CALCULATIONS: COTTAGE

Date: 4-6-10 Engineer: Al Hays, P.E.

1. Flow Rate/ day = Q = 300 gpd
2. Head flow rate = q = = 7.2 gpm
3. Total Head Flow = q x n = 3.0 x 2 = 6.0 + gpm
   No. of Heads = n = = 3
4. Pipe Diameter = Dia. = 3/4 in.; Length = 530 ft.
5. Velocity = v = 4 1/4 fps
6. **Velocity head** = $v^2/2g$ = $(4.25)^2$ / 64.4 = 0.3 ft.
7. **Static Head** = h = (5 - 15) = -10.0 ft.
8. **Pressure Head** = $p_2 - p_1$ = (30 - 0) psig x 2.31 = 69.0 ft.
9. Friction head, h_f = (5.0 psig) x 2.31/ 100' x 530 ' = 61.3 ft. *
10. **Total Friction Loss** = h_f x 1.05 = 61.3 ' x 1.05 = 64.3 ft.
    (Including pipe & fitting losses)
11. Total Dyn. Head = H_t = sum of 6, 7, 8, & 10 =
    = { 0.3 + (-10) + 69.0 + 64.3 } = 123.6 ft.
    Sprinkler Flow = Q = n x q = (see above) = 7.2 gpm
12. Pump HP Water = HP_w = [q x H_t x 1.01] / 3,960 =
    [7.2 x 123.6 x 1.01] / 3960 = 0.23 HP
13. Pump HP Brake = HP_b = HP_w / eff. = 0.23 / 0.46 = 0.50 **HP_b**
14. Figures provided herein: Pump Curve
15. Pump Tank Required? included Source: Hoot ("Blaster" Pump)
    Size: – gal. Pump Req'd. = ✓ HP 1/2 Mfg. Gould Model 12EB05
    ; ***Pump Switch Level Settings***: See Figure ____ ? Yes ✓ No, see below ✓
    Switch Settings: Pump Off = 20 " off btm.; Pump On = 39.1 " off btm.; Alarm On = 43.5 " off btm.; Audio & Visual Alarms? yes
    Comments: * The spray irrigation fields may possibly be located closer to the ATU than shown on figures. All separation distance requirements will be observed.
    → NOTE: Commercial irrigation timers are required for both irrigation spray field operations.
16. Engineer's Seal:

Date: 4-6-10

Al Hays, P.E.

Comments: _____

AEROBIC SYSTEM DESIGN: EVENTS CENTER

Date: 4-6-10 Designer: Al Hays, P.E.

1. Design Flow = Q = 230 gpd Surface Application? yes
2. Application Rate = R_a = _____ gpd / sf
3. Required Area to be Sprinkled = Q / R_a = A = 230/.064 = 3,594 sf
4. Sprinkle in separate circles ? Y ✓ N ____
5. No. of Full Circles = n = 2 [A = pi x (radius)**2; pi = 3.141]
6. Radius = R = (A / pi)**0.5 = _____ = _____ ft.
7. Sprinkle in a confined rectangular space? Y ____ N ✓
8. Dimensions of confined space = L x W = - x - sf (See Drawing and table below for details.)

{Heads are by K-Rain}

a. No. of Heads 1 Type #6 Low ∡ Radius 28 ft. Flow Rate 6.5 gpm
Pressure 40 psig Degrees Sprinkled by this head = 360 deg.

b. No. of Heads 1 Type #1 Low ∡ Radius 21 ft. Flow Rate 1.7 gpm
Pressure 40 psig Degrees Sprinkled by this head = _____ deg.

c. No. of Heads _____ Type _____ Radius _____ ft.; Flow Rate _____ gpm
Pressure _____ psig; Degrees Sprinkled by this head = _____ deg.

d.. No. of Heads _____ Type _____ Radius _____ ft Flow Rate _____ gpm
Pressure _____ psig; Degrees Sprinkled by this head = _____ deg.

e. Total No. of Heads = 2 Radii = 28', 21' Total Flow = 8.2 gpm

9. System Mfg.: HOOT ✓ Southern _____ Cajun Aire ____ Other Equal. + Aeration
Type or Brand of Sprinkler Head = K-Rain Low angle ✓ Other _____
10. Pump Tank Level Settings: Pump Off Level 15 in. above btm.
Pump On Level 22.7 " " "
[Alternatively, see Figure 4] Alarm On Level 52 " " "
11. Treatment Capacity: 230 gpd BOD: ~200 ppm - Greater ✓ 500

12. Engineer's Seal: Date: 4-6-10

Area a. ⇒ $\pi r^2 = \pi\ 28^2 = 2462$

Area b. ⇒ $\pi r^2 = \pi\ 21^2 = 1385$

3847 sf

$A_a + A_b \geq 3594$ sf

Area req'd ≤ Area provided

3,594 ≤ 3,847 sf

O.K. ✓

Al Hays, P.E.

PUMP CALCULATIONS: EVENTS CENTER

Date: 4-6-10 Engineer: Al Hays, P.E.

1.	Flow Rate/ day	=	Q	=	230	gpd	
2.	Head flow rate	=	q	= 1.7 + 6.5 =	8.2	gpm	
3.	Total Head Flow	=	q x n	= ____ x ____ =	8.2	gpm	
	No. of Heads	=	n	=	2		
4.	Pipe Diameter	=	Dia.	= 3/4 in.; Length =	530	ft.	
5.	Velocity	=	v	= 4.8 fps			
6.	**Velocity head**	=	$v^2/2g$	= (4.8)² / 64.4 =	0.36	ft.	
7.	**Static Head**	=	h	= (5 - 15) =	-10.0	ft.	
8.	**Pressure Head**	=	$p_2 - p_1$	= (40 - 0) psig x 2.31 =	92.4	ft.	
9.	Friction head, $\mathbf{h_f}$	=		(6.0 psig) x 2.31/ 100' x 530 ' =	73.5	ft.	*
10.	**Total Friction Loss** (Including pipe & fitting losses)	=	h_f x 1.05	= 73.5 ' x 1.05 =	77.2	ft.	
11.	Total Dyn. Head	=	H_t	= sum of 6, 7, 8, & 10 =			
		=		{ 0.36 + (-10) + 92.4 + 77.2} =	160.0	ft.	
	Sprinkler Flow	=	Q	= n x q = (see above) =	8.2	gpm	
12.	Pump HP Water	=	HP_w	= [q x H_t x 1.01] / 3,960 =			
				[8.2 x 160 x 1.01] / 3960 =	0.33	HP	
13.	Pump HP Brake	=	HP_b	= HP_w / eff. = 0.33 / 0.66 =	0.50	**HP_b**	

14. Figures provided herein: _____

15. Pump Tank Required? included Source: mfg. provides this tank
Size: ____ gal. Pump Req'd. = ✓ HP 1/2 Mfg. Gould Model 12EB05
; ***Pump Switch Level Settings***: See Figure 4 ? Yes ✓ No, see below ____
Switch Settings: Pump Off = 15 " off btm.; Pump On = 22.7 " off btm.; Alarm On = 52 " off btm.; Audio & Visual Alarms? yes!
Comments: * The spray irrigation may possibly be located closer to the new aerobic treatment unit than is shown in Exhibit A and in Figure 8.
A commercial irrigation timer is required for this irrigation system.

16. Engineer's Seal:

Date: 4-6-10

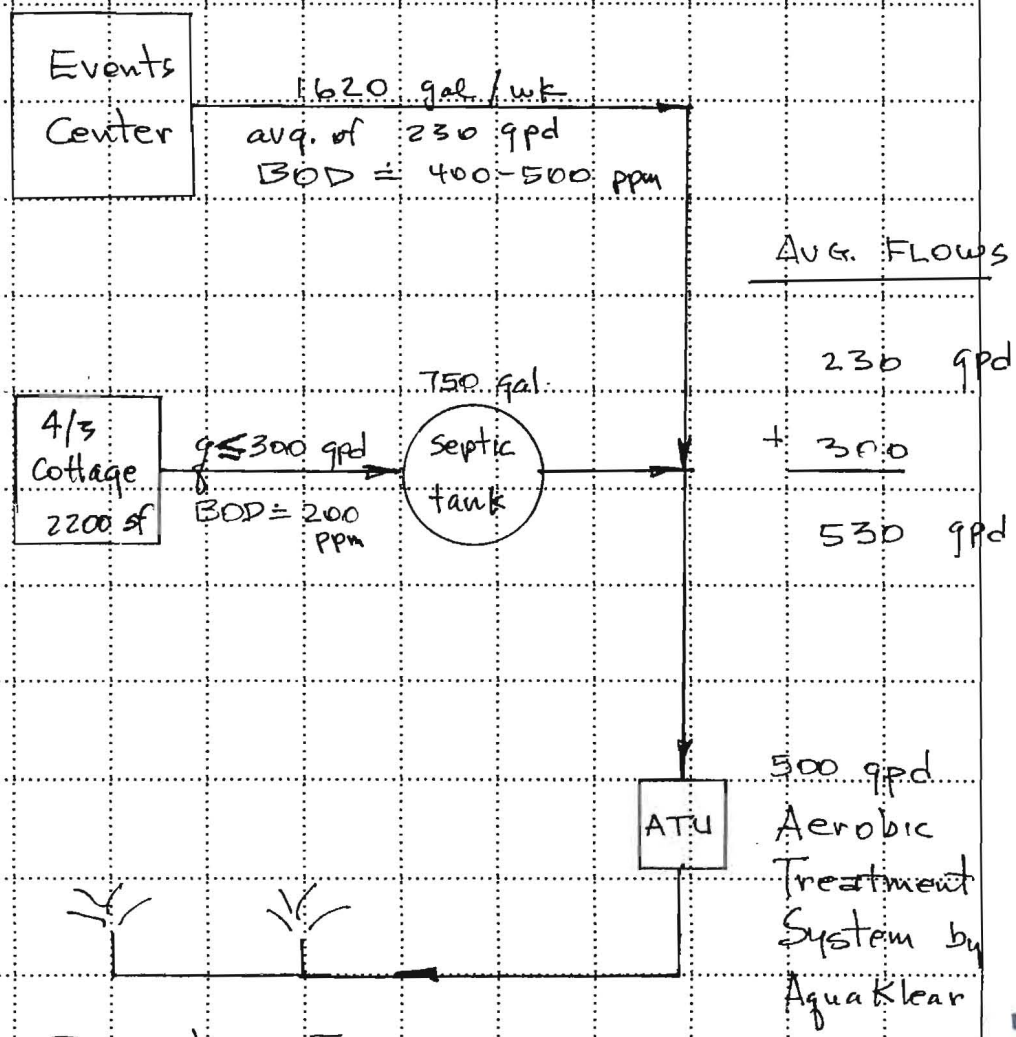
Al Hays, P.E.

Comments: _____

HAYS
ENVIRONMENTAL
ENGINEERING, INC.

Project: OSSF Revised Design
Client: Trevino, C.
Date: 4-8-10 Comp. By: A Hays
Scale: _____ Page 11 of 18

FIGURE 1 - SCHEMATIC DIAGRAM of EXISTING OSSF SYSTEM



AVG. FLOWS

230 gpd
+ 300
530 gpd

Σ Area Sprayed = 1,809 sf
(from previous engr. report to GG Eng)

CONCLUSION: System is under-sized

4-8-10
STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

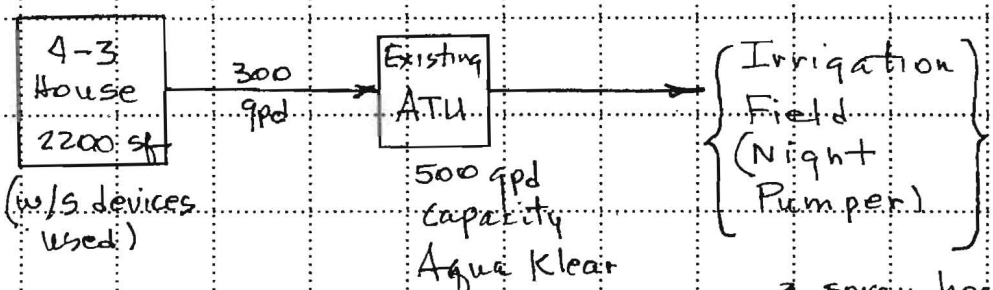
1501 Cross Road • Kingsbury, Texas 78638 • 830-639-4420 • 830-639-4052 (fax)

HAYS ENVIRONMENTAL ENGINEERING, INC.

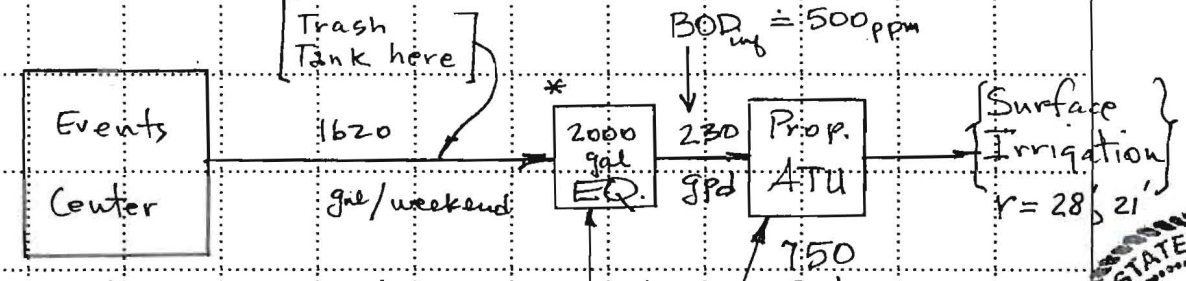
Project: OSSF Design Revision
Client: Cesar Trivino
Date: 4-5-10 Comp. By: A. Hays
Scale: _____ Page 12 of 18

SCHEMATIC DIAGRAM OF PLANNED OSSF TREATMENT

1. COTTAGE



2. EVENTS CENTER



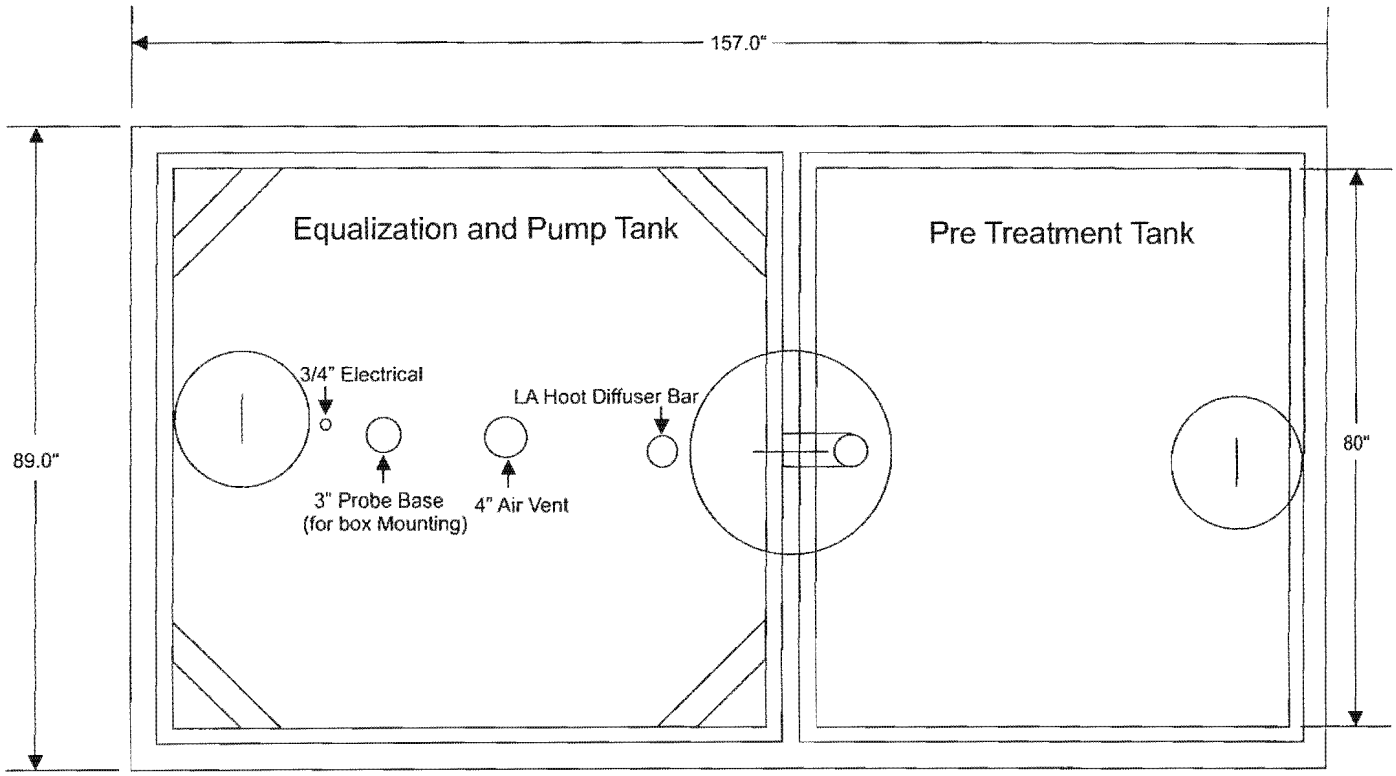
* Trash tank also required ahead of Equalization tank, 200 gallons.

