

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 5, 2005

Mr. Pete Jurica
New Braunfels Ventures, L.P.
589 S. Magazine
New Braunfels, Texas 78130

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Tuscan Ridge Subdivision; Located on east side of Lakeview Blvd., approximately 0.65 miles northeast of Landa Park Drive; New Braunfels, Texas

TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer, Edwards Aquifer Protection Program File No. 2160.02, Regulated Entity No. RN104216130, Customer No. CN602598542, Investigation No. 346073

Dear Mr. Jurica:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for modification of the approved WPAP for the referenced project submitted to the San Antonio Regional Office by Klein Engineering, Inc. on behalf of New Braunfels Ventures, LP on October 13, 2004. As presented to the TCEQ, the Temporary and Permanent 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.*

PROJECT DESCRIPTION

This facility was previously approved by letter dated June 21, 2004. As presented, the proposed modifications to the WPAP will consist of:

- Decreasing the number of residential lots from 18 to 16.
- Decreasing the impervious cover from 65% to 64%.
- Increasing the water quality volume of the sedimentation/filtration basin from 8,215 cubic feet to

Mr. Pete Jurica
January 5, 2005
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9573 cubic feet (Original capture volume was undersized).

- Relocating the bypass structure.

PERMANENT POLLUTION ABATEMENT MEASURES

A partial sedimentation/filtration basin will be constructed to treat stormwater runoff. It is designed in accordance with the 1999 edition of the TNRCC's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices," and is sized to capture the first 0.67 inches of stormwater run-off from 3.28 acres, providing a total capture volume of 9,573 cubic feet. The filtration system will consist of:

1. 700 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

The approved measures were presented to meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

SPECIAL CONDITION

This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter of June 21, 2004, including deed recordation.

If you have any questions or require additional information, please contact John Mauser of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4024.

Sincerely,



for Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/JKM/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance or Permanent BMPs-Form TCEQ-10263

fc: Mr. Rudolph F. Klein, P.E., Klein Engineering, Inc.
Mr. Michael Short, City of New Braunfels
Mr. Wesley Hamff, P.E., New Braunfels Utilities
Mr. Tom Hornseth, Comal County
cc: Mr. Robert J. Potts, Edwards Aquifer Authority
TCEQ Central Records, MC 212

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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June 21, 2004

Mr. Pete Jurica
New Braunfels Ventures, L.P.
589 S. Magazine
New Braunfels, Texas 78130

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Tuscan Ridge Subdivision; Located on east side of Lakeview Blvd., approximately 0.65 miles northeast of Landa Park Drive; New Braunfels, 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 File No. 2160.00 Regulated Entity No. RN104216130, Customer No. CN602598542

Dear Mr. Jurica:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by Klein Engineering, Inc. on behalf of New Braunfels Ventures, L.P. on March 31, 2004. Additional information was received on June 18, 2004. As presented to the TCEQ, the Temporary and Permanent 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 20 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.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 3.28 acres. It will include 18 single-family residences. The impervious cover will be 2.127 acres (65 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Sewage Treatment Plant owned by the City of New Braunfels/New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

A partial sedimentation/filtration basin will be constructed to treat stormwater runoff. It is designed in accordance with the 1999 edition of the TNRCC's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices," and is sized to capture the first 0.575 inches of stormwater run-off from 3.28 acres, providing a total capture volume of 8,215 cubic feet. The filtration system will consist of:

1. 474 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

The approved measures were presented to meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

GEOLOGY

According to the geologic assessment included with the application, there are no sensitive geologic or manmade features located on the project site. However, Comal Springs B and C are approximately 100 feet down gradient from the southeast corner of the project site. The San Antonio Regional Office did not conduct a site investigation.

SPECIAL CONDITIONS

- I.. The sedimentation/filtration basin is designed in accordance with the 1999 edition of the TCEQ's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices." The basins will incorporate sedimentation and filtration as described above.
- II. All sediment and or media removed from the partial sedimentation/filtration basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335 as applicable.
- III. All permanent stormwater treatment measures must be operational prior to occupation of any residence.
- IV. Intentional discharges of sediment laden stormwater during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

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.

Prior to Commencement of Construction:

2. 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.
3. 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.
4. 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.
5. 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 file 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.
6. 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.
7. 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:

8. 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.

9. 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 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.
10. No wells exist on the 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.
11. 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.
12. 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.
13. 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:

14. 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.
15. 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.
16. Upon legal transfer of this property, the new owner(s) 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

Mr. Pete Jurica
June 21, 2004
Page 5

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.

17. 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.
18. 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 John Mauser of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4024.

Sincerely,



for Glenn Shankle
Acting Executive Director
Texas Commission on Environmental Quality

GS/JKM/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance on Permanent BMPs-Form TCEQ-10263

fc: Mr. Rudolph F. Klein, P.E., Klein Engineering, Inc.
Mr. Michael Short, City of New Braunfels
Mr. Wesley Hamff, P.E., New Braunfels Utilities
Mr. Tom Hornseth, Comal County
cc: Mr. Greg Ellis, Edwards Aquifer Authority
TCEQ Central Records, MC 212

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June 21, 2004

Mr. Pete Jurica
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589 S. Magazine
New Braunfels, Texas 78130

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Tuscan Ridge Subdivision; Located on east side of Lakeview Blvd., approximately 0.65 miles northeast of Landa Park Drive; New Braunfels, 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 File No. 2160.01, Regulated Entity No. RN104216130, Customer No. CN602598542

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The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by Klein Engineering, Inc. on behalf of New Braunfels Ventures, L.P. on March 31, 2004. Additional information was received on June 18, 2004. As presented to the TCEQ, the Temporary and Permanent 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 20 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.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 3.28 acres. It will include 18 single-family residences. The impervious cover will be 2.127 acres (65 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Sewage Treatment Plant owned by the City of New Braunfels/New Braunfels Utilities.

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210/490-3096 • FAX 210/545-4329

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

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Mr. Pete Jurica
June 21, 2004
Page 2

PERMANENT POLLUTION ABATEMENT MEASURES

A partial sedimentation/filtration basin will be constructed to treat stormwater runoff. It is designed in accordance with the 1999 edition of the TNRCC's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices," and is sized to capture the first 0.575 inches of stormwater run-off from 3.28 acres, providing a total capture volume of 8,215 cubic feet. The filtration system will consist of:

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2. an underdrain piping wrapped with geotextile membrane, and
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The approved measures were presented to meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

GEOLOGY

According to the geologic assessment included with the application, there are no sensitive geologic or manmade features located on the project site. However, Comal Springs B and C are approximately 100 feet down gradient from the southeast corner of the project site. The San Antonio Regional Office did not conduct a site investigation.

SPECIAL CONDITIONS

- I. The sedimentation/filtration basin is designed in accordance with the 1999 edition of the TCEQ's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices." The basins will incorporate sedimentation and filtration as described above.
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Mr. Pete Jurica

June 21, 2004

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Prior to Commencement of Construction:

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Mr. Pete Jurica

June 21, 2004

Page 4

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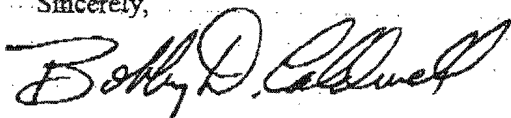
Mr. Pete Jurica
June 21, 2004
Page 5

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17. 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.
18. 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 John Mauser of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4024.

Sincerely,



for Glenn Shankle
Acting Executive Director
Texas Commission on Environmental Quality

GS/JKM/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance on Permanent BMPs-Form TCEQ-10263

fc: Mr. Rudolph F. Klein, P.E., Klein Engineering, Inc.
Mr. Michael Short, City of New Braunfels
Mr. Wesley Hamff, P.E., New Braunfels Utilities
Mr. Tom Hornseth, Comal County
cc: Mr. Greg Ellis, Edwards Aquifer Authority
TCEQ Central Records, MC 212

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 7, 2004

Mr. Brian Merriman, PE
S. Craig Hollmig, Inc.
410 N. Seguin Street
New Braunfels, Texas 78130

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Mission Heights (formerly Laurel Heights Subdivision Unit 4); Located at Twin Oaks between Valley View and Wood Road, New Braunfels, Texas

TYPE OF PLAN: Request for Information; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer, Edwards Aquifer Protection Program File No. 977.02 (Sewage Collection System), Regulated Entity No. RN102750114, and File No. 987.02 (Water Pollution Abatement Plan), Regulated Entity No. RN102749678

Dear Mr. Merriman:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the information you provided about the approved sewage collection system (SCS) and water pollution abatement plan (WPAP) for the referenced project you submitted to the San Antonio Regional Office on April 13, 2004. Additional information was received on June 1, 2004, and June 4, 2004.

1. For the WPAP, the TCEQ has no objection to reducing the number of lots from 44 to 30; decreasing the amount of impervious cover by reducing the amount of street construction by about 50 percent; and providing individual access to Wood Road for Lots 27, 28, 29 & 30.

The proposed activity is in general agreement with 30 TAC §213.5(b); therefore, approval of the plan is hereby granted subject to the specific conditions of the September 30, 1998, approval letter.

2. For the SCS, approximately 300 linear feet of new line is proposed. Since this is a new collection system, a modification, including a geologic assessment and application fees, is required.

If you have any questions or require additional information, please contact John Mauser of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4024.

Sincerely,

A handwritten signature in cursive script that reads "Bobby D. Caldwell".

Bobby D. Caldwell
Water Section Manager
San Antonio Region Office

BDC/JKM/eg

cc: Mr. Michael Short, City of New Braunfels
Mr. Tom Hornsath, Comal County
Mr. Greg Ellis, Edwards Aquifer Authority

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210/490-3096 • FAX 210/545-4329

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PAID TCEQ
30 LA TCH 10

2004 OCT 13 PM 4:20

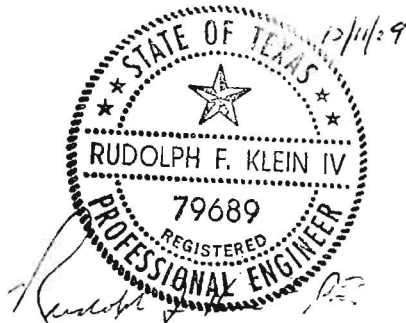
RECEIVED
OCT 21 2004
COUNTY ENGINEER

TUSCAN RIDGE
NEW BRAUNFELS, TEXAS

**MODIFICATION TO PREVIOUSLY APPROVED
WATER POLLUTION ABATEMENT PLAN**

REQUEST FOR APPROVAL
30 TAC 213
EDWARDS AQUIFER PROTECTION PROGRAM

TCEQ SAN ANTONIO OFFICE



October 2004

Prepared by:

KLEIN ENGINEERING, INC.
8611 Botts Ln.
San Antonio, Texas 78217

TUSCAN RIDGE

NEW BRAUNFELS, TEXAS

MODIFICATION TO PREVIOUSLY APPROVED WATER POLLUTION ABATEMENT PLAN

REQUEST FOR APPROVAL
30 TAC 213
EDWARDS AQUIFER PROTECTION PROGRAM

TCEQ SAN ANTONIO OFFICE



October 2004

Prepared by:

KLEIN ENGINEERING, INC.
8611 Botts Ln.
San Antonio, Texas 78217

Modification of a Previously Approved Plan Checklist

- ___ General Information Form (*TCEQ-0587*)
 - ATTACHMENT A - Road Map
 - ATTACHMENT B - USGS / Edwards Recharge Zone Map
 - ATTACHMENT C - Project Description

- ___ Geologic Assessment Form (*TCEQ-0585*)
 - ATTACHMENT A - Geologic Assessment Table, *TCEQ-0585-Table*
Comments to the Geologic Assessment Table
 - ATTACHMENT B - Soil Profile and Narrative of Soil Units
 - ATTACHMENT C - Stratigraphic Column
 - ATTACHMENT D - Narrative of Site Specific Geology
 - Site Geologic Map(s)
 - Table or list for the position of features' latitude/longitude (if mapped using GPS)

- ___ Modification of a Previously Approved Plan (*TCEQ-0590*)
 - ATTACHMENT A - Original Approval Letter.
 - ATTACHMENT B - Narrative of Proposed Modification.
 - ATTACHMENT C - Site Plan.

- ___ Temporary Stormwater Section (*TCEQ-0602*), if necessary
 - ATTACHMENT A - Spill Response Actions
 - ATTACHMENT B - Potential Sources of Contamination
 - ATTACHMENT C - Sequence of Major Activities
 - ATTACHMENT D - Temporary Best Management Practices and Measures
 - ATTACHMENT E - Request to Temporarily Seal a Feature, if sealing a feature
 - ATTACHMENT F - Structural Practices
 - ATTACHMENT G - Drainage Area Map
 - ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations
 - ATTACHMENT I - Inspection and Maintenance for BMPs
 - ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices

- ___ Permanent Stormwater Section (*TCEQ-0600*), if necessary
 - ATTACHMENT A - 20% or Less Impervious Cover Waiver, if project is multi-family residential, a school, or a small business and 20% or less impervious cover is proposed for the site
 - ATTACHMENT B - BMPs for Upgradient Stormwater
 - ATTACHMENT C - BMPs for On-site Stormwater
 - ATTACHMENT D - BMPs for Surface Streams
 - ATTACHMENT E - Request to Seal Features, if sealing a feature
 - ATTACHMENT F - Construction Plans
 - ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan
 - ATTACHMENT H - Pilot-Scale Field Testing Plan, if BMPs not based on *Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs*
 - ATTACHMENT I - Measures for Minimizing Surface Stream Contamination

- ___ Agent Authorization Form (*TCEQ-0599*), if application submitted by agent

- ___ Fee Application Form (*TCEQ-0574*)

- ___ Check Payable to the "Texas Commission on Environmental Quality"

- ___ Core Data Form (*TCEQ-10400*)

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: TUSCAN RIDGE
COUNTY: COMAL STREAM BASIN: COMAL RIVER

EDWARDS AQUIFER: ☒ RECHARGE ZONE
☐ TRANSITION ZONE

PLAN TYPE: ☒ WPAP ☐ AST ☐ EXCEPTION
☐ SCS ☐ UST ☒ MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: PETE JURICA
Entity: NEW BRAUNFELS VENTURES, LP
Mailing Address: 589 S. MAGAZINE
City, State: NEW BRAUNFELS, TX Zip: 78130
Telephone: 830-237-6431 FAX: 830-608-0265

Agent/Representative (If any):

Contact Person: RUDOLPH F. KLEIN IV, P.E.
Entity: KLEIN ENGINEERING, INC.
Mailing Address: 8611 BOTTS LN
City, State: SAN ANTONIO, TEXAS Zip: 78217
Telephone: 210-828-7070 FAX: 210-828-7076

2. ☒ This project is inside the city limits of NEW BRAUNFELS, TEXAS.
☐ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____
☐ 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.