4-8-10

STATE OF TEXAS
A. J. HAYS JR.
32839
REGISTERED PROFESSIONAL ENGINEER

FIGURE 2 - TWO SEPARATE SYSTEMS PROPOSED

Pre-Treatment & Equalization



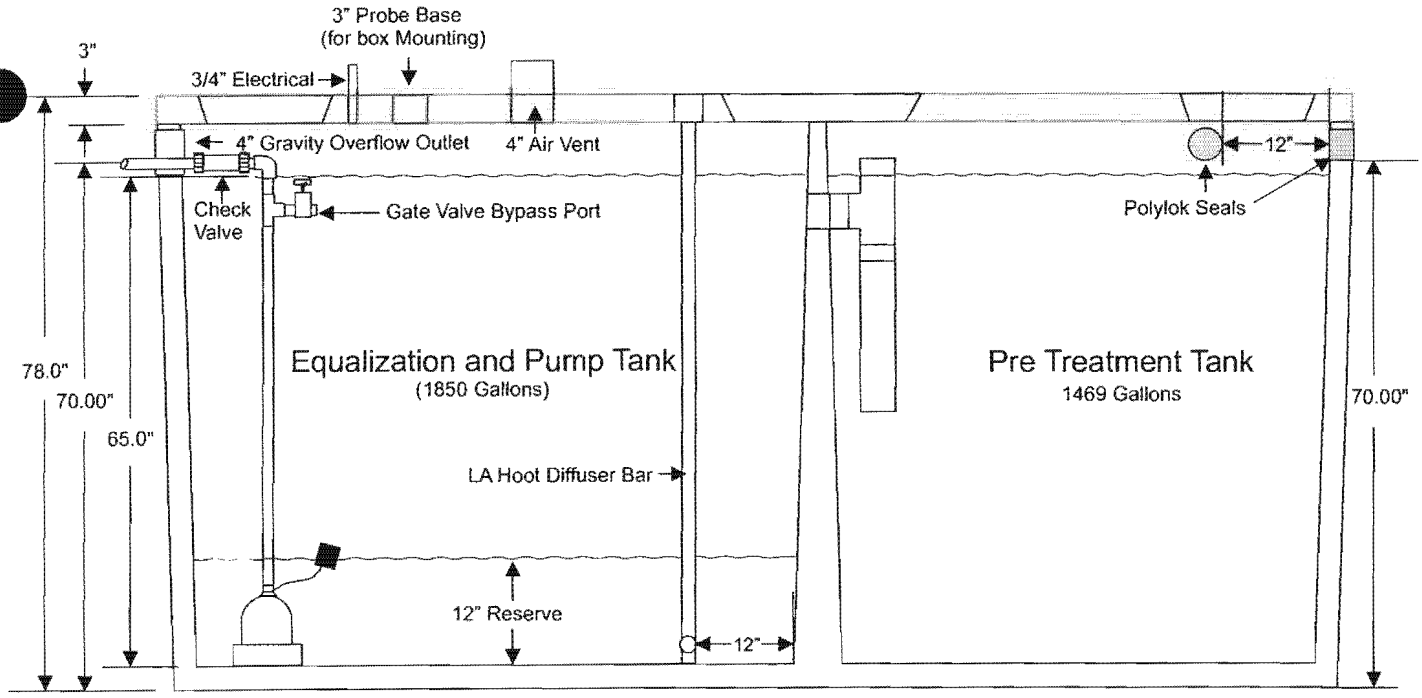
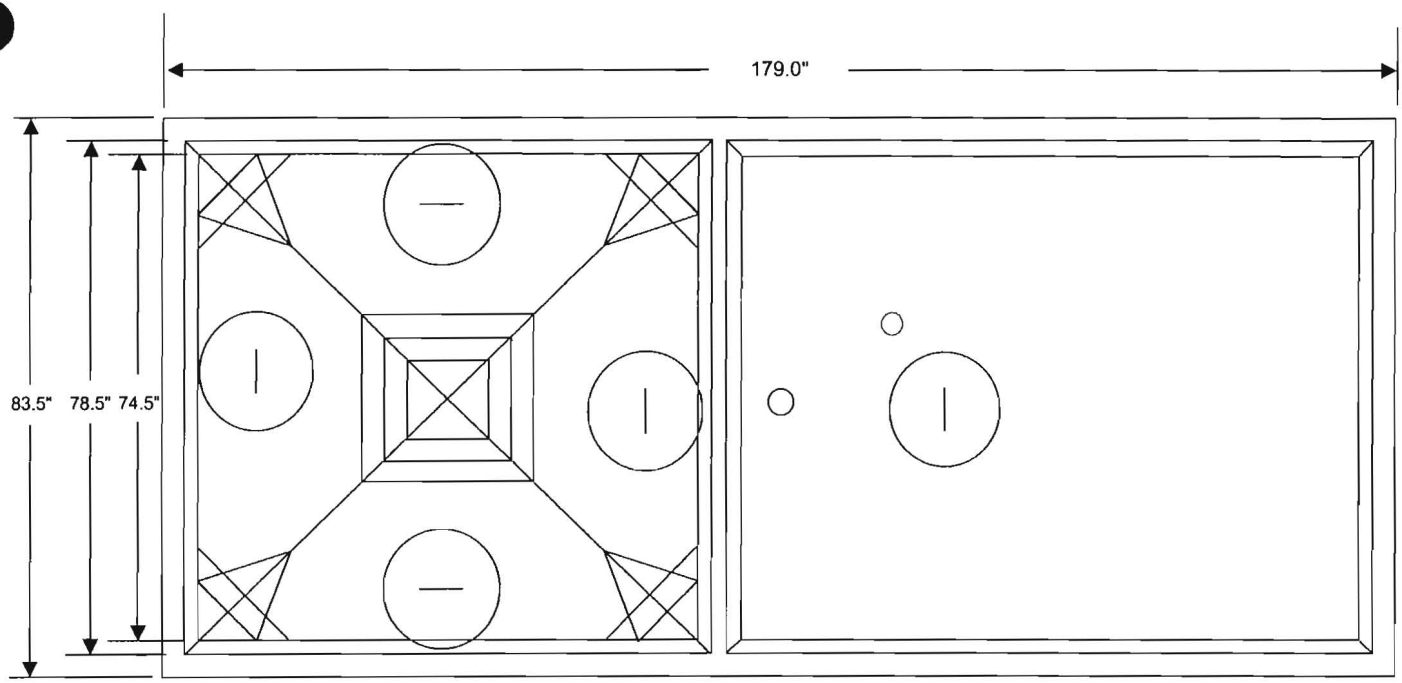
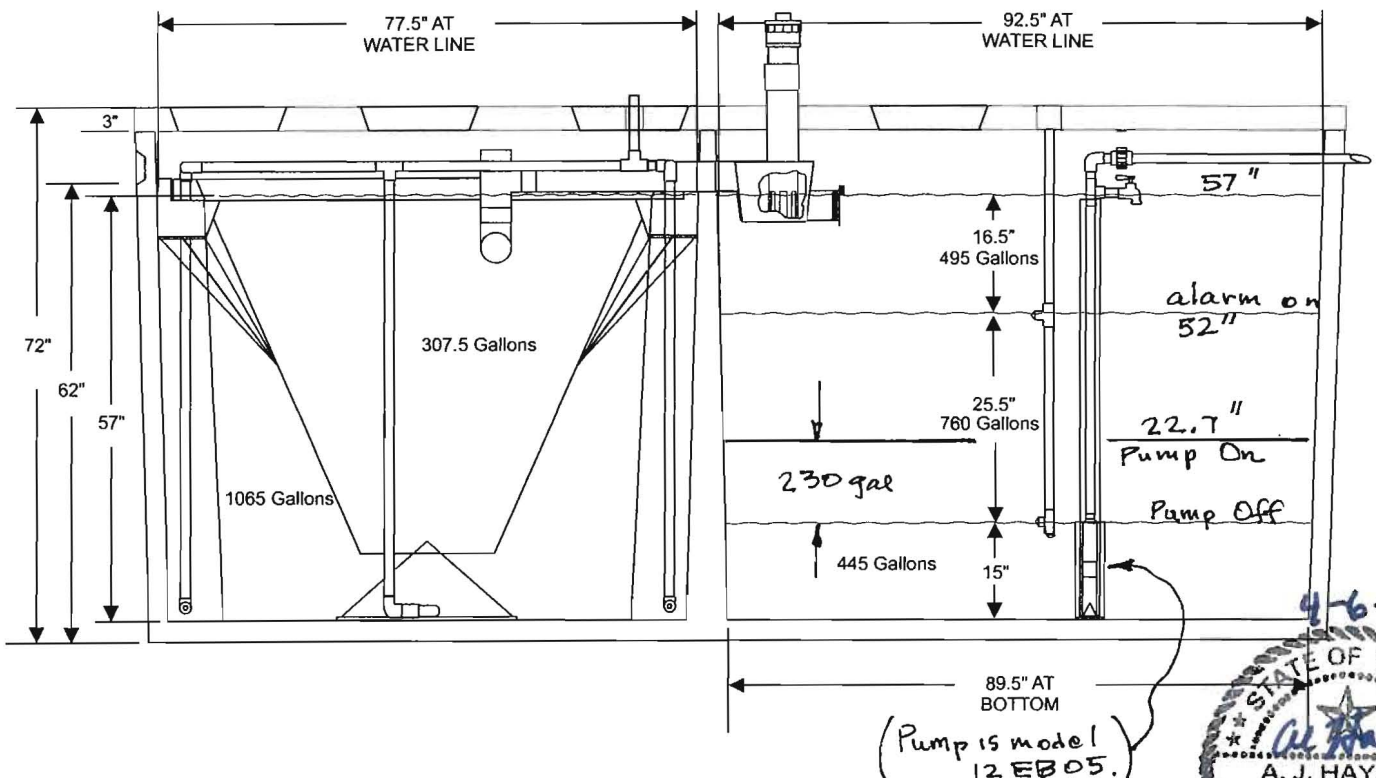


FIGURE 3 - HOOT Equalization/Pretreatment System (EQ) Proposed 2000 gal.

750 GPD NIGHT PUMPING SYSTEM
H-750 AN,CP





4-6-10

STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

FIGURE 4 - HOOT AEROBIC SYSTEM, 750 gpd
(PUMPS AT NIGHT ONLY) Proposed

76" Avg. Length
76" Avg. Width
57" Depth

91" Avg. Length
76" Avg. Width
57" Depth

1700 Gallons
445 Gallons Remaining In Tank

1255 Gallons Pumping Capacity

Rev. 06

5/08/01

HOOT BLASTER® Filtered Effluent Pump

FIGURE 5 - EVENTS CENTER PUMP

SPECIFICATIONS

Model	Flow Range GPM	Horsepower Range	Best Eff. GPM	Discharge Connection	Maximum Solids Size	Rotation①
12EB	3 – 16	½ – 1½	10	1¼	1/16" dia.	CCW
20EB	6 – 28	½ – 1½	18	1¼	1/16" dia.	CCW

use →

① Rotation is counterclockwise when observed from pump discharge end.

"EB" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	Glass Filled Ultrathane
Check Valve Poppet	Ultrathane
Check Valve O-ring	E P Rubber
Bearing Spider – Upper	Glass Filled Polycarbonate
Bearing	Urethane
Klipring	AISI 301 SS
Diffuser	Glass Filled Polycarbonate
Impeller	
Bowl	AISI 304 SS
Shim	AISI 304 SS
Spacer	AISI 304 SS, Powder Metal
Inlet Strainer	Glass Filled Ultrathane
Motor Adapter	Glass Filled Ultrathane
Casing	AISI 304 SS
Shaft	
Coupling	AISI 304 SS, Powder Metal

ORDER NUMBER CODE

8EB 05 2 2 J

- EB Pump Series: 8EB, 12EB, 20EB
- Horsepower Code: 05 = ½ HP, 07 = ¾ HP, 10 = 1 HP, 15 = 1½ HP
- Phase: 2 = 1 Phase 2 Wire
- Voltage: 1 = 115 V, 2 = 230 V
- Optional 100" jacketed lead

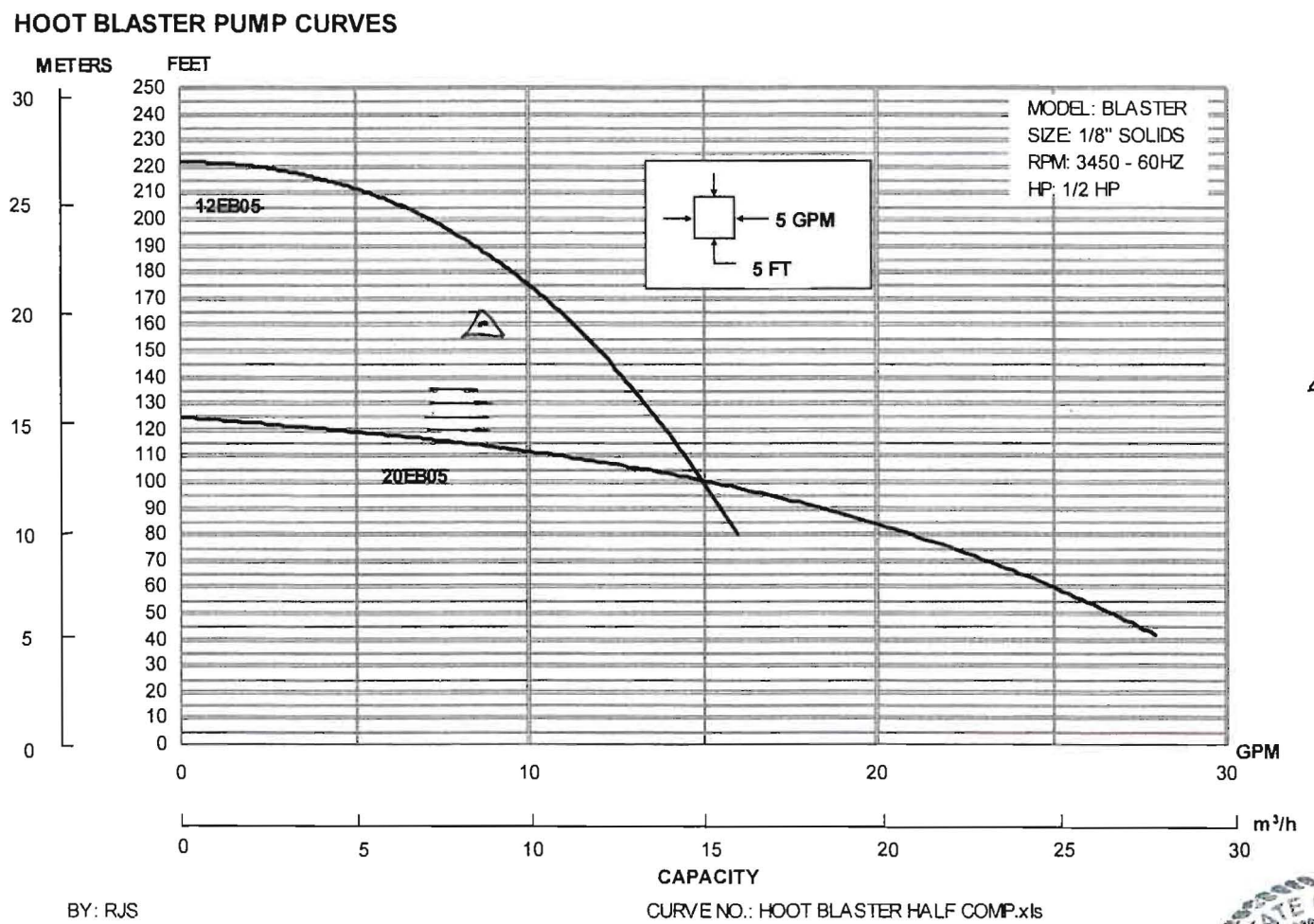
FEATURES

■ Designed for pumping filtered effluent from processed septic systems only.
■ **Field Serviceable:** Pump can be rebuilt in the field to like new condition with common tools and readily available spare parts. **NOTE: The Model EB has left hand casing threads.**
■ **Powered for Continuous Operation:** All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.
■ **Metal Parts are Stainless Steel:** AISI types 301 and 304 are corrosion resistant.
■ **Non-Metallic Parts are Effluent Compliant:** Impellers, diffusers and bearing spiders constructed of glass filled polycarbonate, an engineered composite. This material is corrosion resistant.
■ **Discharge Head:** State of the art engineered composite material for superior strength and corrosion resistance. Loop for safety line molded into head.
■ **Motor Adapter:** State of the art engineered composite material with high rigidity to provide accurate alignment of liquid end to motor. Generous space for removal of motor mounting nuts with regular open-end wrench.
■ **Bowls:** Stainless steel for strength and abrasive resistance.
■ 100" 3 wire motor lead standard.
■ Consult factory for recommendations involving long run cycles followed by short off cycles to assure proper motor cooling flows.
■ **Check Valve:** Built-in check valve assembly on all models.
■ Warranted for one year against failure due to workmanship and materials. **Solids plugged pumps are not covered. Pumps used for liquids other than filtered effluent are not covered.**
■ **Stainless Steel Casing:** Polished stainless steel is attractive and durable in the most corrosive effluent.
■ **Hex Shaft Design:** Six sided shafts for positive impeller drive.
■ **Inlet Strainer:** Molded suction strainer built into motor adapter.
■ **Urethane Upper Bearings:** Fluted design for free passage of abrasives.
■ **Franklin Electric Motor:**
- Corrosion resistant stainless steel construction.
- Built-in surge arrestor is provided on single phase motors.
- Stainless steel splined shaft.
- Hermetically sealed windings.
- Replaceable motor lead assembly.
- UL 778 and CSA recognized.
- NEMA mounting dimensions.

■ Optional 100" jacketed power cord available.
■ **Agency Listings:** All complete pump/motor assemblies are UL778 and CSA listed. All Franklin Electric Motors are UL778 recognized.
■ All models have 1/8" diameter bypass in discharge head to ensure venting on start up.

Underwriters Laboratories
File no. E174426
Canadian Standards Association
File no. 38549

Pump Operating Position



△ Events Center

FIGURE 6 - PUMP CURVE, MODEL 12EB05

4-6-10

STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

HAYS
ENVIRONMENTAL
ENGINEERING, INC.