THE PROPOSED PROJECT IS LOCATED ON THE EAST SIDE OF LAKEVIEW BLVD.,
APPROXIMATELY 0.65 MILES NE OF THE INTERSECTION OF LANDA PARK DR.
AND LAKEVIEW BLVD.

4. ☒ **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. ☒ **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:

- ☒ Project site.
- ☒ USGS Quadrangle Name(s).
- ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- ☒ Drainage path from the project to the boundary of the Recharge Zone.

6. ☒ 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. ☒ **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:
- ☐ Existing commercial site
 - ☐ Existing industrial site
 - ☐ Existing residential site
 - ☐ Existing paved and/or unpaved roads
 - ☒ Undeveloped (Cleared)
 - ☐ Undeveloped (Undisturbed/Uncleared)
 - ☐ Other:

PROHIBITED ACTIVITIES

9. ☒ 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. ☒ 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

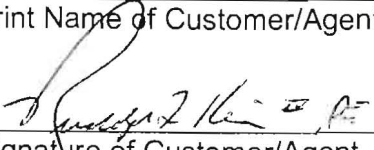
11. The fee for the plan(s) is based on:
- ☒ For a Water Pollution Abatement Plan and Modifications, the total acreage of the site where regulated activities will occur.
 - ☐ For an Organized Sewage Collection System Plans and Modifications, the total linear

- 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.
- 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.
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:

RUDOLPH F. KLEIN IV, P.E.

Print Name of Customer/Agent

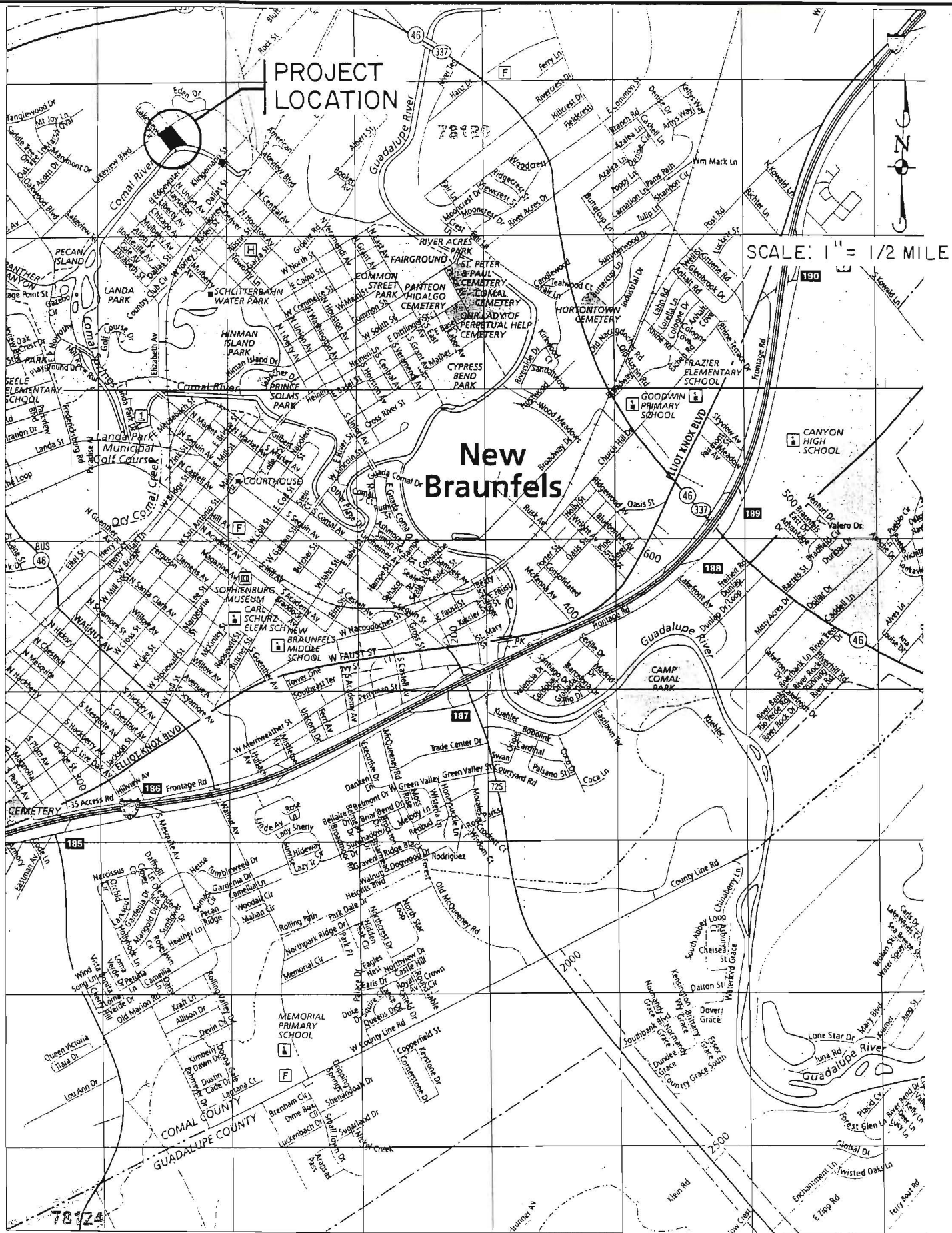


Signature of Customer/Agent

12/11/04
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.



Prepared by
KLEIN ENGINEERING, INC.
 CIVIL / MUNICIPAL / ENVIRONMENTAL ENGINEERS
 SAN ANTONIO, TEXAS

ATTACHMENT A
ROAD MAP
TUSCAN RIDGE

NEW BRAUNFELS, TEXAS

NEW BRAUNFELS WEST QUADRANGLE TEXAS

7.5 MINUTE SERIES (TOPOGRAPHIC)



Prepared by

KLEIN ENGINEERING, INC.

CIVIL / MUNICIPAL / ENVIRONMENTAL ENGINEERS
SAN ANTONIO, TEXAS

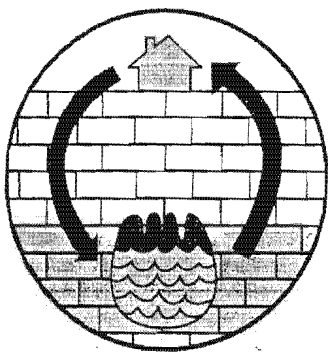
ATTACHMENT B

USGS / EDWARDS RECHARGE ZONE MAP
TUSCAN RIDGE

NEW BRAUNFELS, TEXAS

PROJECT DESCRIPTION

This proposed development, also known as Tuscan Ridge, is located in the City of New Braunfels, Comal County, Texas. The development will consist of developing approximately 3.28 acres into 16 single-family residences. The site is currently undeveloped, but construction of the street and utilities has begun as according to the previously approved application. This project site contributes flow in the Comal River watershed to the Landa Lake and Comal Springs in the City of New Braunfels. According to FEMA FIRM Map Panel No. 4854930006C, Revised June 17, 1986, the proposed development lies outside the 100-year floodplain. This project will consist of constructing approximately 800 lf of streets, 650 lf of water line, 763 lf of wastewater line, and necessary electricity, gas, telephone, and cable extensions. The water supplier is New Braunfels Utilities (NBU) and the wastewater collection will be tied into an existing wastewater line on this property that feeds to a NBU wastewater treatment plant. Runoff from this site currently sheet flows towards Landa Lake. The effects of the proposed improvements, which consist of a private street, 16-single family residences, and typical driveways are estimated to produce a runoff coefficient equivalent to $C = 0.68$. The proposed development will have an ultimate impervious cover of approximately 64%.



George Veni & Associates

Hydrogeologists and Biologists
Environmental Management Consulting
Cave and Karst Specialists

GEOLOGIC ASSESSMENT OF 3.814-ACRE TRACT ON LAKESIDE BOULEVARD, NEW BRAUNFELS, COMAL COUNTY, TEXAS

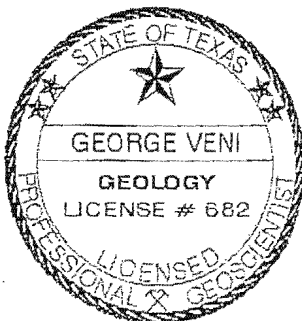
by
George Veni Ph.D.

Prepared for:
Klein Engineering, Inc.
8611 Botts Lane
San Antonio, Texas 78217

submitted
25 September 2003

In accordance with the Texas Board of Professional Geoscientists rules at 22 Texas Administrative Code, Part 39, Chapter 851, Subchapter C, §851.156, this report is signed and sealed on the title page to assure the user that the work has been performed by or directly supervised by the following professional geologist who takes full responsibility for this work

The computer-generated seal appearing on this document was authorized by George Veni, Ph.D., P.G. 682, on 25 September 2003.



25 September 2003
George Veni, Ph.D., Texas Professional Geoscientist No. 682

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7. Lo The project site is shown and labeled on the Site Geologic Map. *SEE COMMENT FOR 5.*
8. Lo Surface geologic units are shown and labeled on the Site Geologic Map.
- SEE COMMENT FOR 5.*

9. XX 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.

TWO GEOLOGIC FEATURES WERE FOUND BUT ARE SPRINGS AND NOT RECHARGE FEATURES AS COVERED BY THIS ASSESSMENT METHOD.

10. — The Recharge Zone boundary is shown and labeled, if appropriate.
11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
- There are — (#) 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.
- The wells are in use and comply with 16 TAC §76.
- XX There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

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

Date(s) Geologic Assessment was performed:

Date(s) 16 SEPTEMBER 2003

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 213.

GEORGE VENI, Ph.D., P.G. #682

Print Name of Geologist

Telephone 210-558-4403

Fax 413-383-2276

G. Veni

Signature of Geologist

25 September 2003

Date

Representing: *GEORGE VENI AND ASSOCIATES*
(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 512/939-2929 (Austin) or 210/403-4024 (San Antonio).

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.

GEOLOGIC ASSESSMENT OF 3.814-ACRE TRACT ON LAKESIDE BOULEVARD, NEW BRAUNFELS, COMAL COUNTY, TEXAS

by
George Veni, Ph.D., and Beverley L. Shade

Introduction

The purpose of this study is to conduct a geologic assessment of a 3.814-acre tract on Lakeside Blvd. in New Braunfels, Texas. The property is located on the recharge zone of the San Antonio Segment of the Edwards (Balcones Fault Zone) Aquifer (hereafter called "Edwards Aquifer"), and this report fulfills the requirements for geologic assessments for regulated activities as relating to Texas Administrative Code 30 §213.5(b)(3), effective 1 June 1999. This study meets or exceeds the instructions to geologists for such geologic assessments as required by the Texas Commission on Environmental Quality (TCEQ) per the most recent revision of 1 May 2002.

The study area is defined as the 15,435-m² (3.814-acre) tract located centrally in the city of New Braunfels, Texas. The property fronts Lakeside Blvd. for 78.3 m and extends southeast at that width for 193 to 201 m to the northeast end of Landa Lake. The lake is fed by the Edwards Aquifer's Comal Springs and provides habitat to several rare and endangered aquatic species. A multi-family housing development is proposed for the tract and the results of this investigation will help guide the owners in developing the property with the least probable impact on the aquifer and the listed species.

George Veni and Associates (GVA) performed this study under contract to Klein Engineering, Inc. The fieldwork was conducted on 16 September 2003. GVA staff for this project included karst hydrogeologist and principal investigator Dr. George Veni and karst hydrogeologist Beverley L. Shade. Karen Veni proofread the manuscript. Brian Cope of Klein Engineering, Inc., coordinated the work with GVA and arranged access to the study area.

This report contains a hydrogeologic description of the study area, the results of the fieldwork, and an evaluation of the findings in relation to the management of the study area. Appendix A is a glossary of geological, biological, and karst terms used in this report. Appendix B is a conversion index from the International System of Units used in this report, to English units. Appendix C provides a stratigraphic column for the study area. Appendix D provides brief biographies of the GVA personnel who conducted fieldwork for and wrote this report.

Methodology

The study area is evaluated per the instructions to geologists for Edwards Aquifer geologic assessments as required by the TCEQ per the most recent revision of 1 May 2002 (the attached form identifies the agency as "TNRCC" which is the predecessor to TCEQ). Where those instructions do not adequately meet the needs of the study, the methodology proposed by Veni (1999) as the standard for karst environmental impact assessments is used.

The search for geologic features was conducted with a team of two people walking about 15 m apart across the width of the property, beginning at Lakeside Blvd. Upon reaching the property boundary, they shifted to the downslope side of their transect and walked back in the opposite direction to search the adjacent area, continuing downhill until the property was surveyed to Landa Lake. This technique discovers most geological features within an area, although some small features with little surface expression may still be missed. The 15-m-spacing can be changed if warranted by local conditions, but it is effective for most terrains. Wider spacing usually misses too many features, and narrower spacing significantly increases search costs for generally little additional information. Feature locations were recorded with a Garmin 12X or 12CX GPS (global positioning system) receiver. All of the locations were within Universal Transverse Mercator (UTM) Zone 14 and calculated with a NAD 1927 datum and the CONUS database. The GPS receivers gave estimated position errors (EPE) ranging from 5-7 m.

Field Investigation

Surface and Regional Geology

The terrain for most of the study area gently slopes southwest toward Landa Lake. The southernmost 30 m slope steeply to the lake. Its topography is presented on the New Braunfels 7.5' U.S. Geological Survey topographic quadrangle. The elevation ranges from a maximum 223.7 m above mean sea level at the property's northern corner to 189.3 m along the lake shore.

The property has been heavily impacted by prior construction and earth-moving activities. Many small depressions are present that, upon close examination, were found not to be recharge features but stump holes and artifacts of prior land use.

Lithology

One mapped geologic unit occurs in the study area: the undivided Cretaceous age Leached and Collapsed members of the Person Formation of the Edwards Limestone Group (Small and Hanson, 1994). The geology of the area has been mapped several times. Notable references include work by George (1947, 1952), Whitney, Young, and Brooks (1956), Guyton and Associates (1979), Barnes (1983), and Collins (1993, 2000). Small and Hanson (1994) mapped the Edwards Limestone outcrop in Comal County, providing the most detailed and accurate map of the study area to date. This map is used as the primary geologic reference for this geologic assessment.

The Edwards Limestone Group is the most permeable and cavernous unit in the study area. Rose (1972) subdivided the Edwards into the Kainer Formation at the base, with ascending Basal Nodular, Dolomitic, Kirschberg, and Grainstone members, and the Person Formation at the top, with ascending Regional Dense, Collapsed, Leached, Marine, and Cyclic members. MacLay and Small (1984) included the Basal Nodular Member as the base of the Kainer, which is equivalent to the Walnut Formation described by Abbott (1973) and other geologists. The Edwards is a hard, crystalline, fossiliferous, and cavernous rock that is locally about 148.5 m thick.

Geologic Structure

The dominant structural feature of the study area is the Balcones Fault Zone. The fault zone is formed along the homoclinal hinge between the relatively flat-lying strata of the Edwards Plateau to the northwest and the more steeply dipping strata in the Gulf of Mexico Basin to the southeast. The fault zone is characterized by a series of en echelon normal faults, mostly downthrown toward the Gulf. Faulting decreases in intensity from southeast to northwest across the area. Individual fault displacements in Comal County are as much as 250 m at the Comal Spring Fault, but most major fault displacements in the county are about 50-90 m. Many faults with less than 3 m of throw do not appear on geologic maps due to difficulty in mapping them. Joints are by far the most abundant structures in the study area and are generally formed by stresses associated with faulting.

The Comal Springs Fault is located approximately at the lower end of the property. Small and Hanson (1994) mapped it at the base of Balcones Escarpment, marked on the property by the steep slope down to Landa Lake. Other geologists have placed the fault in the lake and on the opposite side of the lake. A fault was not visible in the shallow clear water of the lake along the property's southern margin. Bedrock was visible that appeared to be limestone and groundwater discharges from the floor of the lake (Guyton and Associates, 1979; Geary Schindel, Edwards

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Aquifer Authority, personal communication, 2003), suggesting that the Comal Springs Fault is a series of closely-spaced faults that extends from the escarpment to the alluviated area on the south side of Landa Lake. One or more of those faults almost certainly guides the development of the escarpment on the study area property, but they were not observed in the field and thus cannot be precisely marked on a map. A normal fault downthrown to the southeast, Small and Hanson (1994) mapped the Comal Springs Fault as bearing 44° in the study area.

Wermund, Cepeda, and Luttrell (1978) conducted a fracture distribution study for the region. In the New Braunfels area, they found that the occurrence of short fractures (joints and faults <4.5 km in length) averaged about 225 per 7.5' topographic quadrangle, as visible in aerial photographs. They were predominantly oriented at either 120-140° or 40-60°. The 120-140° fracture set is likely due to structurally weak zones in the Paleozoic rocks underlying the Glen Rose and other Cretaceous rocks. The 40-60° fracture set is the result of Balcones faulting. Wermund, Cepeda, and Luttrell (1978) also found that fracturing was not related to lithology because it extended through underlying formations, indicating ongoing fracture propagation.

Hydrogeology

Groundwater in the study area occurs in the Edwards Aquifer, a complex hydrologic system within the Edwards Limestone in the Balcones Fault Zone. It is divided into four segments: San Antonio, Barton Springs, Northern Balcones, and Washita Prairie (Yelderman, 1987). A drainage divide, an incised valley, and a gap of Edwards Limestone outcrop within the fault zone respectively separate the segments. The study area is located within the San Antonio Segment of the Edwards, which is divided into four zones: contributing or drainage zone, recharge zone, artesian or confined zone, and saline zone. The contributing zone is the upgradient non-Edwards Limestone area from which streams flow onto or cross the recharge zone, the exposure of Edwards Limestone within the fault zone where water enters the aquifer. The study area occurs within the recharge zone. The artesian zone is that area where the Edwards Limestone is down-faulted into the subsurface, and its groundwater is confined between upper and lower less permeable formations. The aquifer's largest springs occur where groundwater rises up fractures to discharge in stream valleys that intersect the potentiometric surface. The "bad water line" is the downgradient boundary of the artesian zone with the saline zone, where total dissolved solids in the groundwater exceed 1,000 mg/l. Groundwater flow in Comal County is complicated but generally down-dip southeastward, then northeastward along strike. Studies of the aquifer are too many to mention in this report. For a detailed listing of Edwards Aquifer investigations, see the bibliography by Esquin (1999).

Comal Springs are a group of springs that discharge along or near the base of the Balcones Escarpment. Collectively, they have the highest discharge in Texas with an average annual discharge of 8.04 m³/s, as gauged between 1928 and 1989 (San Marcos/Comal Recovery Team, 1996). Guyton and Associates (1979) provided one of the more comprehensive studies on the springs. Brune (1975, 1981) provided general and historical descriptions of the springs and a map showing the location of the 16 major outlets. A detailed survey by Steven Johnson (Edwards Aquifer Authority, personal communication, 2003) found over 50 discrete outlets. The water from the springs immediately feed Landa Lake, which is maintained by a small dam.

Epikarst and soils

Soil studies provide most published data relating to epikarst in the study area. Soils on the

property are naturally thin, and those present have been significantly reduced by erosion and prior activities. Batte (1984) mapped Comfort-Rock outcrop complex soils on the upper two-thirds of the property and Eckrant-Rock outcrop complex in its steep lower third. These soils are stony, patchy, easily eroded, dark gray-brown clays. They are moderately permeable and generally about 25 cm thick where present. While they are both classified as Soil Group D by the Soil Conservation Service (1986), described as having a very slow infiltration rate when thoroughly wetted, they lack sufficient thickness and lateral extent in the study area to retard groundwater recharge or mitigate for any contaminants in the recharge. Water simply flows off of these soils to recharge the aquifer through adjacent fractures and karst features in the limestone. When dry, deep cracks can form through these thin soils, making them highly permeable until sufficiently wetted.

Veni (1997) found that the epikarst and noncavernous portions of the vadose zone in the lower member of the Glen Rose Formation, which is not present in the study area, are hydrologically and chemically indistinguishable in areas with little or no soil cover. Much of the water storage and carbon dioxide production usually thought to occur in the epikarst was found within the vadose zone. The same conditions probably occur in the Person Formation where there is little soil cover.

The epikarst surface in the Person Formation is relatively smooth, and gently rises and falls toward valleys, sinkholes, and some cave entrances. Solutionally enlarged fractures are common but are narrow, highly localized, and do not significantly disrupt the mean epikarst topography.

Caves and karst

Reddell (1963) provided a review of caves in Comal County and described several in the New Braunfels area. Beck (1968) examined the origin of caves in Comal County. Kastning (1983) conducted a detailed karst geomorphological and hydrogeological investigation of the New Braunfels area, focused on Natural Bridge Caverns. A more recent geological study of karst and cave development in that vicinity was performed by Vauter (1992). For information on the principles of karst hydrogeology on which this report is based, see the texts of White (1988) and Ford and Williams (1989).

Description of Geologic Features

Two geologic features were found during this investigation in the study area and are described below. They are both spring complexes shown by Brune (1981) as Comal Springs B and C. Following is a description of each feature that includes physical descriptions, plus reports on any known or observed aspect of their history, biology, geology, archeology, paleontology, and meteorology. The absence of a report on any of these topics means that no relevant observations were made or information found.

Comal Springs B

Location: UTM 584415 by 3288029, EPE 7 m

Synopsis: This pair of springs is part of the Comal Springs group. It discharges artesian flow from the Edwards Aquifer and supports the habitat of several federally listed endangered species.

Description: This pair of springs issues from either side of a pile of masonry and fill on the north bank of Landa Lake. The rise pools for this pair of springs are 5 m apart, each about 2.5 m on either side of the northeastern property fence. The rise pools and spring-runs for both outlets have been modified by construction. The pool of the eastern spring is 6 m long by 3 m wide; when evaluated, the water in this pool was about 0.3 m deep. Most of the water issues from beneath the masonry/fill pile. Water also issues from fractures in bedrock on the north wall of the pool; the bedrock appears to be intact, although the fractures may be enlarged by stress release along the hillside. The water from this outlet flows south about 8 m through a masonry-lined channel to Landa Lake. The spring western outlet is 3.5 m long by 2 m wide; when evaluated, the water in its rise pool was about 0.3 m deep. Most of the water issues from beneath the masonry/fill pile. The water from this outlet flows southwest about 15 m through a masonry-lined channel to Landa Lake.

History: The springs have been known throughout local historic and much of prehistoric time. Their letter designation is from Brune (1981). Bev Shade and George Veni hydrogeologically evaluated these springs while doing a geologic evaluation of the property on 16 September 2003.

Geology: These artesian springs discharge from the Edwards Aquifer and flow at the surface from the undivided Leached and Collapsed members of the Person Formation of the Edwards Group. They are probably fed by a conduit that is currently covered by bank erosion and hillside slumping from the steep riverbank. The previously described masonry/fill pile has clearly been modified by construction activities, but may have originated as a hillside slump from the steep bluff. It appears that these two springs were probably once a single spring that was covered by colluvium, and then created two auxiliary discharge points. Recharge for the springs has long been considered to originate primarily westward along the Balcones Escarpment in Bexar, Medina, Uvalde, and Kinney counties. Tracer studies by Schindel et al. (2002) demonstrate that recharge in the vicinity of the springs also contributes to their flow. Discharge was not estimated from these springs, but daily discharge measurements for the entire Comal Spring group are available from the Edwards Aquifer Authority. The water temperature in both spring outlets was 23.7°C on 16 September 2003.

Comal Springs C

Location: UTM 584354 by 3287979, EPE 5.3 m

Synopsis: This spring complex is part of the Comal Springs group. It discharges artesian flow from the Edwards Aquifer and supports the habitat of several federally listed endangered species.

Description: This spring complex consists of a 20-m-long stretch on the north bank of Landa Lake. The entire reach produces water, and either end of this area is marked by a larger spring or cluster of springs. The largest spring lies at the west end of the spring area, 4.5 m west of the southwestern property fence. Its rise pool is 4 m long by 1.5 m wide; when evaluated, the water in the pool was about 0.2 m deep. The water issues from fractures in boulders that have been moved by hillside slumping. Water also issues from the gravel deposits along the lake's edge. The east end of the spring complex is 14.5 m east of the western property fence. It consists of a cluster of approximately four discharge points that is 2 m long by 1.75 m wide, with water ranging in depth from 0.1 to 0.5 m on 16 September 2003. The intervening section of riverbank has many small springs and seeps, located about 1 to 2 m apart. These springs flow directly into the east end of Landa Lake. The presence of hydrophilic plants suggests that at least the largest springs are perennial.

History: The springs have been known throughout local historic and much of prehistoric time. Bev Shade and George Veni found and hydrogeologically evaluated this spring complex while doing a geologic evaluation of the property on 16 September 2003.

Geology: The springs flow from the undivided Leached and Collapsed members of the Person Formation of the Edwards Group. They are probably fed by a conduit or several conduits that are currently covered by bank erosion, hillside slumping of large bedrock blocks from the steep bluff, and fluvial deposits from Landa Lake. Recharge for the springs has long been considered to originate primarily westward along the Balcones Escarpment in Bexar, Medina, Uvalde, and Kinney counties. Tracer studies by Schindel et al. (2002) demonstrate that recharge in the vicinity of the springs also contributes to their flow. Discharge was not estimated from these springs, but daily discharge measurements for the entire Comal Spring group are available from the Edwards Aquifer Authority. The water temperature in all the larger springs was 23.7°C on 16 September 2003.

Geology and Endangered Species Ecosystems

Geologic assessments to meet the requirements of TCEQ do not normally include discussion of endangered species. However, since the study area is adjacent to Landa Lake, which contains endangered species and includes two of the major springs of the Comal Springs group that sustain that habitat, it would be negligent not to include at least a brief discussion of the topic.

Federally listed endangered species currently known at Comal Springs are the Fountain darter, (*Etheostoma fonticola*), the Comal Springs riffle beetle (*Heterelmis comalensis*), Peck's cave amphipod (*Stygobromus pecki*), and the Comal Springs dryopid beetle (*Stygoparnus comalensis*). Listing of the species was primarily based on the threat of the springs drying due to drought combined with pumping of groundwater from the aquifer. Additional reasons include the introduction of harmful exotic species into the ecosystem and threats of contamination of the Edwards Aquifer in general and from the surrounding land use in particular. This last threat is the most relevant to the study area.