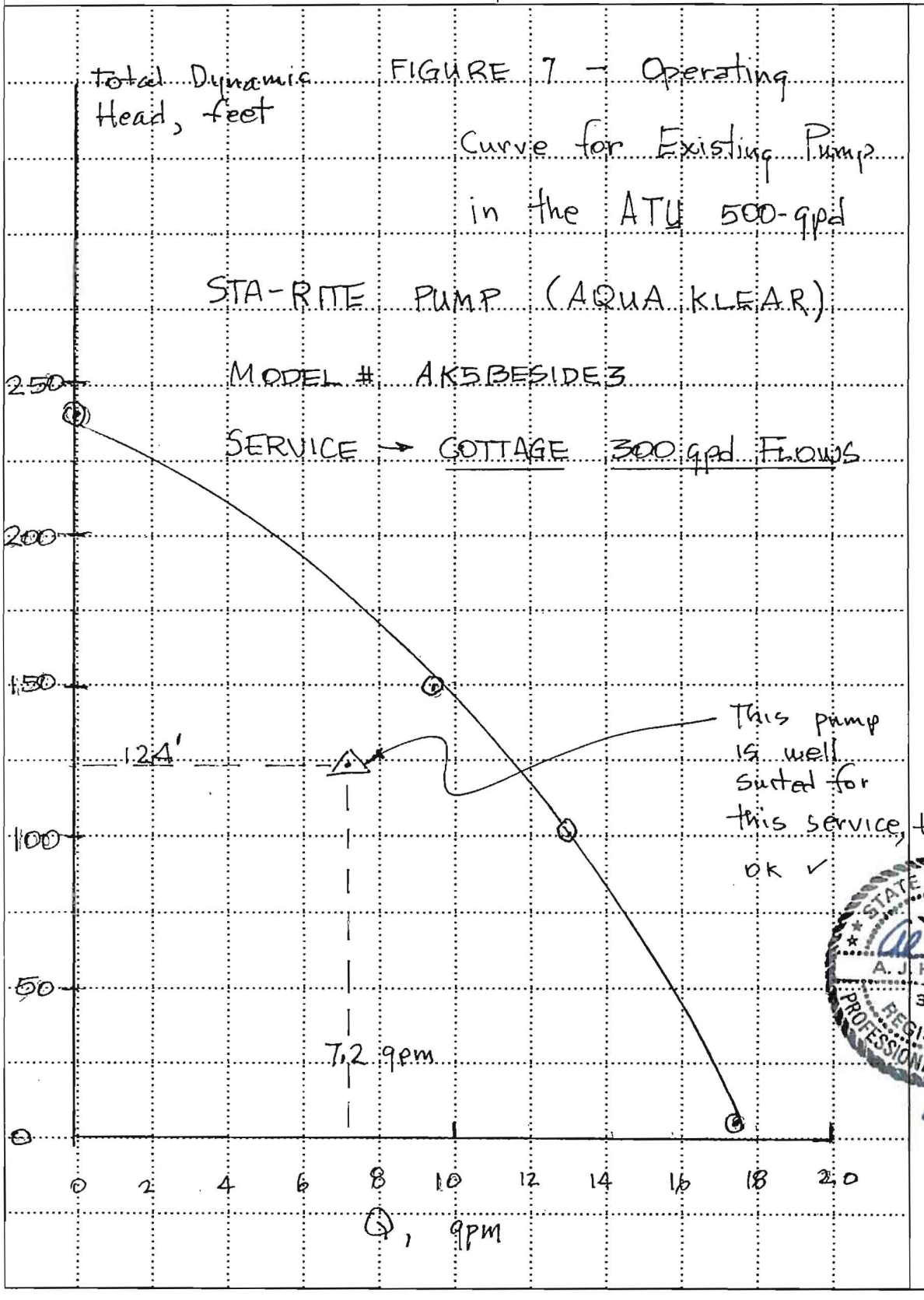
Project: OSSF Redesign
Client: Trevino, C.
Date: 4-6-10 Comp. By: A Hays
Scale: shown Page 17 of 18

FIGURE 7 - Operating Curve for Existing Pump in the ATU 500-gpd

STA-RITE PUMP (AQUA KLEAR)

MODEL # AK5BESIDE3

SERVICE → COTTAGE 300 gpd FLOWS

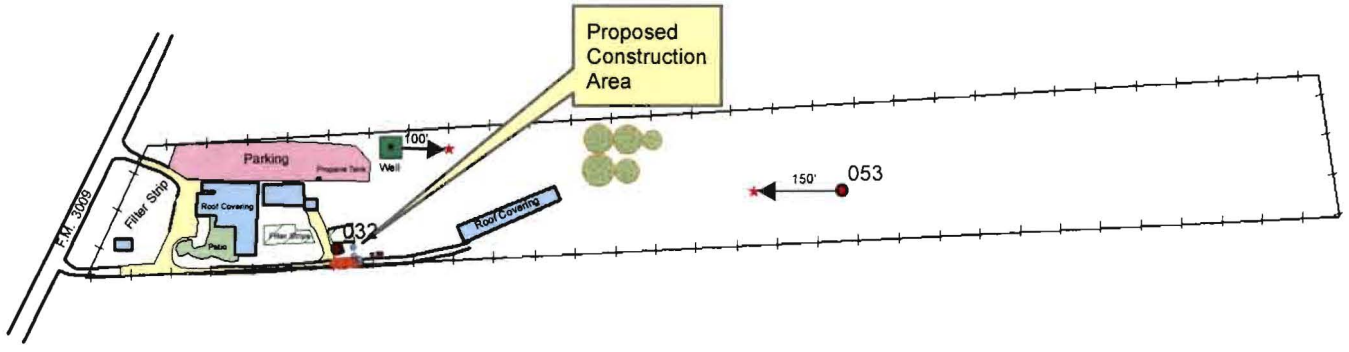


STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER
4-6-10

1501 Cross Road • Kingsbury, Texas 78638 • 830-639-4420 • 830-639-4052 (fax)

La Fontana Springs

Construction Proposal



4-23-10

STATE OF TEXAS
A. J. HAYS JR.
32839
REGISTERED
PROFESSIONAL ENGINEER

0 250 500 1,000 Feet

Construction Legend

- Temp BMP - spill prev.
- Temp BMP Silt Fence
- Spray Irrigation Fields
- Perm BMP Rock Berms
- Replaced Septic Tank
- Proposed Tank Expansion

Legend

- Well
- 032 - Septic Tank Location
- Spray Irrigation Fields
- Propane Tank
- Property Boundary
- Vegetated Filter Strip

Areas

- Area A - Paving
- Area B - Roof Tops
- Area C - Parking Gravel
- Area D - Landscaped

Figure 8: Proposed Construction and BMP Implementation

April 22, 2010

Geo_Site_Construction_Proposal_a2.mxd

Temporary Stormwater Section
Table of Contents

Temporary Stormwater Section
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

REGULATED ENTITY NAME: La Fontana Springs LLC.

POTENTIAL SOURCES OF CONTAMINATION
Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   NA Aboveground storage tanks with a cumulative storage capacity of less that 250 gallons will be stored on the site for less than one (1) year.
   NA Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
   NA Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Storage Tank Facility Plan** application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
   x Fuels and hazardous substances will not be stored on-site.

2. x **ATTACHMENT A - Spill Response Actions**. A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.

3. NA Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. x **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.
   __ There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

5. x **ATTACHMENT C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is provided at the end of this form. For each activity described, an estimate of the total area of the site to be disturbed by each activity is given.

6. x Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Dry Comal Creek

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)
Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the

Technical Guidance Manual for guidelines and specifications. **All structural BMPs must be shown on the site plan.**

7. _x_ **ATTACHMENT D - Temporary Best Management Practices and Measures.** A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form. For each activity listed in the sequence of construction, include appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

_x_ TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information has been provided in the attachment at the end of this form

a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

_NA_ **ATTACHMENT E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is provided at the end of this form. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
_x_ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. _x_ **ATTACHMENT F - Structural Practices.** Describe the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site. Placement of structural practices in floodplains has been avoided.

13. _x_ **ATTACHMENT G - Drainage Area Map**. A drainage area map is provided at the end of this form to support the following requirements.

_NA_ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
_NA_ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
_NA_ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side

slope boundaries of the construction area.

_x_ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

11. _NA_ **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.

12. _x_ **ATTACHMENT I - Inspection and Maintenance for BMPs.** A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan.

13. _x_ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. _x_ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. _NA_ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. _x_ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

SOIL STABILIZATION PRACTICES

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. _x_ **ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.

18. _x_ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. _x_ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

ADMINISTRATIVE INFORMATION

20. _x_ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. _x_ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. _x_ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **TEMPORARY STORMWATER SECTION** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Jon Gaynor RG Agent , Al Hays P.E. PhD
Print Name of Customer/Agent

Signature of Customer/Agent

March, 24, 2010
Date

4-12-10

Attachment A

Spill Response Plan

All hazardous waste materials will be disposed of in the manner specified by local, state, and/or Federal regulations and by the manufacturer's guidelines of such products. La Fontana Springs staff and any contractors hired during construction will be instructed in these practices by either La Fontana Springs president, a designated LFS representative, or an authorized supervising contractor who will be responsible for seeing that these procedures are followed. Material Safety Data Sheets (MSDS) for each substance with hazardous properties, that will be used onsite, will be obtained and used for the proper management of potential wastes that may result from use of these products. An MSDS will be posted in the immediate area where such a product is used or stored and another copy will be maintained in the SWPPP file on the jobsite. Each employee or contractor who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the application MSDS for the product he/she is using, particularly regarding spill control techniques.

No spilled hazardous material or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge will be contained onsite until appropriate measures of compliance with state and federal regulations are taken to dispose of such contaminated stormwater.

Any spills of hazardous materials, which in quantities in excess of the Reportable Quantities as defined by EPA regulations shall be immediately reported to the EPA National Response Center (1-800-424-8802) and to the local offices of the Texas Commission on Environmental Quality (512-339-2929).

Contaminated Soil

Any contaminated soil, resulting from a spill of materials with hazardous properties, which may result from construction activities will be contained and cleaned up immediately in accordance with applicable state and federal regulations, the job site supervisor (typically LFS President) will be responsible for seeing these procedures are followed.

The following are material management practices that will be issued to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

1. An effort will be made to store only enough product required to do the job at each phase of the project.
2. All materials stored onsite will be stored in a neat orderly manner and if possible, under a roof or other enclosure.

3. Products will be kept in their original containers with original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be consumed before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The jobsite supervisor (typically LFS President) will be responsible for daily inspections to insure proper use and disposal of materials.

Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials.

1. The products will be kept only in original containers with legible original labels.
2. Original labels and material safety data sheets (MSDS) will be procured and used for each material.
3. If surplus product must be disposed of, manufacturers or local, state or federal recommended methods of proper disposal will be followed.
4. A spill control and containment kit (containing absorbent (i.e. straw, Clay absorbent (kitty litter), sawdust, acid neutralizer, brooms, shovels, dust pans, mops, rags, plastic bags and heavy duty trash containers. Also Personal protection Equipment, PPE, will be on hand (gloves, eye protection, hearing protection, hard hats – etc.) as required will be available at the site.
5. All of the products in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used to clean these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

Spill Prevention and clean-up

In addition to the material management practices, the following practices will be followed for spill prevention and cleanup:

1. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and location of the cleanup information and supplies.
2. Materials and equipment necessary for spill cleanup will be kept in the material storage area. Spill control and cleanup kit (containing absorbent materials - i.e. straw, clay absorbent (kitty litter), or sawdust; acid neutralizer, brooms, shovels, dust pans, mops, rags, plastic bags and heavy duty trash containers. Also Personal protection Equipment, (PPE), will be on hand (gloves, eye protection, hearing protection, hard hats – etc.) as required will be available at the site.
3. All spills will be cleaned-up immediately upon occurrence or discovery.
4. The spill area will be kept well ventilated and personnel will use appropriate PPE to protect against contact with hazardous materials.
5. Spills of toxic or hazardous material will be immediately reported to the state or federal or local government agency, regardless of the size of the spill. Spills in amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulation (40

CFR 302 list and oil) will be immediately reported to EOA National Response Center, telephone 1-800-424-8802. Reportable quantities of some substances which may be used at the jobsite are as follows:

a. Oil - appearance of a film or sheen on water
b. Pesticides - usually 1 lb.
c. Acids - 5000 lbs.
d. Solvents, flammable – 100lb.

6. A description of the spill, what caused it, how it could be prevented, and the cleanup measures will be posted in the materials storage area. If the spill exceeds the Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.
7. The jobsite supervisor (typically LFS President) will function as the spill prevention and cleanup coordinator. He will designate the employees or contractors to receive spill prevention and cleanup training. The designees will be responsible for each phase of prevention and /or cleanup. The names of responsible persons will be listed in the material storage area as appropriate.

Attachment B

Potential Sources of Contamination

The following material or substances with known hazardous properties are expected to be present onsite during construction:

- Crushed stone base material
- Clean fill sand
- Petroleum products
- Fertilizers and Pesticides
- Paints, Paint Solvents, Cleaning Solvents and Detergents

The following practices will be implemented to prevent contamination:

Waste Disposal

All waste materials will be collected and stored in a dumpster or similar container rented from a local waste management company, which will have a valid license to do business as a solid waste management company in the state of Texas and Comal County. The dumpster will comply will all applicable local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the container. The container will be emptied and hauled off to a landfill approved by the state and Comal County. No construction material will be buried onsite. All personnel will be instructed in the correct procedures for waste disposal. Notices stating these facts and procedures will be posted as appropriate throughout the construction period. The site supervisor (LFS President) will actively manage the proper disposal of all waste and insure these procedures are followed.

Off-Site Vehicle Tracking

The paved street access to the site entrance will be inspected daily during construction and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Accumulations of excess material will be collected and removed as appropriate to maintain a clean work area. Trucks hauling loose material will be covered with tarpaulins to prevent accidental spills or spreads.

Crushed Stone Base Material and Clean Fill Sand

The use of crushed stone and fill material will be limited to that required for installation of the aerobic septic tank and lines. Crushed stone base material and clean fill sand should be placed, and compacted on the site as soon as it arrives. Storage of material will be avoided. If storage of materials onsite cannot be avoided, it will be placed in a location that is protected using temporary BMP's and within the generally defined limits of construction. At no time will any crushed stone base material be accepted onsite unless all temporary BMP's are in place. Evaluation of any stockpiles should take place

immediately after any rainfall event significant enough to cause discharge of fines from the stockpile, as visually detected. Protection of any existing stormwater or water quality treatment facility on the site will remain a priority during the application of crushed stone base.

Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. No petroleum storage tanks will be used onsite. There are no plans to use any new asphalt substances onsite.

Fertilizers and Pesticides

Fertilizers and pesticides will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in to the soil to limit exposure to stormwater. Storage of material will be in a covered shed. The contents of any partially used bags or containers of fertilizer and pesticides will be transferred to a sealable plastic bin to avoid spills and kept in an appropriate structure protected from the weather.

Paints, Paint Solvents, Cleaning Solvents and Detergents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

Certain types of discharges are allowable under the NPDES General Permit for Construction Activity, and it is the intent of the SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in the SWPPP will be strictly followed to ensure that no contamination of these non-stormwater discharges takes place. The following allowable non-stormwater discharges which may occur from the job site include:

- Discharges from firefighting activities
- Water used to wash vehicles or control dust to minimize offsite sediment tracking
- Portable water sources such as waterline flushing, irrigation drainage from
- Watering vegetation, routine exterior building washing (without detergents present)
- Pavement washwaters where spills or leaks of hazardous materials are not
- Involved and detergents have not been used
- Springs and other uncontaminated groundwater, including dewatering ground
- Water infiltration
- Foundation or footing drains where no contamination with process materials such as solvents has occurred.

Attachment C

Sequence of Major Activities

The Contractor will be responsible for implementing the following erosion control and stormwater management control structures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follow:

1. Install perimeter silt fences as shown on plans for the upgraded septic tank and lines
2. Install all Temporary Best Management devices to control runoff and erosion at the excavation / installation site. Straw mats or wood fiber blankets will be used to control local erosion during excavation. Material used will be compliant with performance metrics from TxDot.
3. Begin supervised excavation for septic tank and stray head lines.
4. Frequent watering of the excavation and fill materials and areas shall be accomplished to minimize wind erosion.
5. Modify existing power utility connections for tank pump.
6. Modify upslope area around the septic tank to reduce runoff erosion potential
7. Define final site grading, vent and access ports, confirm functionality
8. Establishing final vegetative cover growth.
9. Complete construction and revegetation.
10. Remove silt fencing and temporary erosion barriers only after all construction is complete and exposed surfaces are stabilized.

Attachment D

Temporary Best Management Practices and Measures

Temporary Best Management Practices used during the construction phase include the following:

Dust Control:
Silt Fence
Stormwater Erosion Control:
Rocks Berms, Straw Blankets

Construction impact is expected to be very minimal due to 1) very limited area of impact – limited to septic tank installation and installation of spray head lines and spray heads and 2) very short construction time expected to be approximately 1 week.

Pollution of surface water, groundwater, and stormwater that originates upgradient from the site will be prevented by diverting the upgradient flow around the disturbed areas. The proposed site grades, which are very localized, (septic tank area) will be set above the adjacent existing grades. This will prevent offsite flows from entering the site.

The proposed BMP's will prevent pollution of surface water, groundwater and stormwater by the following methods:

- Minimize the amount of disturbed area, thereby reducing the amount of sediment loads downstream.
- Reducing erosion by keeping runoff velocities low and by providing stabilized outlets at points of concentrated flow.
- Capturing sediment loads by placing silt fence downgradient of the disturbance and using straw blankets in the construction area.

To prevent pollutants from entering the surface streams, sensitive features, and the aquifer, sediment traps such as silt fences are proposed upgradient of all surface streams, sensitive features and the aquifer.