Polluted water can adversely impact the spring ecosystem in two ways. First, contaminants on the surface could run off into the springflows and/or Landa Lake. Second, contaminants that enter the ground will likely flow to the springs with little or no filtration, which is typical of karst aquifers. The most likely contaminants that might occur in the study area include, but are not limited to, road runoff, pesticides, fertilizers, eroded soils and sediments, and sewage systems from urban developments present and proposed for construction.

For more information on the listed species, their threats, and management, see Campbell (1995), San Marcos/Comal Recovery Team (1996), and U.S. Fish and Wildlife Service (1997). Elliott (1993, 1994) and Reddell (1994) provided overviews of issues and research on Texas karst fauna. For general information on karst biology and ecology see Culver (1982).

Quantitative Evaluation of Geologic Features

The quantitative evaluation of geologic features required by TCEQ is usually discussed in this section of the report to predict those features of greatest likely permeability and thus greatest likelihood of being a hydrologically significant feature. This information can be used to plan future activities and developments in the area to minimize impacts on karst groundwater resources, ecosystems, and cultural or paleontological sites, and to target features of most probable significance for mitigation and additional research as needed. The features are typically quantitatively evaluated with TCEQ's geologic assessment table using field observations to determine their probable significance.

A quantitative evaluation was not conducted for this study because the two features discovered are springs. The TCEQ assessment method was not developed to assess springs, but characteristics that demonstrate the recharge permeability of a feature, and hence the feature's likelihood to be hydrologically significant relative to either water quantity or sensitivity to groundwater contamination. While springs are often hydrologically significant, they are not sites where groundwater contamination can easily occur.

Conclusions

Two geologic features were found in the study area during the investigation. The following conclusions were derived:

- 1) Comal Spring B is a double-spring complex with one of the springs located in the southeast corner of the property; it is one of the major springs of the Comal Spring group;
- 2) Comal Spring C is a series of springs, most of which lie along Landa Lake in the southwest corner of the property, but the largest of which is on an adjacent property; it is one of the major springs of the Comal Spring group;
- 3) all surface drainage on the property drains as sheetwash into Landa Lake and/or the springflows of Comal Springs B and C;
- 4) the fate of any contaminants that might enter the ground in the study area is not conclusively known, but they are highly likely to discharge from the Comal Springs.

Recommendations

The Edwards is a karst aquifer that is well known to have complex groundwater flow paths that are extremely sensitive to contamination which can impact human groundwater supplies and endangered karst species habitat. The following recommendations are based on this premise and the data of this study and presented in general descending order of priority.

1) The springs should be left in their natural states. Any potential contaminants, such as herbicides and gasoline, should be prohibited or restricted in their use on the property and kept away from the springs. The U.S. Fish and Wildlife Service's Austin, Texas, office (512-490-0057) should be contacted for information to help minimize possible impacts on the endangered ecosystems, much of which will apply to protecting the Edwards Aquifer. A "Partners" program is available that can provide financial assistance to private landowners for their voluntary efforts in protecting and better managing habitat on their lands.

2) Since no notable recharge or other geologic features were found that would require special mitigation or consideration, no extraordinary aquifer protection actions are needed beyond those prescribed by TCEQ.

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APPENDIX A

Glossary of Geologic, Karst, and Biological Terminology

This glossary is broad in scope to assist nonspecialists reviewing this report, but is not meant to cover all possible terms. Additional karst definitions and geologic terms can be found in the geologic dictionary of Jackson (1997); for biospeleological terms see Culver (1982).

Alluvium: Stream-deposited sediments, usually restricted to channels, floodplains, and alluvial fans.

Aquiclude: Rocks or sediments, such as shale or clay, which do not conduct water in significant quantities.

Aquifer: Rocks or sediments, such as cavernous limestone and unconsolidated sand, which store, conduct, and yield water in significant quantities for human use.

Aquitard: Rocks or sediments, such as cemented sandstone or marly limestone, that transmit water significantly more slowly than adjacent aquifers and that yield at low rates.

Artesian: Describes water that would rise above the top of an aquifer if intersected by a well; sometimes flows at the surface through natural openings such as fractures.

Bearing: The azimuthal direction of a linear geologic feature, such as the axis of a fold or the orientation of a fracture; commonly used to denote specific orientations rather than average or general orientations. See trend for comparison.

Cave: A naturally occurring, humanly enterable cavity in the earth, at least 5 m in length and/or depth, in which no dimension of the entrance exceeds the length or depth of the cavity (definition of the Texas Speleological Survey).

Conduit: A subsurface bedrock channel formed by groundwater solution to transmit groundwater; often synonymous with cave and passage, but generally refers to channels either too small for human entry, or of explorable size but inaccessible. When used to describe a type of cave, it refers to base level passages that were formed to transmit groundwater from the influent, upgradient end of the aquifer to the effluent, downgradient end.

Conduit flow: Groundwater movement along conduits; usually rapid and turbulent.

Confined: Pertaining to aquifers with groundwater restricted to permeable strata that are situated between impermeable strata.

Cretaceous: A period of the geologic time scale that began 135 million years ago and ended 65 million years ago.

Dip: The angle that joints, faults or beds of rock make with the horizontal; colloquially described as

the "slope" of the fractures or beds. "Updip" and "downdip" refer to direction or movement relative to that slope.

Discharge: The water exiting an aquifer, usually through springs or wells; also the amount of water flowing in a stream.

Epikarst: The highly solutioned zone in karst areas between the land surface and the predominantly unweathered bedrock.

Fault: Fracture in bedrock along which one side has moved with respect to the other.

Fracture: A break in bedrock that is not distinguished as to the type of break (usually a fault or joint).

Geomorphology: The branch of geology that studies the shape and origin of landforms.

Homoclinal hinge: The axis of a single, uniform bend in strata.

Hydrogeology: The study of water movement through the earth, and the geologic factors that affect it.

Hydrology: The study of water and its origin and movement in atmosphere, surface, and subsurface.

Impermeable: Does not allow the significant transmission of fluids.

Joint: Fracture in bedrock exhibiting little or no relative movement of the two sides.

Karst: A terrain characterized by landforms and subsurface features, such as sinkholes and caves, which are produced by solution of bedrock. Karst areas commonly have few surface streams; most water moves through cavities underground.

Karst feature: Generally, a geologic feature formed directly or indirectly by solution, including caves; often used to describe features that are not large enough to be considered caves, but have some probable relation to subsurface drainage or groundwater movement. These features typically include but are not limited to sinkholes, enlarged fractures, noncavernous springs and seeps, soil pipes, and epikarstic solution cavities.

Lithology: The description or physical characteristics of a rock.

Loam: A rich, permeable soil with generally equal parts of sand, silt, and clay.

Miocene: An epoch of the Tertiary Period of the geologic time scale that occurred between 5 and 23 million years ago.

Normal fault: A fault where strata underlying the fault plane are higher in elevation than the same strata on the other side of the fault plane.

Permeable: Allows the significant transmission of fluids.

Permeability: Measure of the ability of rocks or sediments to transmit fluids.

Phreatic: The area below the water table, where all voids are normally filled with water.

Pleistocene: An epoch of the Quaternary Period of the geologic time scale that began 2 million years ago and ended about 10,000 years ago. Colloquially called the "Ice Age" due to its episodes of continental glaciation.

Porosity: Measure of the volume of pore space in rocks or sediments as a percentage of the total rock or sediment volume.

Potentiometric surface: A surface representing the level to which underground water confined in pores and conduits would rise if intersected by a borehole. See water table.

Reach: The length of a stream or stream segment; often used to denote similar physical characteristics.

Recharge: Natural or artificially induced flow of surface water to an aquifer.

Seep: A spring that discharges a relatively minute amount of groundwater to the surface at a relatively slow rate; typically a "trickle."

Sheetwash: Surface water runoff that is not confined to channels but moves across broad, relatively smooth surfaces as thin sheets of water.

Sinkhole: A natural indentation in the earth's surface related to solutional processes, including features formed by concave solution of the bedrock, and/or by collapse or subsidence of bedrock or soil into underlying solutionally formed cavities.

Solution: The process of dissolving; dissolution.

Spring: Discrete point or opening from which groundwater flows to the surface; strictly speaking, a return to the surface of water that had gone underground.

Stratigraphic: Pertaining to the characteristics of a unit of rock or sediment.

Stratigraphy: Pertaining to or the study of rock and sediment strata, their composition and sequence of deposition.

Stress-release: Generally refers to fractures which form as rocks expand following the loss of overlying or lateral pressure; commonly seen along hillsides and cliffs as fractures that run parallel to the topographic contours.

Strike: The direction of a horizontal line on a fracture surface or on a bed of rock; perpendicular to dip.

Structure: The study of and pertaining to the attitude and deformation of rock masses. Attitude is commonly measured by strike and dip; deformational features commonly include folds, joints, and faults.

Trend: The azimuthal direction of a linear geologic feature, such as the axis of a fold or the orientation of a fracture; commonly used to denote average or general orientations rather than specific orientations.

Vadose: Pertaining to the zone above the water table where all cavities are generally air-filled, except during temporary flooding.

Water table: The boundary of the phreatic and vadose zones. A potentiometric surface but the term is used only in unconfined aquifers.

APPENDIX B

Conversions: International System of Units to English Units

MULTIPLY	BY	TO GET
<i>Length</i>		
centimeters (cm)	0.3937	inches (in)
meters (m)	3.281	feet (ft)
kilometers (km)	0.621	miles (mi)
<i>Area</i>		
square meters (m ²)	10.76	square feet (ft ²)
square kilometers (km ²)	0.3861	square miles (mi ²)
square kilometers (km ²)	247.1	acres (ac)
<i>Volume</i>		
liters (L)	0.264	gallons (gal)
cubic meters (m ³)	264.17	gallons (gal)
cubic meters (m ³)	0.00081	acre-feet (a-f)
<i>Flow</i>		
liters per second (L/s)	0.0353	cubic feet per second (cfs)
liters per second (L/s)	15.85	gallons per minute (gpm)
cubic meters per second (m ³ /s)	35.31	cubic feet per second (cfs)
cubic meters per second (m ³ /s)	1,585	gallons per minute (gpm)
cubic meters per second (m ³ /s)	70.05	acre-feet per day (a-f/d)
<i>Temperature</i>		
degrees Celsius	multiply by 1.8 then add 32	degrees Fahrenheit

Appendix C

Stratigraphic Column of Edwards Group Rocks in Comal County (based on Small and Hanson, 1994)

Group	Formation	Member	Average Thickness (m)*
Edwards	Person		148.5
			61.5
		Cyclic and Marine	27.4
		Leached and Collapsed	27.4
		Regional Dense	6.7
	Kainer		87.0
		Grainstone	16.8
		Kirschberg	16.8
		Dolomitic	36.6
		Basal Nodular	16.8

* given thicknesses are means for the outcrop area.

----- = conformable contact

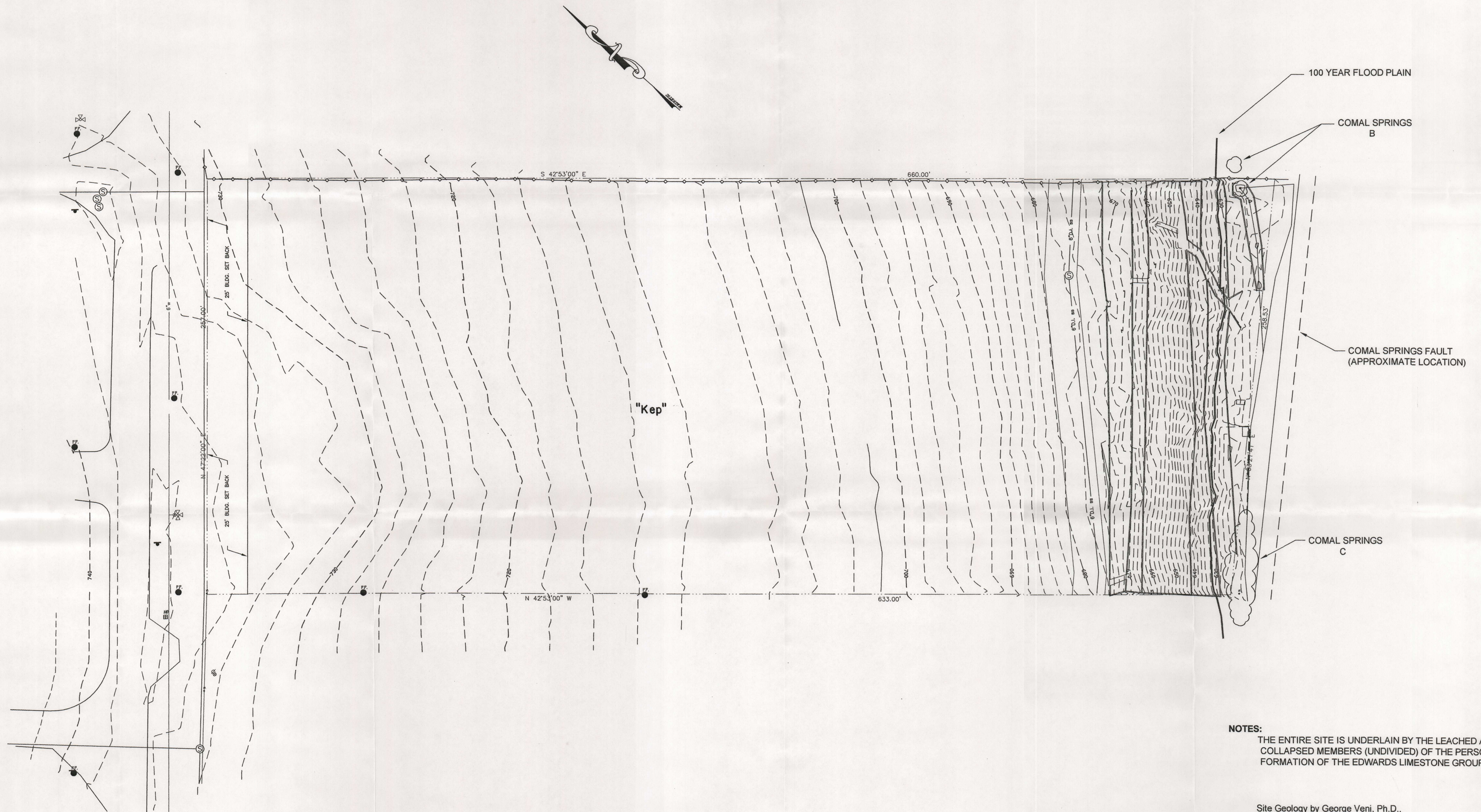
APPENDIX D

Biographies of Research Personnel

The appendix provides brief biographical information on the personnel who conducted the fieldwork for this investigation or wrote or conducted key research for the report. This appendix also meets the U.S. Fish and Wildlife Service guidelines for biographical data on personnel associated with the collection, study, and related research on the endangered species that occur in the study area. In meeting with those guidelines, the author of this report certifies direct responsibility for this report, that it is true, complete, and accurate, to the best of his knowledge, that the personnel involved were capable of performing their assigned tasks and did so as best as reasonably possible, and that non-supervisory personnel were supervised when needed.

Beverley L. Shade received a Master's degree in geology from the University of Minnesota in 2002, specializing in karst hydrogeology, where she published a map of karst features in conjunction with the Minnesota Geological Survey's County Atlas Program. She holds a Bachelor's degree from Rice University, where she double majored in Geology and Anthropology, graduating cum laude in 1999. She began exploring and studying caves in 1991, and is primarily interested in the karst of Texas and Mexico, although she has also participated in speleological expeditions in Central America and Europe. She is currently the President of the Proyecto Espeleológico Purificación and an assistant editor for the Association for Mexican Cave Studies. She has presented karst research at four national conferences. Her work as a karst geologist has included dye tracing, dye analysis, karst feature mapping and excavation, groundwater sampling, groundwater chemistry analysis, groundwater dating, cave surveying, cave survey data reduction, and maintenance of a GIS system. As well, she has worked as a technician on cave archaeology projects in Honduras and Guatemala. She began working as a karst geologist for George Veni and Associates in 2002, conducting surveys and hydrogeologic evaluations of caves and karst features.

Dr. George Veni is an internationally recognized hydrogeologist specializing in caves and karst terrains (Texas registered professional geologist license no. 682). He received his Master's degree from Western Kentucky University in 1985 and his Ph.D. from the Pennsylvania State University in 1994. Since 1987 he has owned and served as principal investigator of George Veni and Associates. Much of his work has been in central Texas, but he has also conducted extensive karst research throughout the United States and in several other countries. Among his organizational activities, he is currently President of the Texas Speleological Survey, Executive Secretary of the National Speleological Society's Section of Cave Geology and Geography, and is a member of the governing board of the International Union of Speleology. He serves as a doctoral committee advisor for geological and biological dissertations at The University of Texas and teaches karst geoscience courses as an adjunct professor for Western Kentucky University. He has published and presented over 100 papers, including four books, on hydrogeology, biology, and environmental management in karst terrains. He holds U.S. Fish and Wildlife Service Permit TE026436-0 (expires 31 August 2005) to collect and study federally listed endangered Texas karst invertebrate species and three cave-dwelling species have been named in his honor.



NOTES:
THE ENTIRE SITE IS UNDERLAIN BY THE LEACHED AND COLLAPSED MEMBERS (UNDIVIDED) OF THE PERSON FORMATION OF THE EDWARDS LIMESTONE GROUP

Site Geology by George Veni, Ph.D.,
George Veni & Associates



George Veni, Ph.D., Texas Professional Geoscientist No. 662

10 March 2004

LEGEND

- TREE
- POWER POLE
- STREET SIGN
- ⊙ MANHOLE
- ⊕ FIRE HYDRANT
- ⊗ WATER VALVE
- ⊘ WATER METER

J.M. VERAMENDI SURVEY No. 1
3.814 ACRE TRACT,
VOL. 236, PG. 635, DEED RECORDS, COMAL COUNTY, TX.



KLEIN ENGINEERING, INC.
CIVIL / MUNICIPAL / ENVIRONMENTAL ENGINEERS
SAN ANTONIO, TEXAS

NEW BRAUNFELS

TUSCAN RIDGE

TEXAS

SITE GEOLOGIC MAP
WATER POLLUTION ABATEMENT PLAN
APPLICATION

SHEET 1
OF 1

DESIGNED BY: G.V.	SCALE: 1"= 30'
DRAWN BY: F.R.	DATE: DECEMBER 2003
CHECKED BY: G.V.	JCB No.: 07-33

Modification of a Previously Approved Plan
for Regulated Activities
on the Edwards Aquifer Recharge Zone and Transition Zone
and Relating to 30 TAC §213.4(j), Effective June 1, 1999

1. Regulated Entity Name: TUSCAN RIDGE, NEW BRAUNFELS VENTURES, LP
2. Original Regulated Entity Name: TUSCAN RIDGE
3. ☒ **ATTACHMENT A - Original Approval Letter.** A copy of the original approval letter and copies of any letters approving modifications are found at the end of this form.
4. A modification of a previously approved plan is requested for: (INDICATE ALL THAT APPLY)
 - ☒ physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - ☐ change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - ☐ development of land previously identified as undeveloped in the original water pollution abatement plan;
 - ☐ physical modification of the approved organized sewage collection system;
 - ☐ physical modification of the approved underground storage tank system;
 - ☐ physical modification of the approved aboveground storage tank system.
5. ☒ **ATTACHMENT B - Narrative of Proposed Modification.** A narrative description of the nature of each proposed modification is provided at the end of this form.
6. Original Project:

Type:	<input checked="" type="checkbox"/> WPAP	<input type="checkbox"/> SCS	<input type="checkbox"/> UST	<input type="checkbox"/> AST
Size:	<u>3.28</u>	acres		
Population:	<u>60</u>			
Wastewater Volume:	<u>N/A</u>	gal/day		
Sewer Pipe:	<u>N/A</u>	linear ft		
Hydrocarbon Storage:	<u>N/A</u>	# of tanks		
Impervious Cover:	<u>65</u>	%		
7. Proposed Modification:

Type:	<input checked="" type="checkbox"/> WPAP	<input type="checkbox"/> SCS	<input type="checkbox"/> UST	<input type="checkbox"/> AST
Size:	<u>3.28</u>	acres		
Population:	<u>60</u>			
Wastewater Volume:	<u>N/A</u>	gal/day		
Sewer Pipe:	<u>N/A</u>	linear ft		
Hydrocarbon Storage:	<u>N/A</u>	# of tanks		
Impervious Cover:	<u>64</u>	%		

8. X **ATTACHMENT C - Site Plan.** A Site Plan showing the existing conditions of the site, the location of proposed modification(s), and, as applicable, geologic or man-made features, temporary erosion and sedimentation controls, and permanent BMPs is found at the end of this form.
9. X One (1) original and three (3) copies of a completed application has been provided.

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 request for a **MODIFICATION TO A PREVIOUSLY APPROVED PLAN** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

RUDOLPH F. KLEIN IV, P.E.
Print Name of Customer/Agent


Signature of Customer/Agent

12/11/01
Date

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 21, 2004

Mr. Pete Jurica
New Braunfels Ventures, L.P.
589 S. Magazine
New Braunfels, Texas 78130

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Tuscan Ridge Subdivision; Located on east side of Lakeview Blvd., approximately 0.65 miles northeast of Landa Park Drive; New Braunfels, 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 File No. 2160.01, Regulated Entity No. RN104216130, Customer No. CN602598542

Dear Mr. Jurica:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by Klein Engineering, Inc. on behalf of New Braunfels Ventures, L.P. on March 31, 2004. Additional information was received on June 18, 2004. As presented to the TCEQ, the Temporary and Permanent 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 20 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.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 3.28 acres. It will include 18 single-family residences. The impervious cover will be 2.127 acres (65 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Sewage Treatment Plant owned by the City of New Braunfels/New Braunfels Utilities.

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210/490-3096 • FAX 210/545-4329

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

printed on recycled paper using soy-based ink

TCEQ (0590)-Attachment A
1 of 5

Mr. Pete Jurica
June 21, 2004
Page 2

PERMANENT POLLUTION ABATEMENT MEASURES

A partial sedimentation/filtration basin will be constructed to treat stormwater runoff. It is designed in accordance with the 1999 edition of the TNRCC's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices," and is sized to capture the first 0.575 inches of stormwater run-off from 3.28 acres, providing a total capture volume of 8,215 cubic feet. The filtration system will consist of:

1. 474 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

The approved measures were presented to meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

GEOLOGY

According to the geologic assessment included with the application, there are no sensitive geologic or manmade features located on the project site. However, Comal Springs B and C are approximately 100 feet down gradient from the southeast corner of the project site. The San Antonio Regional Office did not conduct a site investigation.

SPECIAL CONDITIONS

- I. The sedimentation/filtration basin is designed in accordance with the 1999 edition of the TCEQ's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices." The basins will incorporate sedimentation and filtration as described above.
- II. All sediment and or media removed from the partial sedimentation/filtration basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335 as applicable.
- III. All permanent stormwater treatment measures must be operational prior to occupation of any residence.
- IV. Intentional discharges of sediment laden stormwater during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

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.

Mr. Pete Jurica
June 21, 2004
Page 3

Prior to Commencement of Construction:

2. 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.
3. 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.
4. 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.
5. 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 file 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.
6. 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.
7. 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:

8. 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.

Mr. Pete Jurica

June 21, 2004

Page 4

9. 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 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.
10. No wells exist on the 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.
11. 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.
12. 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.
13. 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:

14. 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.
15. 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.
16. Upon legal transfer of this property, the new owner(s) 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

Mr. Pete Jurica
June 21, 2004
Page 5

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.

17. 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.
18. 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 John Mauser of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4024.

Sincerely,



for Glenn Shankle
Acting Executive Director
Texas Commission on Environmental Quality

GS/JKM/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance on Permanent BMPs-Form TCEQ-10263

fc: Mr. Rudolph F. Klein, P.E., Klein Engineering, Inc.
Mr. Michael Short, City of New Braunfels
Mr. Wesley Hamff, P.E., New Braunfels Utilities
Mr. Tom Hornseth, Comal County
cc: Mr. Greg Ellis, Edwards Aquifer Authority
TCEQ Central Records, MC 212