Proposed BMP's have been designed to maintain, to the maximum extent practical, flow to the naturally occurring sensitive features. BMP's which are proposed around these features are designed to trap sediment but still allow runoff to the features.

BMP's that will be included in this project include:

Temporary Erosion Control BMP's

Dust Control shall be provided as necessary to reduce the movement of excess dust from exposed soil surfaces. Irrigation shall be used as the temporary method of dust control and shall be implemented as necessary. Care shall be taken to avoid excess runoff and erosion.

Temporary Sediment Control BMP's

Silt Fence placed downgradient of grading associated with site construction

Attachment E

Request to Temporarily Seal a Feature

A single sensitive feature has been identified during the geological assessment at WP 053 (Figure 1). However, the featured is located in the undisturbed portion of the property and will not be impacted by the proposed construction in this submittal.

Therefore, no temporary sealing of naturally-occurring sensitive features is requested at this time.

Attachment F

Structural Practices

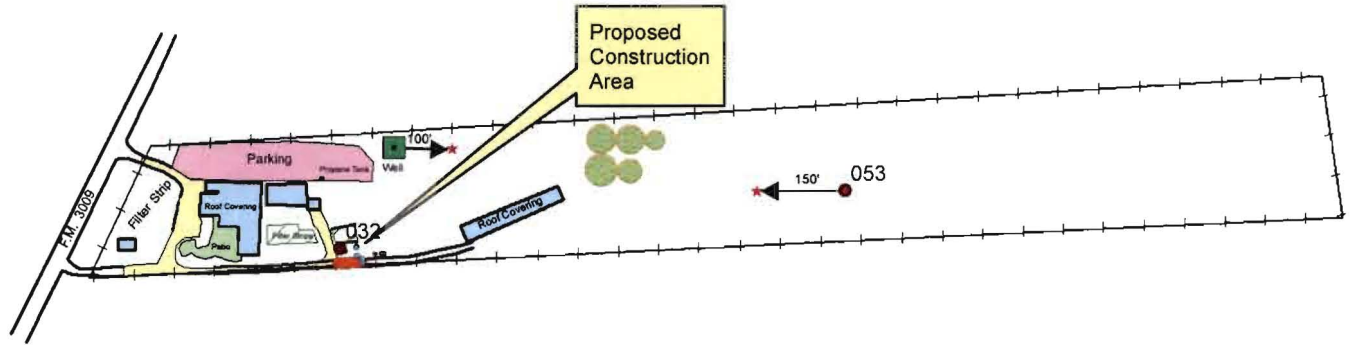
Structural practices for this site include:

- Silt fences downstream of all disturbed areas,

See Figure 6, Construction and BMP Proposal for control plan for locations of all structural controls.

La Fontana Springs

Construction Proposal



4-23-10

0 250 500 1,000 Feet

Construction Legend

- Temp BMP - spill prev.
- Temp BMP Silt Fence
- Spray Irrigation Fields
- Perm BMP Rock Berms
- Replaced Septic Tank
- Proposed Tank Expansion

Legend

- Well
- 032 - Septic Tank Location
- Spray Irrigation Fields
- Propane Tank
- Property Boundary
- Vegetated Filter Strip

Areas

- Area A - Paving
- Area B - Roof Tops
- Area C - Parking Gravel
- Area D - Landscaped

Figure 6: Proposed Construction and BMP Implementation

April 22, 2010

Geo_Site_Construction_Proposal_a2.mxd

La Fontana Springs Event Center

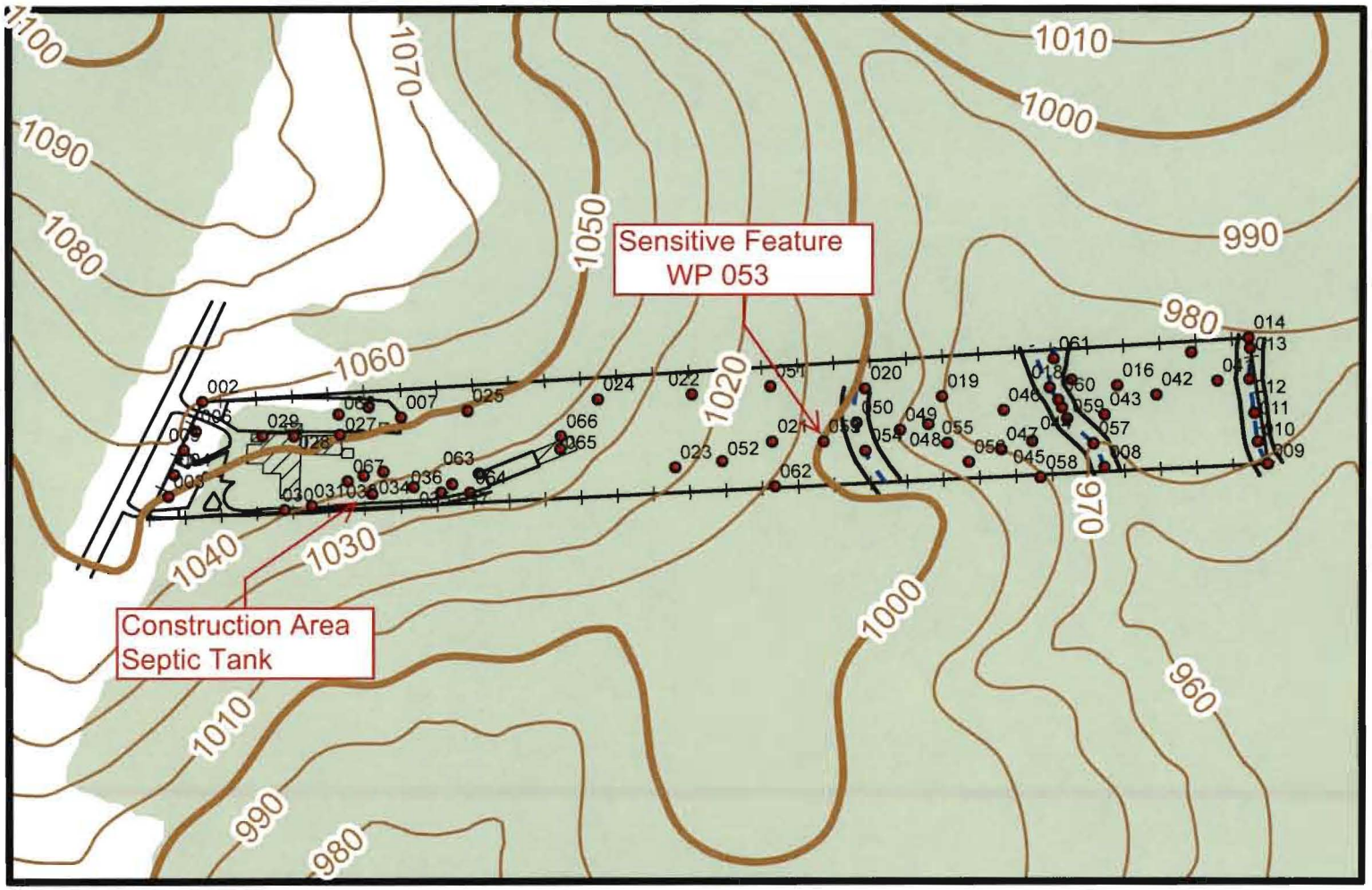
Temporary Stormwater

Attachment G

Drainage Area Map

The site map with topographic contours, Figure 7 below, functions as the drainage area map. The gentle localized slopes of the impervious cover almost exclusively drain to one of three vegetated filter strips and the remainder flows to enhanced landscape areas. The current construction plan, as shown in Figure 6, only involves expansion of the existing septic tank location, installation of spray head lines and heads and a minor amount of imperious roof cover added to the western extreme of the property. The drainage across the Edwards is shown in Attachment B, (TCEQ 0587) which is a digitally merged topographic map with the Edwards Aquifer geology (Blome, 2005) superimposed. Appendix 5, in the back of this report shows the same map at a 1"=2000' scale. The map documents the drainage pattern from the subject property to the down gradient limit of the Edwards recharge area. The stormwater drainage is to the Dry Comal Creek, SE of the subject property.

The additional impervious roof cover, (blue rectangle on the western edge of Figure 6) will drain to an existing filter strip. Excavation for the septic expansion will not change any existing grades; therefore a Grading Plan is not included with the current submittal. Drainage calculations are included for the total area, historical and new, as shown on the enclosed site map as shown in Attachment B in section TCEQ-0584 and Appendix 6. Impervious cover and runoff calculations are based on the existing plus proposed impervious cover. The current development proposal includes only a very slight increase in impervious cover (0.4%), as outlined in the project description. More than 99% of the impervious cover was pre-existing development of the property. Most of this pre-existing development actually pre-dates the Edwards Aquifer rules adopted in 1974. All included runoff volumes are totals for the entire property, regardless of age, and are consistent with the proposed increase in impervious cover.



1:4,000

Contour Interval 10 Feet

Legend

- Waypoints

Contours

- Major
- Minor
- Surface Water Flow Way
- Man Made Structure
- Property Boundary

Topographic Map of the La Fontana Springs Property

(Source: USGS Bat Cave 7 1/2' Quad. Dated - 1988)

Figure 7

Geo_Site_Topo.mxd

Attachment H

Temporary Sediment Pond Plan and Calculations

No temporary sediment pond plan is proposed for this development.

La Fontana Springs Event Center
Temporary Stormwater

Attachment I

Inspection and Maintenance for BMP's

The following inspection and maintenance practices will be used to maintain erosion and sedimentation controls:

1) All control measures will be inspected at least every 7 days and following any storm of rainfall >0.5 inches.
2) All measures will be maintained in good working order; if repairs are found to be necessary, they will be completed within 7 days of report.
3) Built up sediment will be removed from silt fence when it has reached a maximum of 6 inches.
4) Silt fences will be inspected for depth of sediment and tears to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in
5) the ground.
6) Sediment basins, if present, will be inspected for depth of sediment, and accumulated sediment will be removed when the basin volume has been reduced to 50% of its original capacity or at the end of the job.
7) Diversion dikes, if present, will be inspected and any breaches promptly repaired.
8) Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.

A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in the SWPPP.
The job site supervisor will typically select be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.

Personnel selected for the inspection and maintenance responsibilities will receive training from the job site supervisor. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of other inspection forms.

Inspection and Maintenance Report Forms

Upon installation of any required or optional erosion control device has been implemented, weekly inspections of each device shall be performed by the Contractor. The Inspection and Maintenance Reports found in this SWPPP (or equivalent forms the Contractor chooses to use, approved by the Engineer) shall be used to inventory and report the condition of each device to assist in maintaining them in good working order.

These report forms shall become an integral part of the SWPPP and shall be readily accessible to any inspection officials, the Civil Engineering Consultant, and the Owner for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon written request.

The Contractor shall notify the property owner and the Engineer in writing that training of inspectors for purposes of compliance with this SWPPP has been performed.

Silt Fence Materials

1) Silt fence material shall be polypropylene, polyethylene or polyamide woven or non-woven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd; Mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight $1.25/ft^2$, and Brindell hardness exceeding 140.
3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Inspection and Maintenance Report Guidelines

1) Inspect all fencing weekly, and after any rainfall.
2) Remove sediment when buildup reaches 6 inches.
3) Replace any torn fabric or install a second line of fencing parallel to the torn section.
4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation, and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

CONSTRUCTION/IMPLEMENTATION CHECKLIST

1) Maintain Records of Construction Activities, including:
   - Dates when grading activities will occur
   - Dates when construction activities temporarily cease on a portion of the site
   - Dates when construction activities permanently cease on a portion of the site
   - Dates when stabilization measures are initiated on the site.

2) Prepare Inspection Reports Summarizing:
   - Names of inspector
   - Qualifications of inspector
   - Measures/area inspected
   - Observed conditions
   - Changes necessary to the SWPPP

3) Report Releases of Reportable Quantities of Oil or Hazardous Materials (if they occur)
   - Notify national Response Center (1-800-424-8802) immediately
   - Notify permitting authority in writing within 14 days
   - Modify the pollution prevention plan to include:
     - The date of release
     - Circumstances leading to the release
     - Steps taken to prevent reoccurrence of the release

4) Modify Pollution Prevention Plan as necessary to:
   - Comply with the minimum permit requirements when notified that the plan does not comply
   - Address a change in design, construction operation, or maintenance which has an effect on the potential for discharge of pollutants
   - Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

La Fontana Springs Event Center
Temporary Stormwater

Attachment J

Schedule of Interim and Permanent Soil Stabilization Practices

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures, by the 14th day after a construction activity temporarily or permanently ceases, is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site. In areas experiencing droughts, where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased, is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Stabilization practices for this site include:

- Land clearing activities shall be done only in areas where earthwork and other construction will be performed and shall progress as earthwork is needed
- Watering of excavation and disturbed areas to minimize wind erosion during construction

Permanent seeding and. planting of all unpaved areas using the planting of native vegetation, grass seed, hydromulch, or grass sod as appropriate.

Weekly inspections of seeding and planting for bare spots, washouts, and healthy growth shall be made. A maintenance inspection report will be prepared after each inspection. The following items must be satisfied prior to final stabilization/termination.

- All soil disturbing activities are complete
- Temporary erosion and sediment control measures have been removed or will be removed at an appropriate time
- All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed

La Fontana Springs Event Center
Temporary Stormwater

La Fontana Springs Inspection and Maintenance Report

Stabilization Measures

Inspector: _____ Date: _____

Qualification of Inspector: _____

Days Since Last Rainfall _____

Amount of last Rainfall: _____

Area	Date Since Last Inspection	Date of Next Disturbance	Stabilized Y/N	Stabilized With	Condition

Stabilization Required:

Performed By:

Date:

_____

PERMANENT STORMWATER SECTION

TABLE OF CONTENTS

Permanent Stormwater Section
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

REGULATED ENTITY NAME: La Fontana Springs LLC.

Permanent best management practices (BMPs) and measures that will be used during and after construction is completed.

1. _x_ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

2. _x_ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   _x_ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
   __ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is provided below:

   _____
   _____

3. _x_ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

4. _NA_ Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   __ This site will be used for low density single-family residential development and has 20% or less impervious cover.
   __ This site will be used for low density single-family residential development but has more than 20% impervious cover.
   __ This site will not be used for low density single-family residential development.

5. _x_ The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites

where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

_x_ **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.

___ This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

___ This site will not be used for multi-family residential developments, schools, or small business sites.

6. **ATTACHMENT B - BMPs for Upgradient Stormwater.**

___ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is identified as **ATTACHMENT B** at the end of this form.

___ If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

_x_ If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

___ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is identified as **ATTACHMENT C** at the end of this form.

_x_ If permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, an explanation is provided as **ATTACHMENT C** at the end of this form.

8. _x_ **ATTACHMENT D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" has been addressed.

9. _x_ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

_x_ The permanent sealing of or diversion of flow from a naturally-occurring "sensitive" or "possibly sensitive" feature that accepts recharge to the

Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any naturally-occurring "sensitive" or "possibly sensitive" features on this site.

__ **ATTACHMENT E - Request to Seal Features.** A request to seal a naturally-occurring "sensitive" or "possibly sensitive" feature, that includes a justification as to why no reasonable and practicable alternative exists, is found at the end of this form. A request and justification has been provided for each feature.

10. _NA_ **ATTACHMENT F - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

A construction plan is included under the Temporary Stormwater section. Construction on the subject property is limited to upgrading the current aerobic septic system and repositioning the spray heads. The proposed construction results in no change to impervious cover or any change in grade or slopes.

11. _NA_ **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.

12. __ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

__ Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.

_NA_ **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.

14. _X_ **ATTACHMENT I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is provided at the end of this form. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

Responsibility for maintenance of permanent BMPs and measures after construction is complete.

14. _NA_ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation,

an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

A request for Waiver from permanent BMP's has been made due to the less than 20% impervious cover.

15. NA A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

A request for Waiver from permanent BMP's has been made due to the less than 20% impervious cover.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **PERMANENT STORMWATER SECTION** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Jon Gaynor RG. Agent — Al Hays PE. PhD
Print Name of Customer/Agent

Signature of Customer/Agent — April 10, 2010 (Date)

4-12-10

La Fontana Springs Event Center
Permanent Stormwater

Attachment A

20% or Less Impervious Cover Waiver

A waiver of Permanent BMP requirements is requested from the Executive Director of TCEQ. At the time of purchase in 2007, the existing site had been developed for both commercial and residential uses. The existing development included a flat parking area, a steel building for deer blind manufacturing, a residence building, a second steel warehouse building, a water well /pump house and propane tank, and a conventional gravity feed septic system. This existing development was begun in 1973 in advance of the Edwards Aquifer regulations with installation of the residence, septic, driveways and parking area. Documentation of the timing is provided in the general Information section in the *Statement of Ownership and Location* document. The exact timing of the subsequent expansion of impervious cover is difficult to precisely define, but is believed to have been episodic over many years, accurate timing is being pursued by the current owner.

A calculation of total impervious cover to pervious, undisturbed acreage, for the entire 10.369 acres results in a 12% ratio, well under the TCEQ guideline of 20%. The 1.27 total acres of impervious cover includes the proposed slight additional roof cover. No additional impervious cover is planned and therefore no additional sources of TSS are expected. The stormwater runoff from the impervious covered area (driveways, parking area, roof cover, etc) almost exclusively drains to three large vegetated filter strips and to a landscaped area as shown in Figure 6. The detailed topographic drainage from the impervious cover to the BMP's is shown in Figure7, which all surround these developed structures (see Temporary Stormwater). Numerous improvements are in place to reduce stormwater velocity and therefore erosion, and distribute TSS load to the vegetated areas. Structurally, the subject property lies just south of the topographic high on Fm 3009. Therefore a very limited upgradient catchment exists with very little disturbed area. The off-property upgradient stormwater contribution to the subject property is very limited and is not anticipated to have significant impact on water quality.

A waiver is requested for the permanent storm water runoff BMP's due to the pre-1974 construction and the low imperious cover (12%) overall.

Attachment B

BMPs for Upgradient Stormwater

Upgradient stormwater is diverted on the site into vegetated filter strips and onto native landscaped areas. Some additional terracing with rock berms have been installed to help reduce stormwater flow velocity. The proposed construction site, an expansion of the aerobic septic tank has <10 degrees of slope. This area will receive terracing measures to reduce the slope, adding rock berms and stabilizing vegetation. During construction, temporary measures, already outlined, will prevent stormwater erosion and therefore prevent an increase in TSS contamination. The property is generally sloped towards the south and east as shown in Figure 7. All BMP's are sized for onsite improvements and are shown to be down gradient to the impervious cover (see Figure 6). There is existing vegetation down gradient of the site that will provide an additional measure of water quality protection.

Attachment C

BMPs for On-Site Stormwater

Permanent Best Management Practices for preventing pollution of surface water or groundwater that originates onsite or flows offsite include the following:

- Vegetated Filter Strips
- Existing wooded vegetation onsite and downgradient of the site

Runoff from this property will be surface drained, and will leave the site in a sheet flow pattern, similar to the existing flow patterns on the tract. Minor runoff channelization does occur around the foundation of the existing buildings. It is conveyed to vegetated filter strips down slope of the improvements. More than 88% of the property is in undisturbed native condition. Some natural channelized stormwater flow does occur on the eastern portion of the property (undisturbed area) as indicated on the site map (Figures 1 and 3). These stormwater "channels" have limited upgradient catchment area due to the high topographic setting of this property (Attachment B and Figure 3). The upgradient drained area is largely undisturbed native landscaping, suggesting limited contamination potential. No onsite storm sewers are proposed with the project. There is existing vegetation down gradient of the site that will provide a measure of water quality protection.

La Fontana Springs Event Center
TSS Load Removal Calculations

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: La Fontana Springs LLC
Date Prepared: 3/21/2010

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Comal	
Total project area included in plan * =	10.37	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	1.22	acres
Total post-development impervious cover fraction * =	0.12	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	1095	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

4-12-10
STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED
PROFESSIONAL ENGINEER

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	10.37	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.22	acres
Post-development impervious fraction within drainage basin/outfall area =	0.12	
$L_{M\ THIS\ BASIN}$ =	1095	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	10.37	acres
A_I =	1.22	acres
A_P =	9.15	acres
L_R =	1323	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	1095	lbs.
F =	0.83	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.20	inches
Post Development Runoff Coefficient =	0.14	
On-site Water Quality Volume =	6335	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	1267	
Total Capture Volume (required water quality volume(s) x 1.20) =	7602	cubic feet

16. Vegetated Filter Strips Designed as Required in RG-348 Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.
The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.

Attachment D

BMPs for Surface Streams

Permanent Best Management Practices for preventing pollution from entering surface streams, sensitive features and the aquifer are as follows:

- Vegetated Filter Strip
- Existing Wooded Vegetated Area Downgradient of the Site

The site is covered with existing gravel parking area, asphalt driveway and impervious roofing cover. The vegetative filter strips are sized to treat the increase in TSS generated by the existing and proposed construction. There is existing wooded vegetation down gradient of the site that will provide a measure of water quality protection. The runoff, from up gradient flows across the gravel parking lot, to the existing vegetated filter strips then across pervious existing gravel road and finally offsite to an existing pervious and wooded area before entering a tributary of the Dry Comal creek.

La Fontana Springs Event Center
Permanent Stormwater

Attachment E

Request to Seal Features

One sensitive feature was identified during the geological assessment as marked on the site map Figure 1, Waypoint 053. . It lies in an undisturbed area of native landscaping. The feature's location appears to have limited risk to contamination. Therefore, it is not requested to seal this naturally-occurring sensitive feature.

La Fontana Springs Event Center
Permanent Stormwater

Attachment F

Construction Plans

The proposed construction is limited to the expansion of the aerobic septic tank replacement, very minor slope adjustments around the septic tank, installation of spray lines and heads as shown in Figure 6 (attached to the Temporary Stormwater section of this application). No other construction plans or grading is proposed. All TSS calculations contained herein have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer.

La Fontana Springs Event Center
Permanent Stormwater

Attachment G

Inspection, Maintenance, Repair and Retrofit Plan

The LFS president is responsible for the inspection, maintenance, repair and retrofit of permanent BMP's until such time that the maintenance obligation is either assumed in writing by another, or the ownership of the property is transferred.

The following inspection, maintenance, repair, and retrofit practices will be used for permanent BMP's:

1) Permanent seeding will be inspected for bare spots, washouts, and healthy growth semi-annually. Areas will be reestablished with topsoil, as needed, and reseeded to establish lost vegetation. These areas may require extended care and watering during the process of reestablishing lost vegetation.

2) No retrofit plan is needed for vegetative filter strips.

3) Maintenance will include mowing to a safe height (a maximum of 5 inches) to assure continued coverage and watering as necessary during periods of drought. Mowing will be completed a minimum of twice annually, and shall be performed more frequently to maintain the desired vegetation height. Grass clippings and brush debris should not be deposited within the filter strip.

4) The filter strip shall be inspected at least twice annual for erosion or damage to vegetation, and after periods of heavy rainfall. More frequent inspection may be necessary in the early years after completion- Debris and litter removal shall be of such items shall be checked for no less than 4 times per year.

5) Sediment removal, though not normally required within vegetative filter strips, should be accomplished by hand or with flat-bottomed tools. Sediment removal is not typical since sediment typically bonds with existing soils and is penetrated by the vegetation. The most likely location of this occurrence will be on the upstream side of the filter strip.

6) Control of pests and weeds within the filter strip shall first be attempted through physical manual means. If this does not prove successful, the introduction of organic means will be instituted, with the specific application directly correlated to a specifically identified problem. Persistent problems that remain after this treatment method can include the use of • the least toxic earth-wise products available at local retailers. Minimal application rates and frequencies shall be utilized in accordance with manufacturer's recommendations to maintain the filter strip in a functional condition. This option is least desirable and should be the last in order of implementation.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Attachment H

Pilot Scale Field Testing Plan

No plan for pilot-scale field testing is required for this project since the permanent BMP's are designed in accordance with TCEQ standards.

Attachment I

Measures for Minimizing Surface Stream Contamination

Measures for minimizing surface stream contamination are as follows:

- Vegetative filter strip
- Wooded Vegetated Area Down Gradient of Site improvements

The proposed filter strip will treat the proposed increase in impervious cover. There is existing wooded vegetation down gradient of the site that will also provide a measure of water quality protection. The runoff flows across the existing gravel parking area and then across vegetated filter strips and a gravel road, ultimately offsite to existing pervious and wooded area before entering a tributary of the Dry Comal creek.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Cesar Trivino,
Print Name

President,
Title - Owner/President/Other

of La Fontana Springs LLC.,
Corporation/Partnership/Entity Name

have authorized Jon Gaynor
Print Name of Agent/Engineer

of independent contractor
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For applicants who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization must be provided for the person preparing the application, and this form must accompany the completed application.

Sign Here

Cesar Trivino
Applicant's Signature

8 April 2010
Date

THE STATE OF Texas §

County of Guadalupe §

BEFORE ME, the undersigned authority, on this day personally appeared Cesar Trivino known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 8th day of April, 2010.

NOTARY PUBLIC

ROGER C. VILLARREAL
Notary Public
State of Texas
My Comm. Exp. 02-07-2014

Roger C. Villarreal
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 2/07/14

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Attachments **Describe Any Attachments:** *(ex. Title V Application, Waste Transporter Application, etc.)*

☒ Yes ☐ No Water Polution Abatement Plan

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN		RN 105699060

5. Effective Date for Customer Information Updates (mm/dd/yyyy) 3/24/2010

6. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup
☐ Other:

7. General Customer Information

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of
☒ Corporation ☐ Individual ☐ Sole Proprietorship- D.B.A
☐ City Government ☐ County Government ☐ Federal ☐ State Government
☐ Other ☐ General Partnership ☐ Limited Partnership ☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*
Trivino, Cesar	Stutman,	1/21/2006

10. Mailing Address: 27618 Natural Bridge Caverns road

City: San Antonio State: TX ZIP: 78266 ZIP + 4: 2653

11. Country Mailing Information *(if outside USA)*

12. E-Mail Address *(if applicable)*: jjcesartri@hotmail.com

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(210) 643-7535		(210) 967-4556

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
83-047118	3-20189-339		800599848

20. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?
☒ Yes ☐ No

TCEQ

TCEQ Use Only

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☐ No Change** *(See below)*

**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*

La Fontana Springs Event Center LLc.

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	27618 Natural Bridge Caverns road						
	City San Antonio	**State** TX	**ZIP** 78266	**ZIP + 4** 2653			
25. Mailing Address:	27618 Natural Bridge Caverns road						
	City San Antonio	**State** TX	**ZIP** 78266	**ZIP + 4** 2653			

26. E-Mail Address: jjcesartri@hotmail.com

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(210) 643-7535		(210) 967-4556

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
7299		812990	

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Banquet hall used to host periodic social gatherings, weddings, birthday parties, annniversaries etc

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location: 29 miles NW of downtown San Antonio. 17 miles north on I35, exit 175 to FM3009 - Natural Bridge Caverns Rd., 9.3 miles NW along Fm 3009 to 27618 Natural Bridge Caverns Rd. Just south of FM 3009 and Fm 1863 (hwy 46)

36. Nearest City	County	State	Nearest ZIP Code
San Antonio	Comal	Tx	78266

37. Latitude (N) In Decimal:	29.70805	38. Longitude (W) In Decimal:	98.31087
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	42	28.98N	98	18	39.14W

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☐ New Source Review – Air	☒ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities

TCEQ

TCEQ Use Only

☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Jon Gaynor	41. Title:	Professional Geoscientist

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(713) 854-3435		(832) 486-6480	javaman@hal-pc.org

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	La Fontana Springs LLC	Job Title	President
Name *(In Print)*:	Cesar Trivino	Phone:	(210) 643-7535
Signature:		Date:	3/24/2010

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Form

NAME OF PROPOSED REGULATED ENTITY: La Fontana Springs LLC.
REGULATED ENTITY LOCATION: _____
NAME OF CUSTOMER: Cesar Trivino
CONTACT PERSON: Jon Gaynor PHONE: 713-858-3435
(Please Print)

Customer Reference Number (if issued): CN _____ (nine digits)

Regulated Entity Reference Number (if issued): RN **105699060** (nine digits)

Austin Regional Office (3373) ☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362) ☐ Bexar ☒ Comal ☐ Medina ☐ Kinney ☐ Uvalde

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to (Check One):

☐ **Austin Regional Office**

☐ **Mailed to TCEQ**:
TCEQ – Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ **San Antonio Regional Office**

☐ **Overnight Delivery to TCEQ**:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

Site Location (Check All That Apply): ☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	Size		Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling		Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks		Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	10.369	Acres	$ 6,500
Sewage Collection System		L.F.	$
Lift Stations without sewer lines		Acres	$
Underground or Aboveground Storage Tank Facility		Tanks	$
Piping System(s)(only)		Each	$
Exception		Each	$
Extension of Time		Each	$

Signature Mar. 24, 2010
Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Schedule
30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

PROJECT	PROJECT AREA IN ACRES	FEE
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

PROJECT	COST PER LINEAR FOOT	MINIMUM FEE MAXIMUM FEE
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

PROJECT	COST PER TANK OR PIPING SYSTEM	MINIMUM FEE MAXIMUM FEE
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

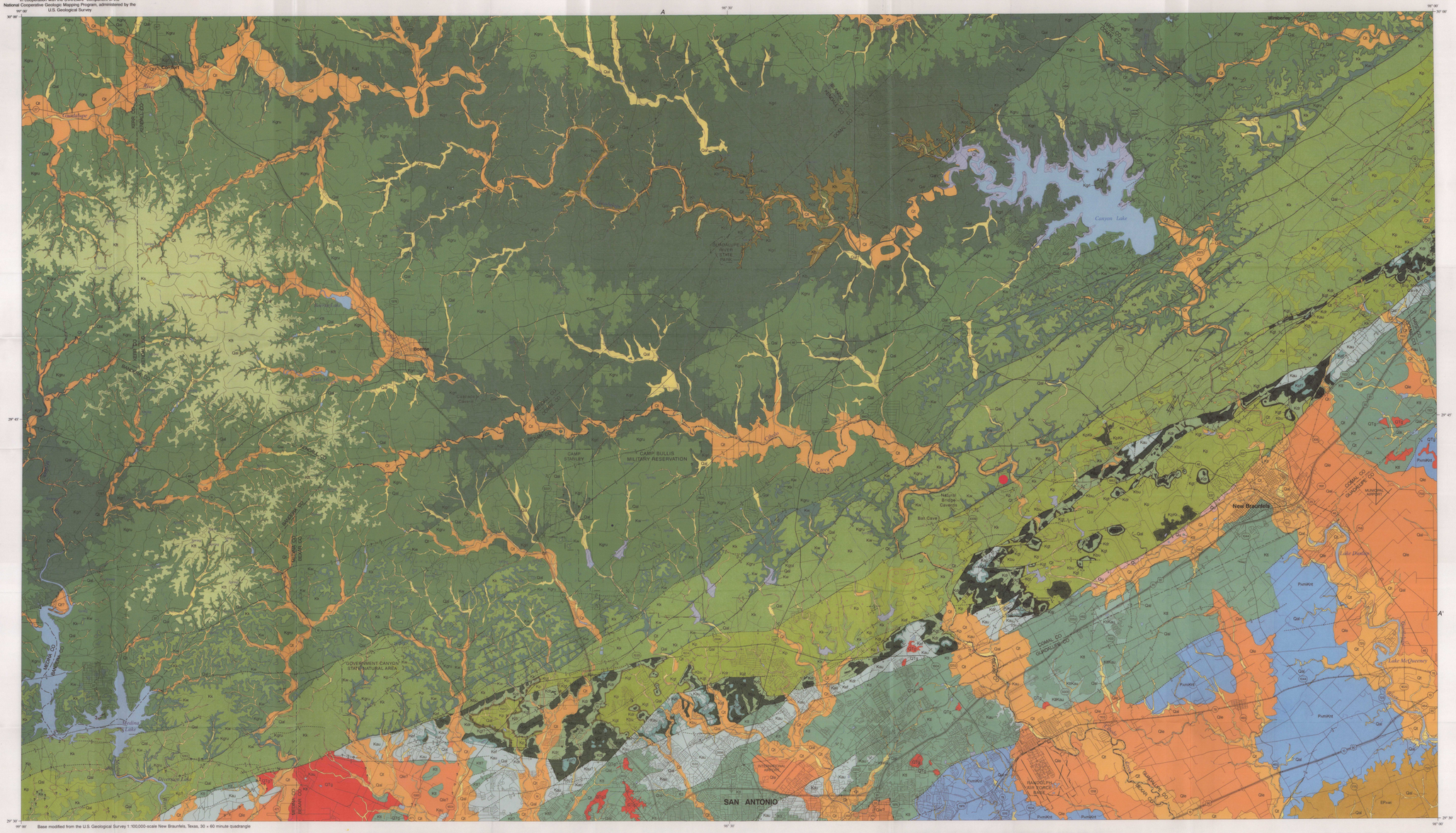
PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

THE UNIVERSITY OF TEXAS AT AUSTIN
BUREAU OF ECONOMIC GEOLOGY
SCOTT W. TINKER, DIRECTOR
in cooperation with the STATEMAP component of the National Cooperative Geologic Mapping Program, administered by the U.S. Geological Survey

GEOLOGIC MAP OF
THE NEW BRAUNFELS, TEXAS, 30 × 60 MINUTE QUADRANGLE
MISCELLANEOUS MAP NO. 39



Base modified from the U.S. Geological Survey 1:100,000-scale New Braunfels, Texas, 30 × 60 minute quadrangle