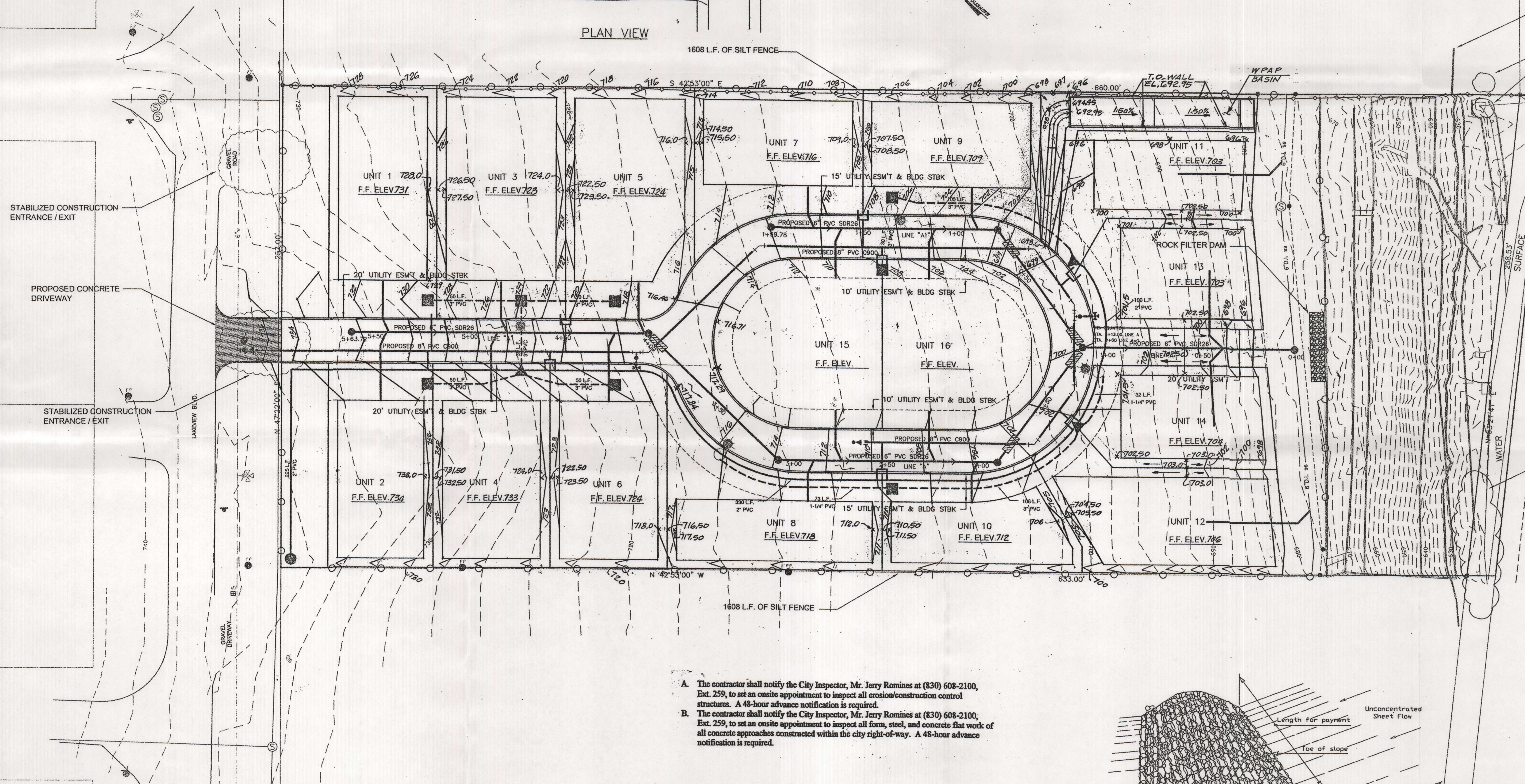
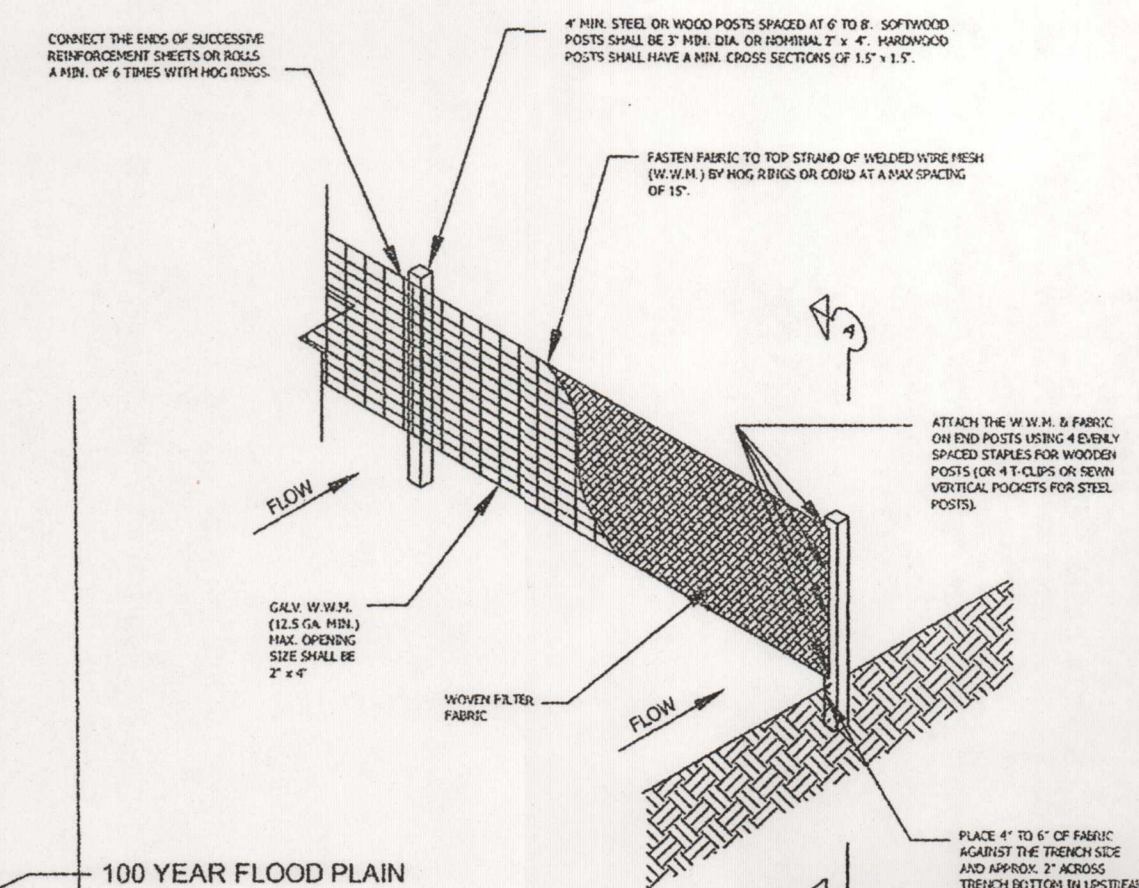
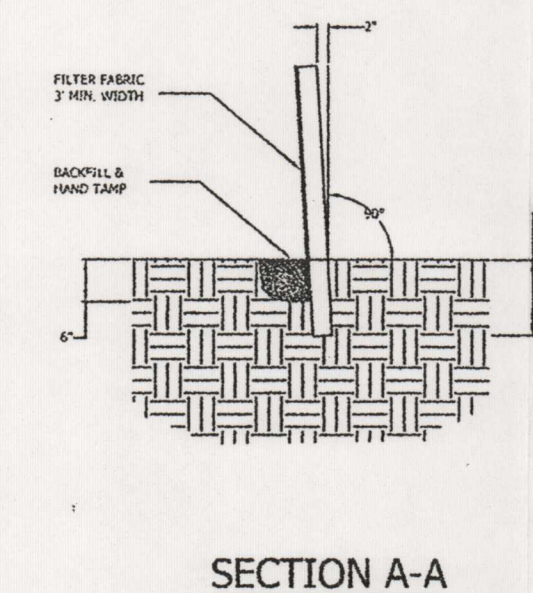
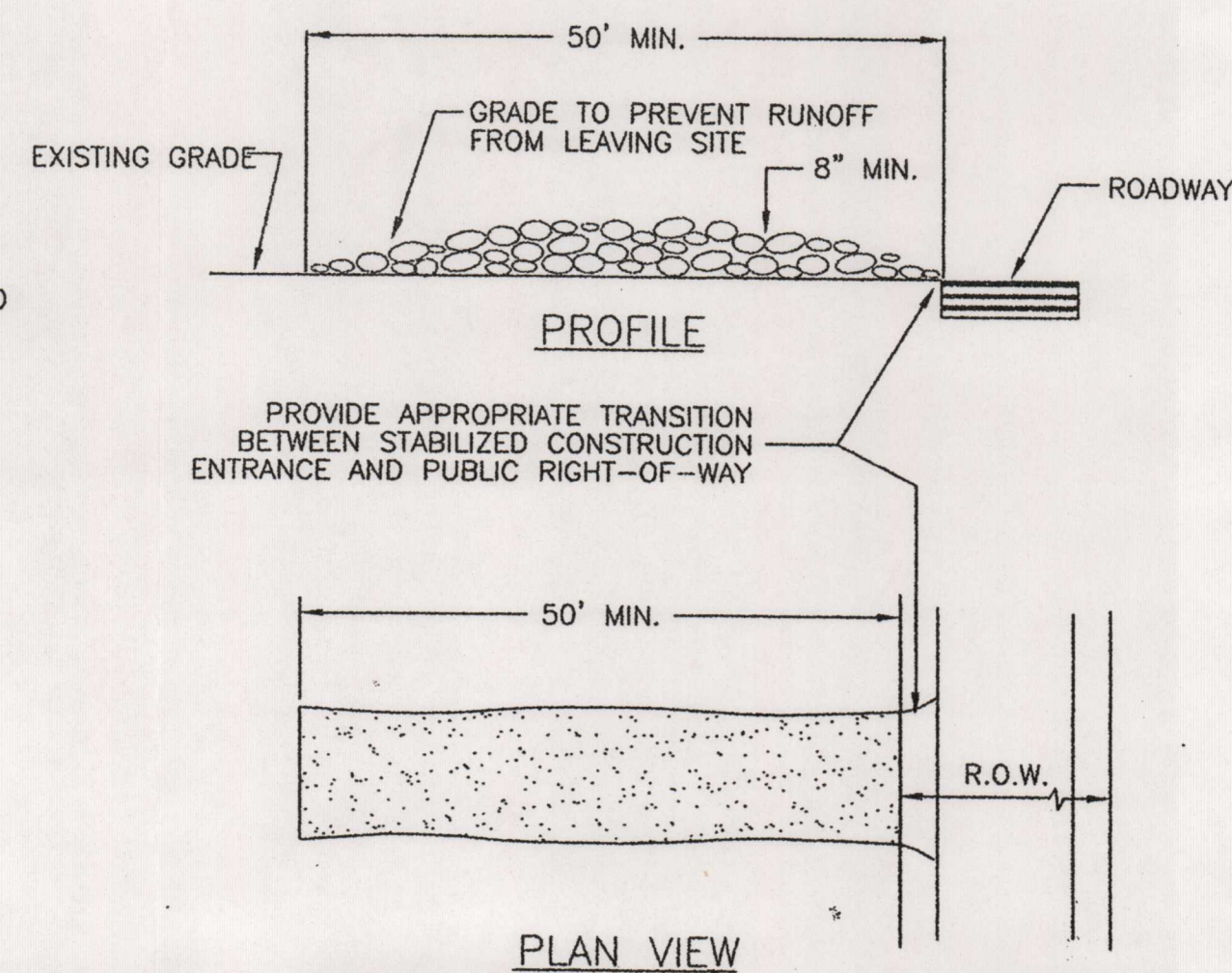
NARRATIVE OF PROPOSED MODIFICATION

This previously approved development, also known as Tuscan Ridge, is located in the City of New Braunfels, Comal County, Texas. The location and of the WPAP Basin is the same. The major change is the geometric dimensions of the Basin itself. The remaining proposed modifications to the previously approved plan are as follows:

- The development will consist of developing approximately 3.28 acres into 16 single-family residences. (The original approved plan consisted of developing the 3.28 acres into 18 single-family residences.)
- The proposed modifications will not have a significant increase or decrease in impervious cover, the impervious cover will remain at approximately 64%.
- The Geometric Dimensions of the WPAP Basin have been modified to 16.88' wide x 98.67' long x 8.0' depth.
- Calculations have been revised to reflect the new dimensions of the basin's capture volume and sand filter surface area (see attached calculations).
- The location of the bypass has been moved towards the downstream side of the basin to allow greater storm events to pass through.

- NOTES:
1. STONE SIZE: 3-5" OPEN GRADED ROCK.
 2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50'.
 3. THICKNESS: NOT LESS THAN 8".
 4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
 5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
 6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE



TEMPORARY SEDIMENT CONTROL FENCE

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PROPERTIES OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAX. FLOW THROUGH RATE OF 100 GPM/FT. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN TWO ACRES.

GENERAL NOTES

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY NOT BE ACCEPTED BY THE ENGINEER.

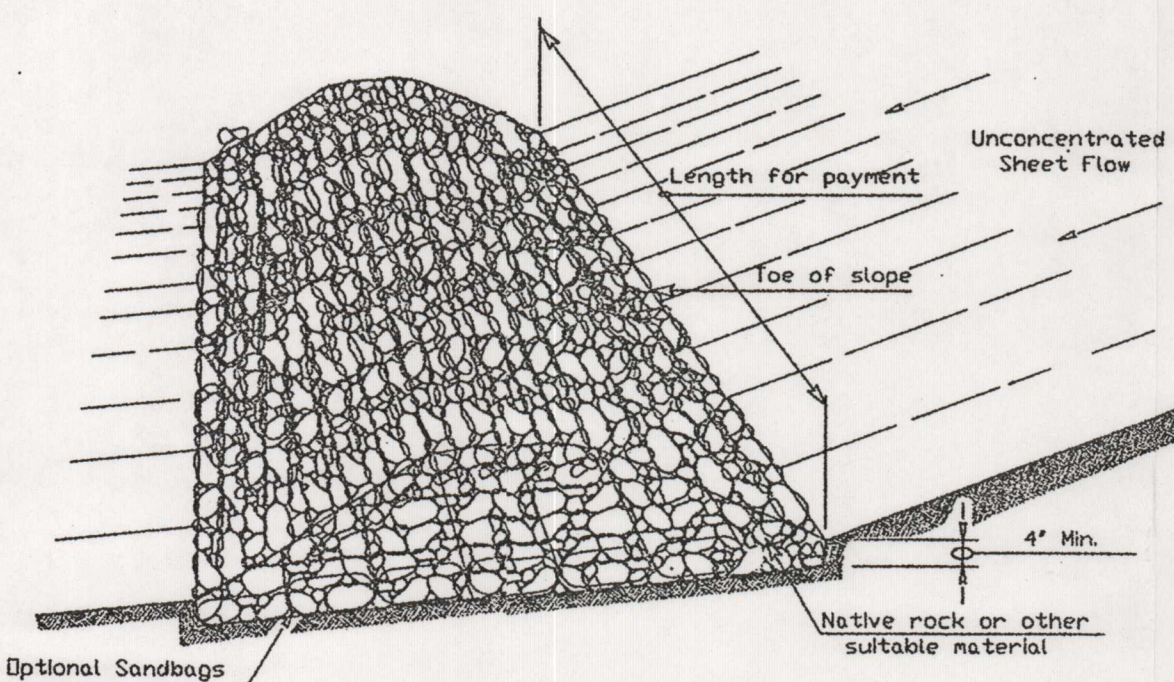
GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SWP plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have side slopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4' into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
9. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT. of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (8' high with no wire mesh). Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at side or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embankment foundation (4' deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.