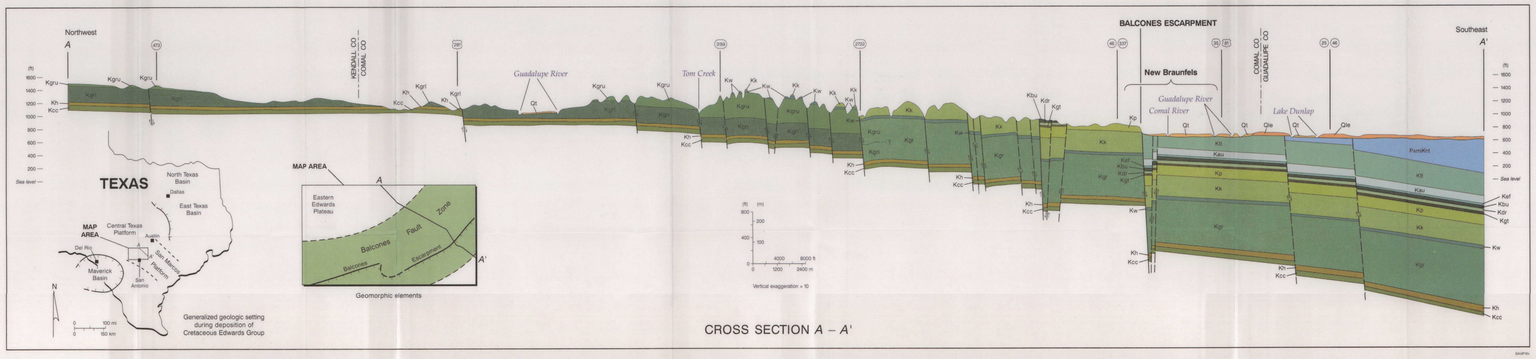
GEOLOGIC MAP OF THE NEW BRAUNFELS, TEXAS, 30 × 60 MINUTE QUADRANGLE

Edward W. Collins
2000

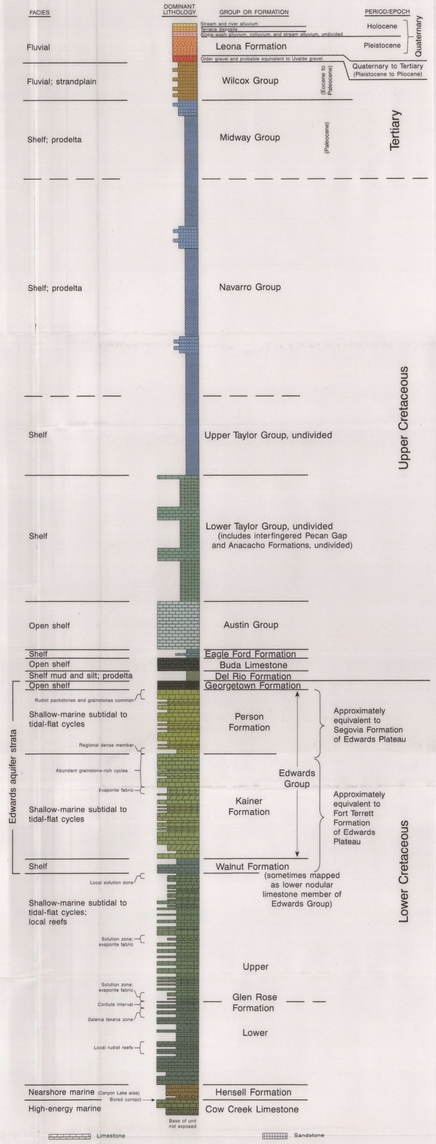
SCALE 1:100,000

0 2 4 6 8 10 12 14 16 18 20 MILES
0 2 4 6 8 10 12 14 16 18 20 KILOMETERS

DATUM IS MEAN SEA LEVEL
UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 14



GENERALIZED STRATIGRAPHY



QUATERNARY

- Qal — Alluvium; gravel, sand, silt, and mud; mostly modern drainageway deposits; includes some undivided thin, local terrace deposits and local bedrock outcrops
- Qt — Terrace alluvium; gravel, sand, silt, and mud
- Qu — Undivided slope-wash, drainageway, and terrace alluvium; gravel, sand, silt, and mud
- Qls — Leona Formation; sand, silt, and gravel

QUATERNARY–UPPER TERTIARY

- QTg — Older gravelly alluvium; gravel and sand; possibly equivalent to Uvalde gravel

TERTIARY (Eocene–Paleocene)

- EPwil — Wilcox Group; mudstone and sandstone

TERTIARY (Paleocene)–UPPER CRETACEOUS

- PumKnt — Undivided Cretaceous upper Taylor and Navarro Groups and Paleocene Midway Group; upper Taylor Group: clay–claystone to mud–mudstone and marl; Navarro Group: clay–claystone to mud–mudstone, marl, siltstone, and sandstone; Midway Group: clay–claystone to mud–mudstone, siltstone, and sandstone

UPPER CRETACEOUS

- Kft — Lower Taylor Group; marl, argillaceous limestone, limestone, and some clay–claystone to mud–mudstone; includes undivided Pecan Gap and Anacacho Formations
- Kb — Basalt; minor occurrences
- Kau — Austin Group; chalk, limestone, and argillaceous limestone
- KUKau — Undivided Austin and lower Taylor Groups
- Kef — Eagle Ford Formation; shale to mudstone, siltstone, and flaggy limestone
- Kbu — Buda Formation; limestone
- Kgr — Del Rio Formation; clay–claystone to mud–mudstone
- Kg — Georgetown Formation; limestone and argillaceous limestone

Edwards Group: Kainer (Kk), Person (Kp), Fort Terrett (Kft), and Segovia (Ks) Formations

Platform setting, Balcones Fault Zone	Platform setting, Edwards Plateau
Kp	Ks
Kk	Kft
Kgr	

- Kp — Person Formation; limestone, dolomitic limestone, dolomite, and lesser argillaceous limestone; approximately equivalent to Segovia Formation of eastern Edwards Plateau
- Kk — Kainer Formation; limestone, dolomitic limestone, dolomite, and lesser argillaceous limestone; approximately equivalent to Fort Terrett Formation of eastern Edwards Plateau
- KDKK — Undivided Kainer and Person Formations
- Ks — Segovia Formation; limestone, dolomitic limestone, dolomite, and lesser argillaceous limestone; approximately equivalent to Person Formation of Balcones Fault Zone
- Kft — Fort Terrett Formation; limestone, dolomitic limestone, dolomite, and lesser argillaceous limestone; approximately equivalent to Kainer and Walnut Formations of the Balcones Fault Zone
- Kfu — Walnut Formation; limestone, argillaceous limestone, marl, and dolomitic limestone; sometimes referred to as lower nodular limestone member of Kainer Formation; equivalent to lower Fort Terrett Formation of eastern Edwards Plateau
- KgrU — Upper Glen Rose Formation; limestone, dolomitic limestone, argillaceous limestone, and some marl
- KgrL — Lower Glen Rose Formation; limestone, dolomitic limestone, argillaceous limestone, and some marl; top of unit marked by *Corbula* interval; letter C indicates where *Corbula* interval was observed in field
- Kgr — Undivided Glen Rose Formation on east part of cross section
- Kh — Hensell Formation; sandy limestone and sandy dolomitic limestone (Canyon Lake area)
- Kcc — Cow Creek Formation; sandy limestone and argillaceous limestone

Normal fault; U–upthrown block, D–downthrown block

Faults drawn as solid lines are relatively more distinct in the field and on aerial photographs than where they are drawn as dashed lines; dotted lines show where faults are covered by unfaulted deposits; question marks (?) indicate where faults are uncertain

Stream, lake; perennial where solid; intermittent streams where partly dotted; hatched area subject to inundation

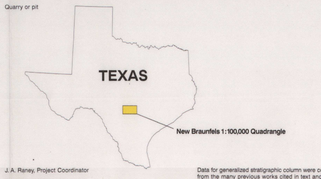
Karst-related collapse or subsidence of bedrock; doline

Large area of karst-related collapse or subsidence features; partly modified from Abbott (1973)

Strike and dip of beds

Strike and dip of beds dipping between 2° and 6°; aerial-photograph interpretation

Quarry or pit

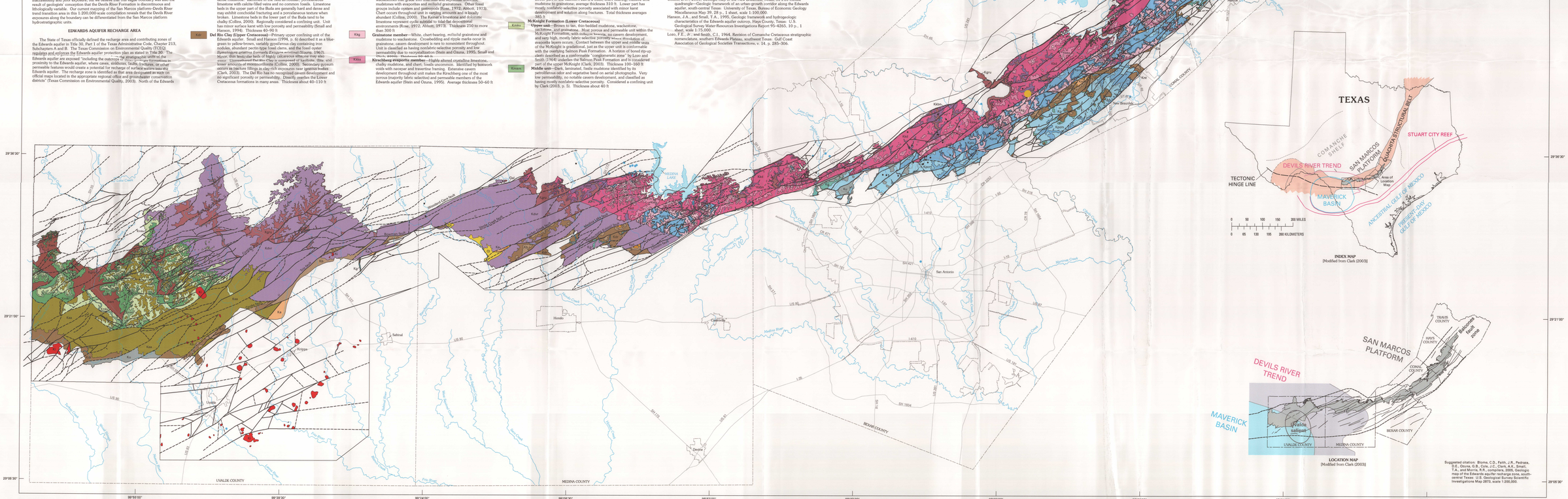


J. A. Raney, Project Coordinator

Graphics by William Bergquist; Joel L. Lardon, Graphics Manager

Previous, open-file GIS graphics by Sarah Dale and John Andrews; Thomas A. Tremblay, GIS Analyst

Data for generalized stratigraphic column were compiled from the many previous works cited in text and from observations of outcrops and geophysical logs by the author. Previous maps of the area are also cited in text. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.



Version 1.1

CORRELATION OF MAP UNITS

Hydrostratigraphy	MAVERICK BASIN	DEVILS RIVER TREND	SAN MARCOS PLATFORM	
		Qal Alluvium	Qal Alluvium	Quaternary
		Ql Leona Formation		
	Ki Intrusive igneous rocks, undifferentiated	Ki Intrusive igneous rocks, undifferentiated		Upper Cretaceous
Upper confining units	Ku Upper confining units, undivided		Ku Upper confining units, undivided	
			Knt Navarro and Taylor Groups, undivided	
	Ka Austin Group	Ka Austin Group	Ka Austin Group	
	Kef Eagle Ford Group	Kef Eagle Ford Group	Kef Eagle Ford Group	
	Kb Buda Limestone	Kb Buda Limestone	Kb Buda Limestone	
	Kdr Del Rio Clay	Kdr Del Rio Clay	Kdr Del Rio Clay	
Edwards aquifer	Kg Georgetown Formation	Kg Georgetown Formation	Kg Georgetown Formation	Lower Cretaceous
	Edwards Group: Ksa Salmon Peak Formation	Kdvr Devils River Formation	Person Formation: Kpcm Cyclic and marine member	
	Edwards Group: Kmku Upper unit of the McKnight Formation		Person Formation: Kplc Leached and collapsed member	
	Edwards Group: Kmkm Middle unit of the McKnight Formation		Person Formation: Kprd Regional dense member	
	Edwards Group: Kmkl Lower unit of the McKnight Formation		Kainer Formation: Kkg Grainstone member	
	Edwards Group: Kwn West Nueces Formation		Kainer Formation: Kkke Kirschberg evaporite member	
			Kainer Formation: Kkd Dolomitic member	
			Kainer Formation: Kkbn Basal nodular member	
Lower confining unit / Trinity aquifer	Trinity Group (upper part): Kgru Upper member of the Glen Rose Limestone	Kgru Upper member of the Glen Rose Limestone	Kgru Upper member of the Glen Rose Limestone	

ABSTRACT

Efforts by a National Cooperative Geologic Mapping Program project to compile the geology of the Edwards aquifer recharge area in south-central Texas have helped to refine the hydrostratigraphy of one of the most permeable and productive carbonate aquifers in the United States. The complex geology of the recharge area includes lithologic units assignable to the Lower Cretaceous Edwards Group and related units and the Georgetown Formation, which is underlain by the Lower Cretaceous Glen Rose Limestone (lower confining unit) and overlain by the Upper Cretaceous Del Rio Clay, Buda Limestone, and Eagle Ford, Austin, Taylor, and Navarro Groups (upper confining units). The rock units constituting the Edwards aquifer in the northeastern part of the recharge area (San Marcos platform facies) include the Kainer, Person, and Georgetown Formations. The Kainer and Person Formations are subdivided into seven informal hydrostratigraphic members. The central part of the recharge area (Devils River trend facies) contains reefal facies lithologies of the Lower Cretaceous Devils River Formation and the overlying Georgetown Formation. The western part of the recharge area contains Edwards Group lithologies of deeper water origin (Maverick basin facies) composed of the West Nueces, McKnight, Salmon Peak, and Georgetown Formations.

Geologic maps of previous workers typically show a vague, dashed boundary separating San Marcos platform and Devils River trend exposures because the Devils River Formation was historically interpreted as discontinuous and lithologically variable. However, current field studies of the San Marcos platform–Devils River trend transition area reveal that the facies boundary is distinct and follows topographic expression in some areas. We believe that future work will show that some of the hydrostratigraphic units belonging to the Kainer Formation, particularly the informal basal nodular and dolomitic members, occur in the Devils River trend and deeper water Maverick basin units. Hydrostratigraphic subdivision of the lower part of the Devils River Formation in Medina and Uvalde Counties and mapping of Maverick basin lithologies in Kinney County are ongoing.

INTRODUCTION

The Edwards aquifer serves the domestic, industrial, and agricultural needs of about 2 million people and is the primary source of water for San Antonio, Texas, the Nation's eighth largest city. Northeast of San Antonio, along the Balcones fault zone, the Edwards aquifer discharges from major artesian springs and provides unique habitats for at least eight endangered species. Ground-water development, especially near San Antonio, has significantly diminished spring flow during recent periods of below-normal rainfall.

The complex geology of the recharge area includes lithologic units assignable to the Lower Cretaceous Edwards Group and related units and the Georgetown Formation, which is underlain by the Lower Cretaceous Glen Rose Limestone (lower confining unit) and overlain by the Upper Cretaceous Del Rio Clay, Buda Limestone, and Eagle Ford, Austin, Taylor, and Navarro Groups (upper confining units). The rock units constituting the Edwards aquifer in the northeastern part of the recharge area (San Marcos platform facies) include the Kainer, Person, and Georgetown Formations. The Kainer and Person Formations of the Edwards Group were divided into seven informal lithostratigraphic units by Rose (1972). These units were later categorized into seven informal hydrostratigraphic members with the overlying Georgetown Formation considered the eighth member of the Edwards aquifer (Maclay and Small, 1976). The central part of the recharge area (Devils River trend facies) contains reefal facies lithologies of the Lower Cretaceous Devils River Formation and the overlying Georgetown Formation. The western part of the recharge area contains Edwards Group lithologies of deeper water origin (Maverick basin facies) composed of the West Nueces, McKnight, Salmon Peak, and Georgetown Formations (Clark, 2003).

The Edwards aquifer is structurally complex due to the numerous high-angle normal faults of the Balcones fault zone, which trend, on average, to the northeast, are downthrown to the southeast, and are linked by scattered cross-faults. This network of overlapping faults has a significant impact on the geohydrology of the Edwards aquifer. *The relationship between recharge, ground-water flow paths, fault characteristics, and* productivity/sustainability of the aquifer must be better understood if regional planners are to meet future water needs of south-central Texas.

Geologic mapping of the Edwards recharge area by the U.S. Geological Survey has been conducted at 1:24,000 scale and compiled for each county. This map compilation was constructed from the original mapping by Clark and Small (1997), Clark (2003), Hanson and Small (1995), Small and Hanson (1994), Small and others (1996), Small and Clark (2000), and Stein and Ozuna (1995).

Geologic maps of previous workers typically showed a straight, dashed, northwest-trending boundary line separating San Marcos platform and Devil River trend exposures. This dashed boundary line implied uncertainty, which was due, in part, to inaccessibility and poor exposure; but we believe that this vague boundary was also the result of geologists' conception that the Devils River Formation is discontinuous and lithologically variable. Our current mapping of the San Marcos platform–Devils River trend transition area in this 1:200,000-scale compilation reveals that the Devils River exposures along the boundary can be differentiated from the San Marcos platform hydrostratigraphic units.

EDWARDS AQUIFER RECHARGE AREA

The State of Texas officially defined the recharge area and contributing zones of the Edwards aquifer in Title 30, Part 1 of the Texas Administrative Code, Chapter 213, Subchapters A and B. The Texas Commission on Environmental Quality (TCEQ) regulates and enforces the Edwards aquifer protection plan as stated in Title 30. The recharge zone is generally [illegible] the stratigraphic units of the Edwards aquifer are exposed "including the outcrops of other geologic formations in proximity to the Edwards aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards aquifer. The recharge zone is identified as that area designated as such on official maps located in the appropriate regional office and groundwater conservation districts" (Texas Commission on Environmental Quality, 2003). North of the Edwards aquifer recharge zone, upgradient of the regional drainage, the State of Texas has defined the contributing zone as "the area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards aquifer" (Texas Commission on Environmental Quality, 2003). The jurisdictional extent of the Edwards aquifer recharge zone as identified and provided online by the TCEQ was slightly modified for illustrative purposes in the current compilation map.

DESCRIPTION OF MAP UNITS

QUATERNARY DEPOSITS

Qal **Alluvium (Quaternary)**—Unconsolidated gravel, sand, silt, and clay normally found around rivers and streams; inundated regularly. Gravel mostly contains limestone and minor chert. Undivided terrace deposits included within unit

Ql **Leona Formation (Quaternary)**—Lenticular beds of sand, gravel, silt, and clay. Pebbles and cobbles in the Leona are predominantly limestone with some chert. Coarser gravels are present near base of formation; silt increases up-section. The Leona is locally a prolific ground-water source and has rare cavern development and variable (low to high) porosity due to the poorly sorted gravels. Locally, silty and clayey cement significantly reduces the permeability. In general, formation is thickest near stream channels or older abandoned meander channels. Thickness a few feet to 80 ft

UPPER CRETACEOUS STRATA

Ki **Igneous intrusive rocks, undifferentiated (Upper Cretaceous)**—Fine- to coarse-grained ultramafic and hypabyssal rocks that occur as surface exposures or in subsurface as dikes, plugs, and shallow intrusions. Ultramafic field is centered in Uvalde County and extends to the west of map area into Kinney County. Igneous rocks are represented by five rock types—alkali basalt, melilite-olivine nephelinite, olivine nephelinite, nepheline basinite, and phonolite (Miggins and others, 2004).

A high-resolution aeromagnetic survey flown in 2001 (Smith and others, 2002) revealed more than 200 shallow igneous intrusive bodies, whereas fewer than 70 have been mapped. An ^{40}Ar/^{39}Ar geochronologic study (Miggins and others, 2004) showed at least two distinct phases of magmatic activity in Uvalde County. First phase of intrusive activity occurred approximately 82–80 m.y. ago, whereas younger intrusive rocks (phonolites) were emplaced 74–72 m.y. ago

Ku **Upper confining units, undivided (Upper Cretaceous)**—Original mapping of much of the recharge zone concentrated on the Edwards Group, the main aquifer-bearing unit of the Edwards aquifer system, and, in some areas, the upper confining units were consolidated. Areas mapped as upper confining unit include any or all of the following map units: **Ka** (Austin Group), **Kef** (Eagle Ford Group), **Kb** (Buda Limestone), and **Kdr** (Del Rio Clay)

Knt **Navarro and Taylor Groups, undivided (Upper Cretaceous)**—Lithologic similarity makes the Navarro and Taylor difficult to differentiate in many areas. Mapped only in the San Marcos platform, where unit contains gray to brown clay and marly limestone. Very low porosity and permeability, with no cavern development. The groups are sometimes considered confining units in the Edwards aquifer region (Hanson and Small, 1995). Thickness averages 600 ft

Ka **Austin Group (Upper Cretaceous)**—Commonly called the Austin Chalk. Massive, gray to white, chalky to marly, fossiliferous mudstone. Identified in the field as white, chalky limestone, commonly containing the fossil oyster *Gryphaea aucella*. The group is generally referred to *as a confining unit; however, ground water is locally associated with* fractures. Scarce cavern development and low porosity and permeability. Thickness 130–350 ft

Kef **Eagle Ford Group (Upper Cretaceous)**—Brown, flaggy, sandy shale and argillaceous limestone identified in the field as thin flagstone with a petroliferous odor. Strata weather easily and form flat to gently rolling topography. Primary porosity has been lost, rendering very low permeability rates in the Eagle Ford Group. Known as lignite by local drillers. No cavern development or fossils are evident in this group. Thickness 30–150 ft throughout the Edwards aquifer region

Kb **Buda Limestone (Upper Cretaceous)**—Variably nodular, buff, light-gray, dense mudstone. Identified in the field as nodular, porcelaneous limestone with calcite-filled veins and no common fossils. Limestone beds in the upper part of the Buda are generally hard and dense and may exhibit conchoidal fracturing and a porcelaneous texture when broken. Limestone beds in the lower part of the Buda tend to be chalky (Collins, 2000). Regionally considered a confining unit. Unit has minor surface karst with low porosity and permeability (Small and Hanson, 1994). Thickness 40–90 ft

Kdr **Del Rio Clay (Upper Cretaceous)**—Primary upper confining unit of the Edwards aquifer. Small and Hanson (1994, p. 6) described it as a blue-green to yellow-brown, variably gypsiferous clay containing iron nodules, abundant pectin-type fossil clams, and the fossil oyster *Ilymatogyra arietina* (formerly *Exogyra arietina*) (Young, 1967). Minor, thin lenticular beds of highly calcareous siltstone may also occur. Unweathered Del Rio Clay is composed of kaolinite, illite, and lesser amounts of montmorillonite (Collins, 2000). Secondary gypsum occurs as fracture fillings in clay-rich exposures near igneous bodies (Clark, 2003). The Del Rio has no recognized cavern development and no significant porosity or permeability. Directly overlies the Lower Cretaceous formations in many areas. Thickness about 40–110 ft

LOWER CRETACEOUS STRATA AND EDWARDS GROUP HYDROSTRATIGRAPHY

The lithostratigraphy of the Edwards aquifer varies from northeast to southwest due to the three fluctuating depositional environments: the San Marcos platform, the Devils River trend, and the Maverick basin. The Edwards Group of the San Marcos platform was deposited in shallow to very shallow marine waters and is divided into seven hydrostratigraphic units, the eighth hydrostratigraphic unit being the overlying Georgetown Formation. The San Marcos platform facies grades abruptly into the Devils River trend facies in northern Medina County. The Devils River trend is represented by two lithostratigraphic units: the Devils River Formation, historically considered indivisible, and the overlying Georgetown Formation. The lateral transition from the Devils River Formation to the deeper water West Nueces, McKnight, and Salmon Peak Formations of the Maverick basin facies is highly gradational and variable along their assumed boundaries (Clark, 2003)

Kg **Georgetown Formation (Lower Cretaceous)**—Uppermost unit of the Edwards aquifer. Reddish-brown and gray to light-tan, marly limestone with biomicritic texture; commonly contains the brachiopod *Waconella wacoensis*, pectins, the mollusks *Kingena wacoensis* and *Gryphaea washitaensis* (Young, 1967), as well as other pelecypods. Strata covered by vegetation and soil in some areas. The Georgetown is considered an upper confining unit, has very low porosity and permeability, and has little or no karstification or cavern development (Stein and Ozuna, 1995). Thickness 2–20 ft; generally thins from northeast to southwest

Edwards Group

San Marcos platform

In the San Marcos platform, the Person and Kainer Formations of the Edwards Group were divided into seven informal lithostratigraphic units by Rose (1972). These units, in addition to the Georgetown Formation, were further modified by Maclay and Small (1976) into eight informal hydrostratigraphic members that formed the Edwards aquifer strata

Person Formation (Lower Cretaceous)—Variably burrowed mudstone, grainstone, and crystalline limestone. Also contains collapsed breccia, dolomitized biomicrite, burrowed mudstone, and stromatolitic limestone. Chert is locally abundant and common fossils include pelecypods, gastropods, and rudistids (Collins, 2000). The Person's limestone, dolomitic limestone, and dolomite reflect shallow subtidal to tidal-flat cyclic depositional environments (Rose, 1972; Abbott, 1973). Thickness 170–180 ft

Kpcm **Cyclic and marine member**—Chert-bearing mudstone to packstone and *miliolid* grainstone. Weathers to massive, light-tan outcrops with scattered *Toucasia* present. Member is one of the most productive hydrologically because of the large number of subsurface caverns associated with incipient karstification. Very permeable with laterally extensive, fabric and nonfabric-selective porosity (Small and Hanson, 1994; Stein and Ozuna, 1995). Thickness 10–100 ft

Kplc **Leached and collapsed member**—Crystalline limestone; mudstone to grainstone, with chert, extensive collapsed breccia, and isolated stromatolitic limestone. Identified in the field by bioturbated iron-stained beds separated by massive limestone beds, and presence of the fossil coral *Montastrea* sp. Considered the most cavernous unit in the San Marcos platform facies. Classified as having nonfabric-selective porosity and very high permeability rates (Small and Hanson, 1994). Thickness 70–100 ft

Kprd ***Regional dense member**—Dense, argillaceous mudstone; unit most* susceptible to erosion within the Edwards Group; also considered a vertical barrier to flow throughout the Edwards aquifer. Small and Clark (2000, p. 4) noted the occurrence of wispy iron-oxide stains for field identification purposes. Very few caverns have been found, but vertical fracture enlargement does occur locally in the nonfabric-selective, low-permeability unit (Small and Hanson, 1994). Thickness 16–24 ft

Kainer Formation (Lower Cretaceous)—Contains lithologies that range from mudstone to *miliolid* grainstone to crystalline limestone. Much of formation is fossiliferous; typified by rudistid-rich mudstones and wackestones that grade into intertidal and supratidal dolomitic mudstones with evaporites and *miliolid* grainstones. Other fossil groups include oysters and gastropods (Rose, 1972; Abbott, 1973). Chert occurs throughout unit in varying amounts and is locally abundant (Collins, 2000). The Kainer's limestone and dolomitic limestone represent cyclic subtidal to tidal-flat depositional environments (Rose, 1972; Abbott, 1973). Thickness 250 to more than 300 ft

Kkg **Grainstone member**—White, chert-bearing, *miliolid* grainstone and mudstone to wackestone. Crossbedding and ripple marks occur in grainstone; cavern development is rare to nonexistent throughout. Unit is classified as having nonfabric-selective porosity and low permeability due to recrystallization (Stein and Ozuna, 1995; Small and Clark, 2000). Thickness 50–60 ft

Kkke **Kirschberg evaporite member**—Highly altered crystalline limestone, chalky mudstone, and chert; fossils uncommon. Identified by boxwork voids with neospar and travertine framing. Extensive cavern development throughout unit makes the Kirschberg one of the most porous (majority fabric selective) and permeable members of the Edwards aquifer (Stein and Ozuna, 1995). Average thickness 50–60 ft

Kkd **Dolomitic member**—Mudstone to grainstone and chert-bearing, crystalline limestone. Massive-bedded dolomitic member weathers light gray in outcrop and has abundant *Toucasia*. Cavern development is directly related to faults, fractures, and bedding planes; thus, considered nonfabric-selective porosity except where solution along bedding planes yields water (Stein and Ozuna, 1995; Small and Clark, 2000). Thickness 110–140 ft

Kkbn **Basal nodular member**—Shaly, nodular limestone and burrowed mudstone to wackestone; minor lateral cavern development at surface and nonfabric-selective porosity. Identified in the field as gray nodular mudstone, containing black rotund bodies and *miliolids*, gastropods, and *Exogyra texana*. Considered regionally as a lower confining unit, and is locally water bearing through dissolution along bedding planes (Stein and Ozuna, 1995; Clark, 2003). Thickness 20–70 ft

Devils River trend facies

Kdvr **Devils River Formation (Lower Cretaceous)**—Upper 250 ft consists of *miliolid*, shell-fragment wackestones and grainstones containing rudists and chert. Middle of formation consists of recrystallized and brecciated mudstones that grade downward into alternating beds of vuggy spar and chert-bearing wackestone and grainstone. Lower 120–250 ft contains sparry limestone and nodular, burrowed mudstone to wackestone, with gastropods, *miliolids*, and *Exogyra texana*. Upper part of formation has extensive cavern development and abundant caprinids, monopleurids, and requieniids. Highly dissolutioned and brecciated, the middle part has vuggy porosity and abundant chert, with numerous sinkholes and some cavern development. Solution-enlarged fractures are present in the relatively massive, nodular, burrowed mudstone near base of formation. Upper part of formation is classified as having fabric-selective porosity, which grades downward into more nonfabric-selective porosity near base. Small porosity and permeability are related to solution-enlarged fractures in lowermost part of formation.

Formal subdivision of the Devils River Formation has been lacking to date. Geologic maps of the Texas Bureau of Economic Geology show the Devils River Formation subdivided into upper and lower units, whereas all USGS mapping to date (including this map) shows the Devils River Formation as a single undifferentiated unit. According to Clark (2003), most workers since Lozo and Smith (1964) have recognized that the Devils River Formation lacks sufficient marker beds to permit detailed or widespread subdivision.

A helicopter electromagnetic survey flown in the Seco Creek area in Medina and Uvalde Counties (Smith and others, 2003) clearly shows the Devils River as two separate units on the basis of contrasts in resistivity. Clark (2003), in mapping Uvalde County, also demonstrated that the informal basal nodular member of the Kainer Formation could be traced from the San Marcos platform into the Maverick basin. Recent fieldwork by a number of authors (Clark, Blome, and Faith) now shows that at least the informal basal nodular and dolomitic members of the Kainer Formation may be laterally traceable from the San Marcos platform into the Devils River trend and even into the deeper water Maverick basin. This lateral continuity of the lowermost units was first observed by Rose (1972) and revisited by Miller (1983). Nevertheless, local aquifer researchers have not to date accepted the informal subdivisions throughout the Edwards Group. Hydrostratigraphic subdivision of the lower part of the Devils River Formation in Medina and Uvalde Counties and mapping of Maverick basin lithologies in Kinney County are ongoing.

Thickness 540–670 ft in Medina and Uvalde Counties, of which Clark (2003, p. 4, 10) *believed the lower 20–70 ft to be equivalent to* the basal nodular hydrostratigraphic member of the Kainer Formation, San Marcos Platform facies

Maverick basin facies

Ksa **Salmon Peak Formation (Lower Cretaceous)**—Upper part of the Salmon Peak is typified by grainstone grading downward to light-gray, fossiliferous mudstone; about 75 ft thick. Minor karst and limited fracture enlargement classifies this unit as having both fabric- and nonfabric-selective porosity, except for areas of high dissolution. Lower part of the Salmon Peak is a thick, chert-bearing, massive lime mudstone to grainstone; average thickness 310 ft. Lower part has mostly nonfabric-selective porosity associated with minor karst development and solution along fractures. Total thickness averages 385 ft

McKnight Formation (Lower Cretaceous)

Kmku **Upper unit**—Brown to tan, thin-bedded mudstone, wackestone, packstone, and grainstone. Most porous and permeable unit within the McKnight Formation, with collapse breccia, no cavern development, and very high, mostly fabric-selective porosity where dissolution of evaporite layers occurs. Contact between the upper and middle units of the McKnight is gradational, just as the upper unit is conformable with the overlying Salmon Peak Formation. A horizon of bored rip-up clasts described as a conformable "conglomeratic zone" by Lozo and Smith (1964) underlies the Salmon Peak Formation and is considered part of the upper McKnight (Clark, 2003). Thickness 100–160 ft

Kmkm **Middle unit**—Dark, laminated, fissile mudstone identified by its petroliferous odor and vegetative band on aerial photographs. Very low permeability, no notable cavern development, and classified as having mostly nonfabric-selective porosity. Considered a confining unit by Clark (2003, p. 5). Thickness about 40 ft

Kmkl **Lower unit**—Thin-bedded, *miliolid*- and gryphaeid-rich, fragmented mudstone to grainstone. Also contains laminated pellet mudstone and packstone (Miller, 1983). Thin solution zones and chert beds, but no significant cavern development. Thickness about 60–80 ft

Kwn **West Nueces Formation (Lower Cretaceous)**—Upper unit, considered a confining unit, is gray, thick-bedded, burrowed, shell-fragment wackestone, packstone, and grainstone; thickness 120–260 ft. Identified in the field as a *miliolid*-, gastropod-, and *Texigryphaea*-bearing, gray wackestone. Classified as having mostly nonfabric-selective porosity and low permeability, due to only minor cavern formation directly associated with fracture dissolution. Lower unit is composed of thin-bedded, *miliolid*- and graphaeid-fragmented mudstone to grainstone with thin solution zones and chert beds (Clark, 2003); thickness 20–60 ft (Miller, 1984). Clark (2003, p. 5) stated that the lower unit is equivalent to the basal nodular member of the Kainer Formation, San Marcos platform facies. Lower unit is a lower confining unit of the Edwards aquifer, except for areas that are higher in porosity and permeability due to solution enhancement of bedding planes. Formation thickness 140–320 ft

Trinity Group (upper part)

Kgru **Glen Rose Limestone, upper member (Lower Cretaceous)**—Conformably underlies the West Nueces Formation in the Maverick basin and the Kainer Formation in the San Marcos platform, but unconformably underlies the Devils River Formation in the Devils River trend (Miller, 1984). Lower confining unit of the Edwards aquifer in south-central Texas.

Alternating beds of yellowish-tan, medium-bedded limestone and argillaceous limestone with minor evaporite layers. Surface cavern development associated with faults and fractures and some water production at evaporite beds have been noted, but are considered a rare occurrence. Field identification is commonly associated with (1) stair-step topography that forms through differential erosion of the alternating limestone and marl beds, and (2) the presence of fossilized ripple marks and sparse casts of *Tylostoma* sp., *Turitella* sp., *Protocardia texana*, and the foraminiferan *Orbitolina minuta*. Classified hydrologically as having mostly nonfabric-selective porosity and generally low permeability (Small and Clark, 2000; Clark, 2003). Thickness 350–800 ft

———	**Contact**
U 235 ft	**Fault**—Dashed where inferred. U, upthrown side; D, downthrown side. Displacement amount in feet
———	**Geographic Information System polygon extent of county maps**
•	**Cave or sink**
●	**Spring**

ACKNOWLEDGMENTS

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INDEX MAP
[Modified from Clark (2003)]

LOCATION MAP
[Modified from Clark (2003)]

Base modified from U.S. Geological Survey digital data (1:24,000-scale county boundaries and hydrography). Universal Transverse Mercator projection, zone 14. North American Datum 1983

SCALE 1:200 000
5 0 5 10 15 MILES
5 0 5 10 15 20 25 KILOMETERS

GEOLOGIC MAP OF THE EDWARDS AQUIFER RECHARGE ZONE, SOUTH-CENTRAL TEXAS

Compiled by

Charles D. Blome, Jason R. Faith, Diana E. Pedraza, George B. Ozuna, James C. Cole, Allan K. Clark, Ted A. Small, and Robert R. Morris

2005

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Geology compiled and modified from Clark (2003), Clark and Small (1997), Hanson and Small (1995), Small and Clark (2000), Small and Hanson (1994), Small and others (1996), and Stein and Ozuna (1995).
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For sale by U.S. Geological Survey Information Services
Box 25286, Federal Center, Denver, CO 80225
1-888-ASK-USGS
ArcInfo coverages and a PDF for this map are available at http://pubs.usgs.gov

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Texas State Plane south central zone (FIPSZONE 4204). The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by Bexar Metro 911. This information was photogrammetrically compiled at a scale of at least 1:24,000 from aerial photography dated September 2004.