FILTER DAM AT TOE OF SLOPE

TYPE 1

LEGEND (EXISTING)

- TREE
- POWER POLE
- ⊕ STREET SIGN
- ⊕ MANHOLE
- ⊕ FIRE HYDRANT
- ⊕ WATER VALVE
- ⊕ WATER METER

PROPOSED ELECTRIC

- POLE RISER
- ▲ TRANSFORMER FOUNDATION
- ⊕ SECONDARY ENCLOSURE
- ⊕ PROPOSED LIGHT
- PRIMARY CONDUIT
- SECONDARY CONDUIT

PROPOSED SEWER & WATER

- PROPOSED WATER MAIN
- ⊕ PROPOSED FIRE HYDRANT
- ⊕ PROPOSED WATER VALVE
- PROPOSED SEWER MAIN
- ⊕ PROPOSED MANHOLE
- PROPOSED CLEAN-OUT
- DIRECTION OF FLOW
- PROPOSED CONTOUR
- EXISTING CONTOUR

J.M. VERAMENDI SURVEY No. 1
3.814 ACRE TRACT,
VOL. 236, PG. 635, DEED RECORDS, COMAL COUNTY, TX.



KLEIN ENGINEERING, INC.
CIVIL / MUNICIPAL / ENVIRONMENTAL ENGINEERS
SAN ANTONIO, TEXAS

TUSCAN RIDGE

SITE GRADING PLAN
T C E Q - 0590 ATTACHMENT C

SHEET
OF

DESIGNED BY: B.M.C.	SCALE: 1"= 30'
DRAWN BY: F.R.	DATE: DECEMBER 2003
CHECKED BY: R.F.K.	JOB No.: 07-33

REV'D BASIN SIZE & LOCATION & GRADING	C.B.	08/23/04
REV'D PER CITY OF NEW BRAUNFELS LTR. 6/6/04	C.B.	08/13/04

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: TUSCAN RIDGE, NEW BRAUNFELS VENTURES, LP

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:
 - ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.
 - ☐ 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.
 - ☐ 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.
 - ☒ Fuels and hazardous substances will not be stored on-site.
2. ☒ **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. ☒ 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. ☒ **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. ☒ **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. ☒ 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: THE PROJECT WILL CONTRIBUTE FLOW TO THE COMAL RIVER/LANDA LAKE.

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.
- N/A **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.

10. X **ATTACHMENT G - Drainage Area Map.** A drainage area map is provided at the end of this form to support the following requirements.
- For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - 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.
 - 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. N/A **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, repair, 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 manufacturers specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicates 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. X 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.

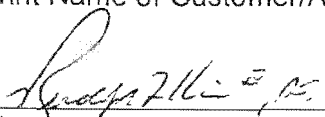
17. X **ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.
18. X Records must be kept at the site of the dates when major grading activities occur, the 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:

RUDOLPH F. KLEIN IV, P.E.
Print Name of Customer/Agent


Signature of Customer/Agent

10/11/11
Date

SPILL RESPONSE ACTIONS

Hazardous Materials or hydrocarbons will not be stored on the project site prior, during, or after commencement of construction activity. The contractor will be notified of this requirement and will be required to fuel all construction vehicles and heavy equipment off-site. However in the event of a possible or unforeseen accident in which a spill occurs the following sequence of events will occur in order to contain the incident.

- Sand material will be placed in and around the spill to contain and absorb the spilled material.
- The City of New Braunfels Fire Department will be notified if the possibility of fire exists
- TCEQ and NBU will be notified and a written report of the incident provided to detail the specifics of the event.
- All materials will be excavated and placed within appropriate receptacles and disposed properly at an appropriate landfill facility.

POTENTIAL SOURCES OF CONTAMINATION

The potential sources of contamination on the proposed project include, but are not limited to, hydrocarbons, such as oil and grease, vehicle/machinery fluid leaks, asphalt paving oils, trash or debris, and fertilizers and soil runoff.

All construction equipment will be fueled off-site, and no hazardous materials shall be utilized for the construction of the proposed improvements. Portable toilets will be placed on site for use by construction workers during construction activities. All waste will be hauled off site daily, as generated.

Prior to any construction activity, stormwater pollution prevention will include silt fences along the property lines and down gradient for temporary erosion and sedimentation control and the installation of a stabilized construction entrance/exit to reduce sediment removal from the site. The construction contractor will be responsible for the installation, repair and upkeep of all control measures.

SEQUENCE OF MAJOR ACTIVITIES

The sequence of activities on this proposed project will be as follows:

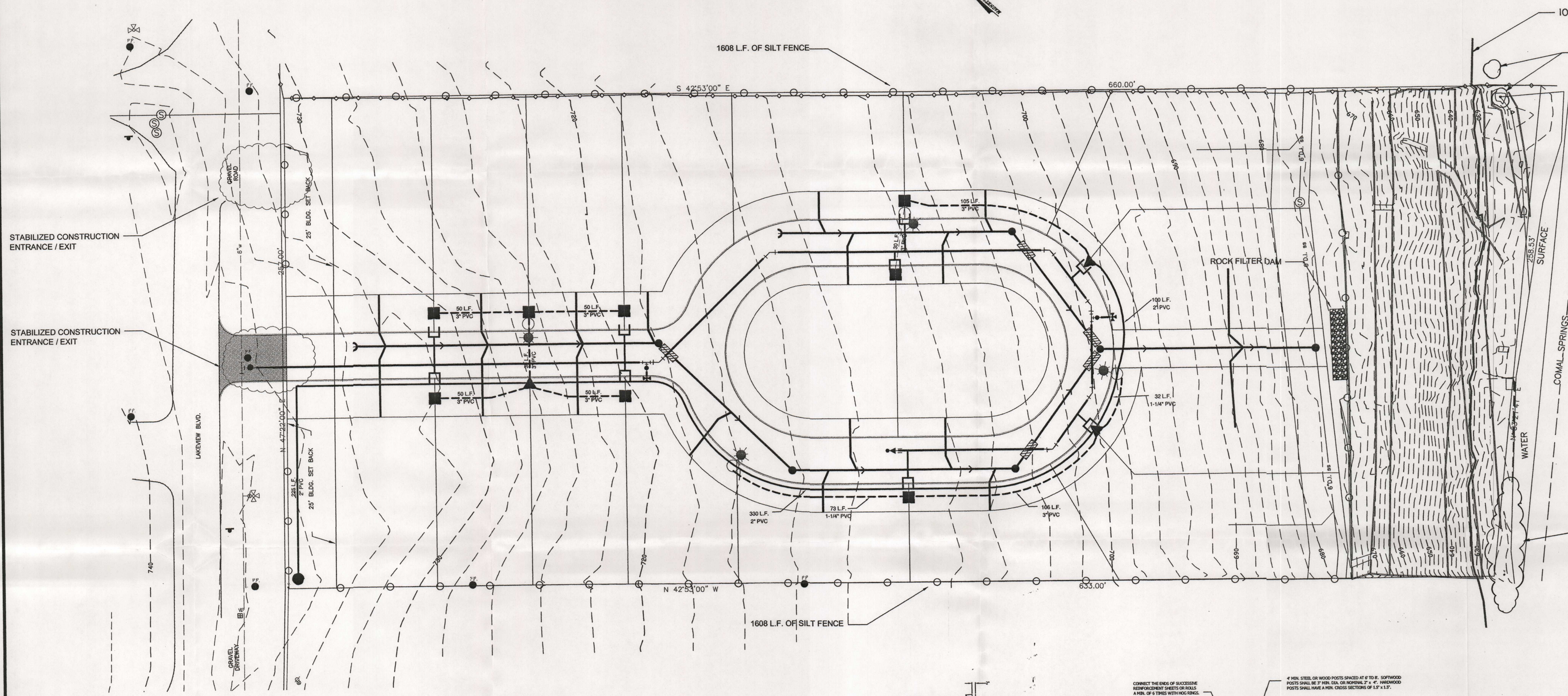
- Installation of Temporary Stormwater Controls
- Site Preparation
- Clearing of areas designated to be disturbed
- Grading Activities
- Construction activities on the cleared and graded areas to include construction of the water, wastewater, electrical, and other utility extensions
- Paving
- Site cleanup, including the removal of excess materials.

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

Prior to commencing any on-site activities, stormwater pollution prevention will include silt fences along the northwest, northeast, southwest property lines and approximately 15-20 ft downgradient of the limits of the project site (along an existing rock wall) to prevent any sediment from leaving the site and from entering the Comal River/Landa Lake. There will also be the installation of a stabilized construction entrance/exit to reduce sediment removal from the site. The construction contractor will be responsible for the installation, repair and upkeep of all control measures. Soil disturbances shall be minimized and kept to minimum time periods, existing natural vegetation including grass, weeds, trees, etc. will be utilized and earthwork for utilities shall be coordinated to minimize area disturbance.

STRUCTURAL PRACTICES

Prior to commencing on-site activities, stormwater pollution prevention will include silt fences along downgradient areas for temporary erosion and sedimentation control and the construction and installation of a stabilized construction entrance/exit to reduce sediment removal from the project site. The contractor will be responsible for the maintenance of all control measures.



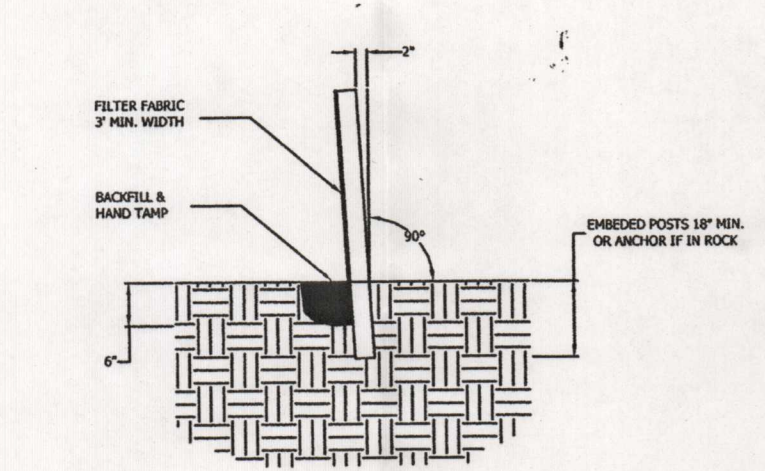
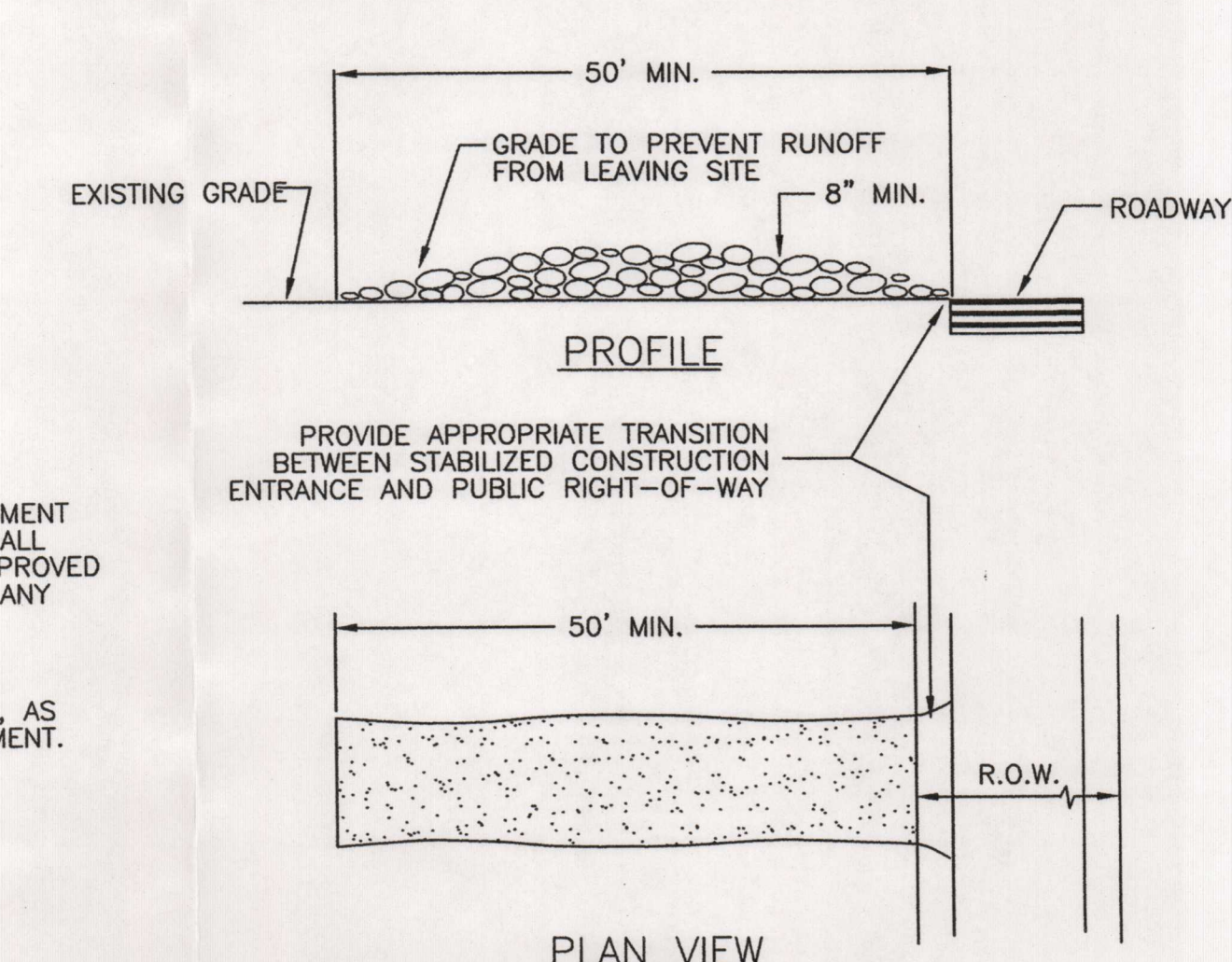
- GENERAL NOTES**
1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
 2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
 3. The rock filter dam dimensions shall be as indicated on the SWP plans.
 4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have side slopes of 6:1 or flatter.
 5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
 6. Filter dams should be embedded a minimum of 4' into existing ground.
 7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
 8. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
 9. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT. of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4' deep min) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