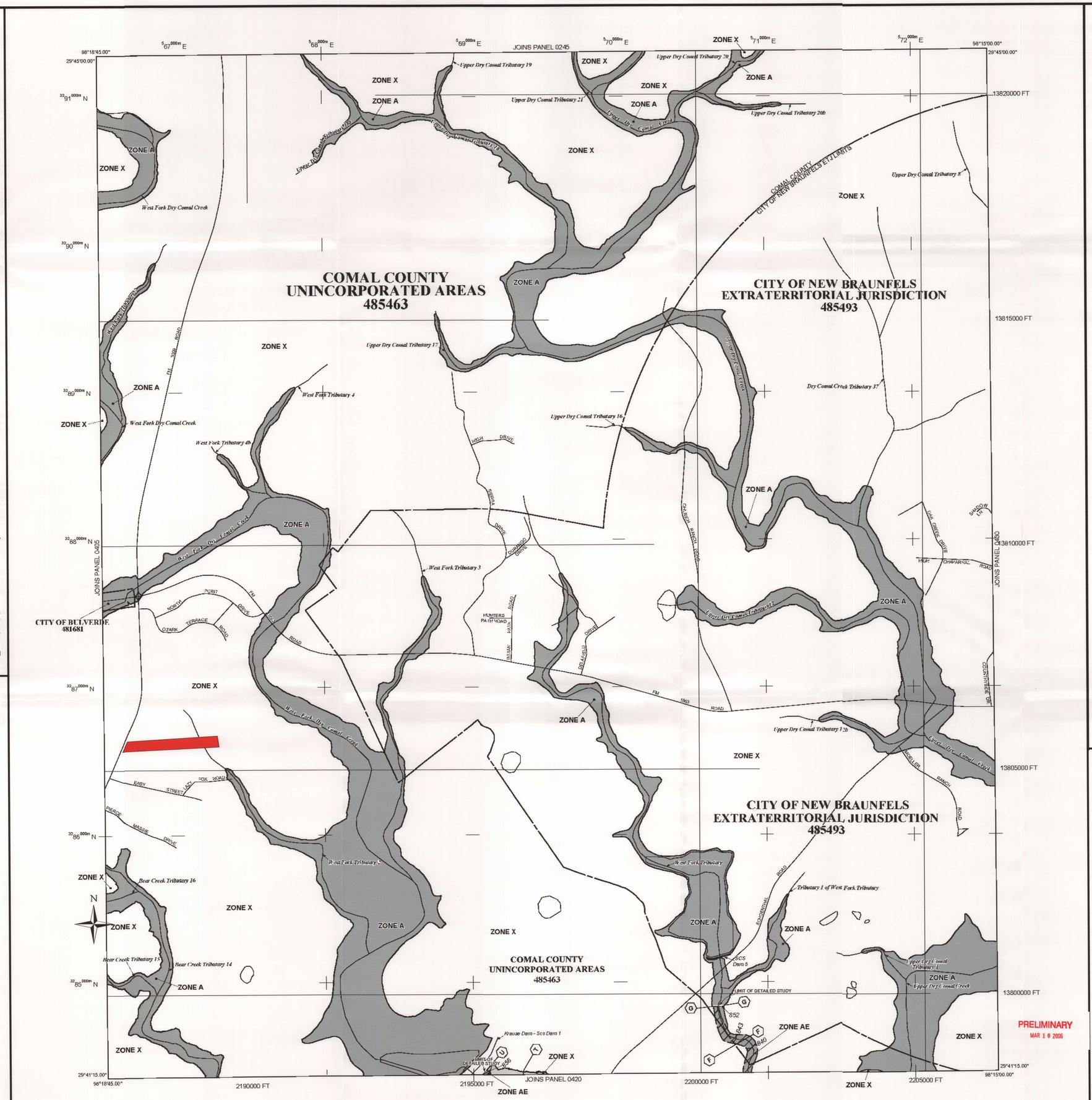
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN — 1000-meter Universal Transverse Mercator grid values, zone 14
- 6000000 FT — 5000-foot grid ticks: Texas State Plane coordinate system, south central zone (FIPSZONE 4204), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

Property Boundary

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0410F

FIRM
FLOOD INSURANCE RATE MAP
COMAL COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 410 OF 505

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COMAL COUNTY, UNINCORPORATED AREAS	485463	0410	F
BULVERDE, CITY OF	481681	0410	F
NEW BRAUNFELS, CITY OF	485493	0410	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48091C0410F
EFFECTIVE DATE

Federal Emergency Management Agency

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Revised in cooperation with the Texas Water Development Board

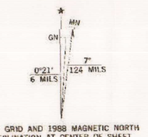
Control by USGS and NOS/NOAA

Topography by the Army Map Service by photogrammetric methods from aerial photographs taken 1952. Field checked 1953. Revised by USGS from aerial photographs taken 1986. Field checked 1987
Map edited 1988

Projection and 10,000-foot grid ticks: Texas coordinate system, south central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 20 meters south and 29 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown



UTM GRID AND 1988 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

2998-424

ROAD CLASSIFICATION

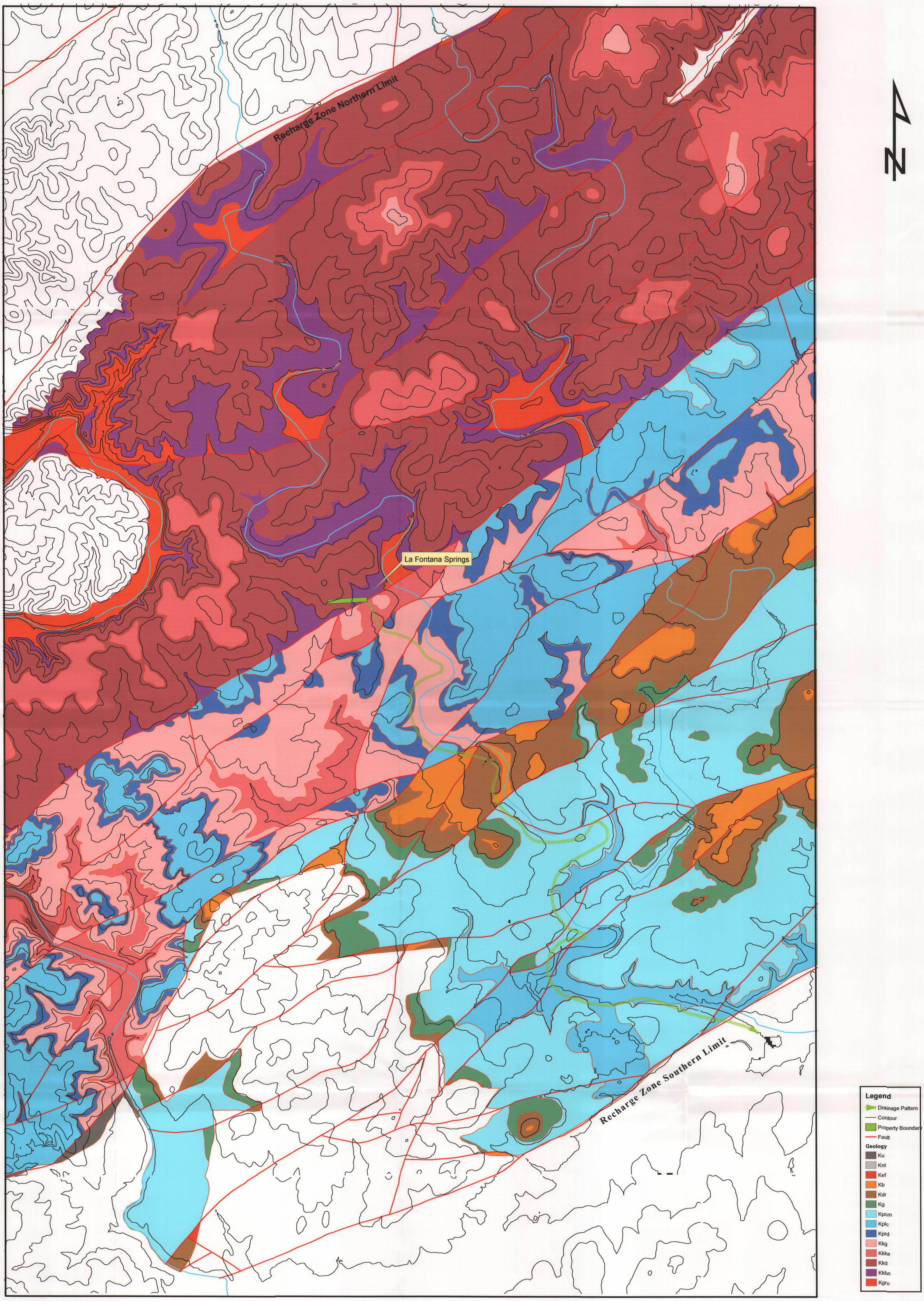
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

BAT CAVE, TEX.

29098-F3-TF-024

1988

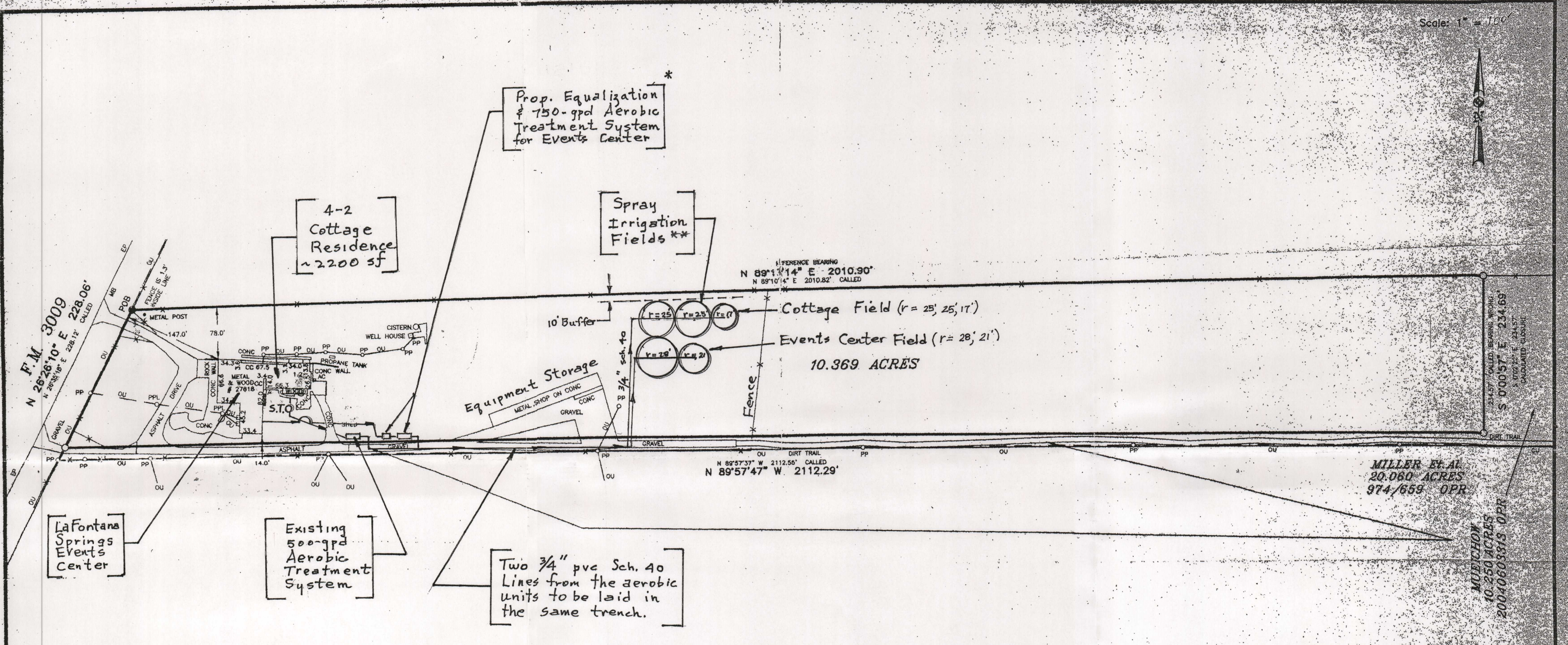
DMA 6343 III NE-SERIES V882



Attachment B: Edwards Recharge Zone Map w/ Topographic Contours and Drainage Pattern Shown

(After Blome et. al. 2005, USGS, SI Map 2873)

Geo_Site_Geology2.mxd



Landscape Plan: Allow Natural Grasses to re-vegetate the fields.

EXHIBIT A

LaFontana Springs Site Plan for On-Site Sewage Facilities Design Revisions to Expand OSSF Capabilities

SCALE: 1" = 100'

LEGEND:
POB POINT OF BEGINNING
CC COVERED CONCRETE
W WATER METER BOX
E ELECTRIC METER
ET ELECTRIC TRANSFORMER
G GAS METER
EP EDGE OF PAVEMENT
PP POWER POLE
PPL POWER POLE WITH LIGHT
OU OVERHEAD UTILITIES
P PEDESTAL
MB MAILBOX
AC AIR CONDITIONER
UB UTILITY BOX
WOOD FENCE
WIRE FENCE
CHAINLINK FENCE
FOUND 1/2" IRON ROD
FOUND 3/8" IRON ROD

NOTE: THIS SURVEY WAS DONE WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT. THERE MAY BE OTHER MATTERS OF RECORD AFFECTING THIS PROPERTY THAT WOULD BE SHOWN ON SAID REPORT. THE SURVEYOR HAS NOT ABSTRACTED THE SUBJECT PROPERTY.

REFERENCES:
VOL. 200, PG. 826 DR

PLAT SHOWING: A 10.369 ACRE TRACT OF LAND OUT OF THE EDWARD NORTON SURVEY NO. 760, ABSTRACT NO. 439, COMAL COUNTY, TEXAS, AND BEING THAT CERTAIN TRACT RECORDED IN VOL. 200, PG. 826, DEED RECORDS, COMAL COUNTY, TEXAS.
LEGAL DESCRIPTION PREPARED

M.D.S. LAND SURVEYING CO.
618 COMAL STREET
NEW BRAUNFELS, TEXAS 78130
PHONE: (830) 625-0337

** NOTE: The Installer may at his discretion relocate the spray fields slightly.

STATE OF TEXAS
A. J. HAYS, JR.
32839
REGISTERED PROFESSIONAL ENGINEER

4/8/10

* NOTE: A 200-gal. Trash Tank ahead of the equalization tank is not shown here, but is required.

REFERENCE BEARING: OBTAINED FROM RECORDED DESCRIPTION OF SUBJECT PROPERTY.

ADDRESS: 27618 F.M. 3009

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND, AND THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF THIS SURVEY AND THAT THERE ARE NO VISIBLE EASEMENTS OR ENCROACHMENTS OF BUILDINGS ON ADJOINING PROPERTY AND THAT ALL BUILDINGS ARE WHOLLY LOCATED ON THIS PROPERTY EXCEPT AS SHOWN ABOVE.

STATE OF TEXAS
REGISTERED
DONALD DUANE HYATT
5215
PROFESSIONAL LAND SURVEYOR

DONALD DUANE HYATT
REGISTERED PROFESSIONAL LAND SURVEYOR
5215
TEXAS REGISTRATION NO.
SURVEY NOT VALID UNLESS ORIGINAL SIGNATURE IS IN RED INK
JOB # 05-0418
DATE: 8-8-05

TCEQ Complaint Report

04/07/2009
3:39:07PM

Incident No: 116350
Media Type: Water
Start Date: Unknown
Received Date: 11/06/2008
Method : PHONE

Staff Member: TOJONES
Status: Closed
Status Date: 04/07/2009
Priority: Within 30 Calendar Days

Regulated Entity: La Fontana Springs Event Center
RN105699060
Address: 27618 Natural Bridge Caverns Rd
Garden Ridge, Comal County, TX 78266
Physical Location: FM 306

RECEIVED
APR 17 2009
COUNTY ENGINEER

Responsible Party: La Fontana Springs Llc **Title:** President
Address: 27618 Natural Bridge Caverns Rd, Garden Ridge, TX 78266
E-Mail: (0)0-

Number Complaining: 1
Frequency: Current
Alleged Source: La Fontana Springs Event Center

Program Group: Water Quality - High Level
Nature: Edwardsaqu
Effect: Environmental

Initial Problem:

La Fontana Springs (business) requested OSSF installation inspection from Comal County. Comal County noted that the site is on EARZ, and business could not produce an approved WPAP.

Comments:

This incident is associated with investigation #737002.

Action Taken / Closure Comments:

Investigation conducted 12/5/08, 12/8/08, and 2/13/09. It appears that approximately 200 square feet of impervious cover was added. A compliance letter with Additional Issues was sent to the regulated entity on 4/13/09.
Investigation #: 737002

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 13, 2009

Mr. Robert Boyd, P.E.
Comal County Engineer's Office
195 David Jonas Dr.
New Braunfels, Texas 78132-3760

Re: Investigation Request at:
La Fontana Springs Event Center, 27618 Natural Bridge Caverns Road, San Antonio (Comal County), Texas
Regulated Entity No.: RN105699060; Investigation No.:737002; Incident No.: 116350

Dear Mr. Boyd:

The Texas Commission on Environmental Quality (TCEQ) San Antonio Region Office has completed a final investigation in response to your concern regarding the complaint at the above-referenced facility. Enclosed is a copy of the final report indicating the results of the investigation.

Thank you for contacting the TCEQ with your concerns. If you have questions feel free to contact Mr. Todd Jones of my staff at 210-490-3096 or directly at 210-403-4025.

Sincerely,

Lynn M. Bumguardner
Water Section Work Leader
San Antonio Region Office

LMB/TJ/eg

Enclosure: Incident No.: 116350

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Region 13
14250 Judson Rd.
San Antonio, Texas 78233-4480

RETURN SERVICE REQUESTED

MR ROBERT BOYD
COMAL COUNTY ENGINEER'S OFFICE
195 DAVID JONAS DR
NEW BRAUNFELS TX 78132-3760