- NOTES:**
1. STONE SIZE: 3-5" OPEN GRADED ROCK.
 2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50'.
 3. THICKNESS: NOT LESS THAN 8".
 4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
 5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
 6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

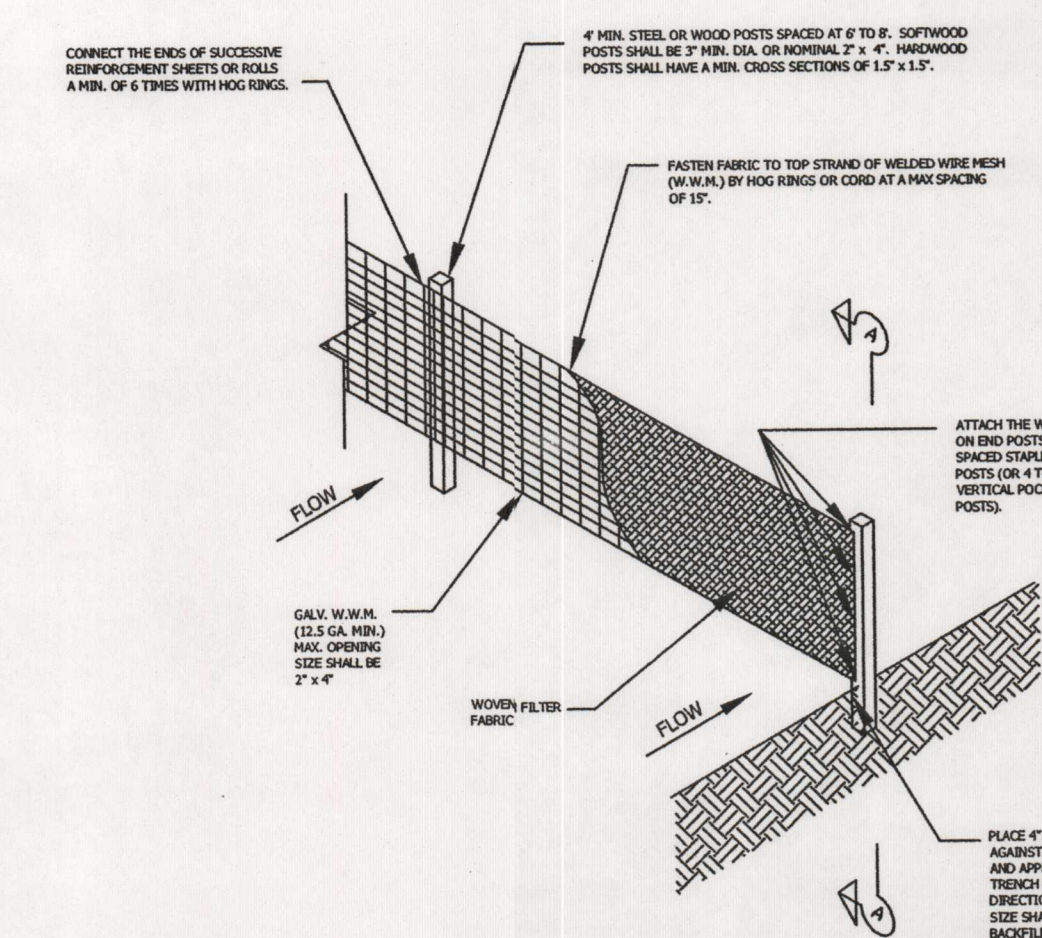


SEDIMENT CONTROL FENCE USAGE GUIDELINES

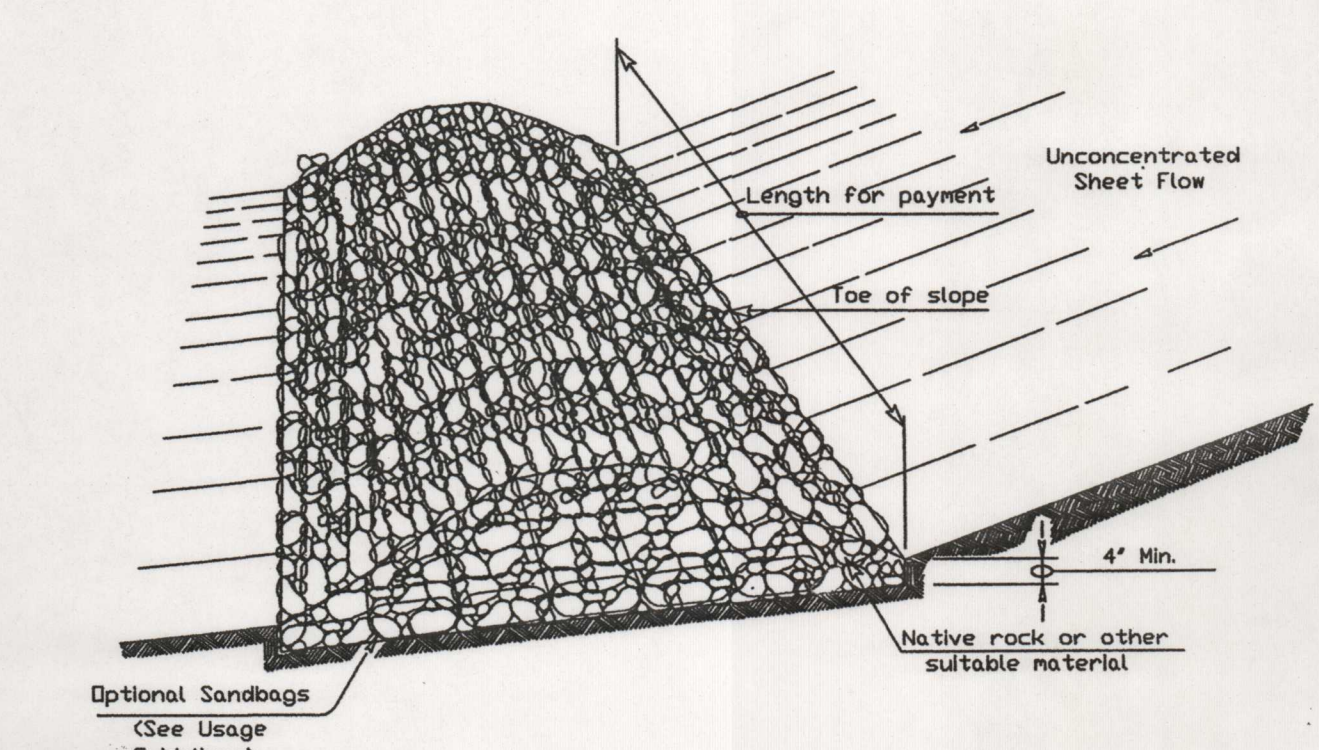
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAX FLOW THROUGH RATE OF 100 GPM/FT. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN THIS NOTES.

- GENERAL NOTES**
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.



TEMPORARY SEDIMENT CONTROL FENCE



FILTER DAM AT TOE OF SLOPE
TYPE 1

STABILIZED CONSTRUCTION ENTRANCE

TEMP. ATTACHMENT G

INSPECTION AND MAINTENANCE FOR BMPs

Designated and qualified person(s) shall inspect pollution control measures every fourteen days and within 24 hours after a storm event greater than 0.5 inches of rainfall. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of the Storm Water NPDES data for a period of three years after the date of the inspection. A copy of the Inspection Report Form is provided in this pollution prevention plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence for erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, and (6) concrete truck rinse out pit for signs of potential failure. Deficiencies noted during the inspection will be corrected and documented within seven (7) calendar days following the inspection or before the next anticipated storm event if practicable.



PETE JURICA, PRINCIPAL
NEW BRAUNFELS VENTURES, LP

10-12-04
DATE

Pollution Prevention Measure	Inspected	Corrective Action	
		Description	Date Completed
General			
Re-Vegetation			
Erosion/sediment controls			
Vehicle exits			
Material areas			
Equipment areas			
Concrete rinse			
Construction debris			
Trash receptacles			
Infrastructure			
Roadway cleaning			
Utility construction			
Drainage construction			
Roadway base			
Roadway surfaces			
Site Grading			
Site Cleanups			

By my signature below, I certify that all items are acceptable and the project site is in compliance with SWPPP.

Inspector's Name

Inspectors Signature

Name of Owner/Operator (Firm)

Date

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 construction activity temporary or permanently cease 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.

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: TUSCAN RIDGE, NEW BRAUNFELS VENTURES, LP

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

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
2. ☒ 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.

☒ 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. ☒ 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. ☒ 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. ☐ N/A 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.

N/A **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.

X 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.

X 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.

 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.**

X 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.

 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" or "possibly 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.

— 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.

N/A **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. X **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.

11. X **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. X 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.

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

13. 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. X 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.

15. X 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.

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:

RUDOLPH F. KLEIN IV, P.E. _____
Print Name of Customer/Agent

Rudolph F. Klein IV, P.E.
Signature of Customer/Agent

12/11/01
Date

BMPs for UPGRAIDENT STORMWATER

Upgradient flow does not flow across this site from developed adjacent residential properties. This project site is located at a top of a hill and any upgradient runoff is maintained out in the existing right-of-way of Lakeview Blvd. and diverted to either side of the project site.

BMPs for ON-SITE STORMWATER

On-site stormwater runoff will flow into a sand filter system. This basin was designed in accordance with the TCEQ Technical Guidance Manual to comply with 30 TAC Chapter 213 requirements. Pollutant removal is achieved by straining pollutants through a filter media.

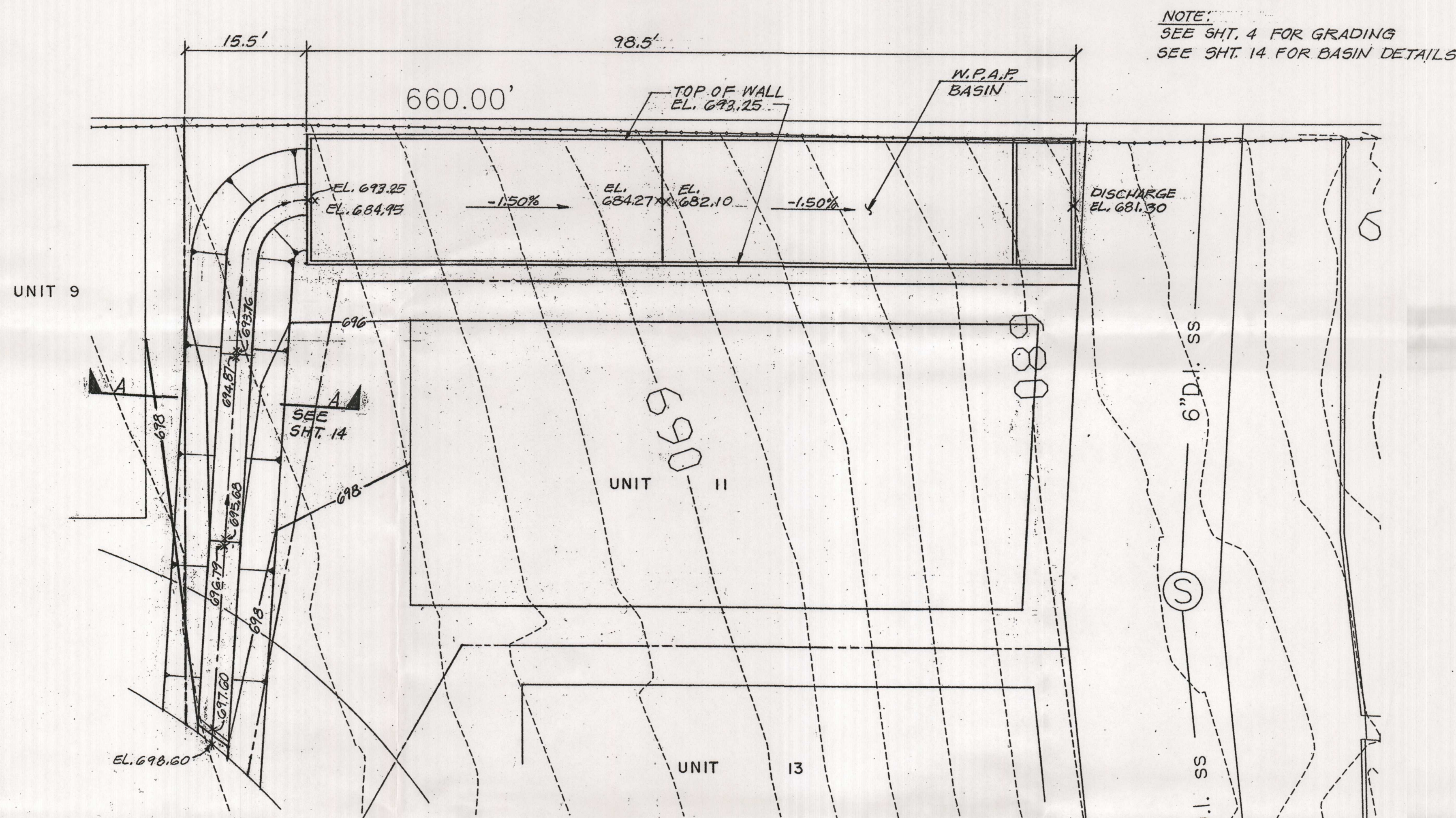
BMPs for SURFACE STREAMS

On-site stormwater runoff will flow into a sand filter system. This basin was designed in accordance with the TCEQ Technical Guidance Manual to comply with 30 TAC Chapter 213 requirements. Pollutant removal is achieved by straining pollutants through a filter media. This filter system is designed to prevent pollutants from entering the Comal River/Landa Lake.

Texas Natural Resource Conservation Commission
Water Pollution Abatement Plan
General Construction Notes

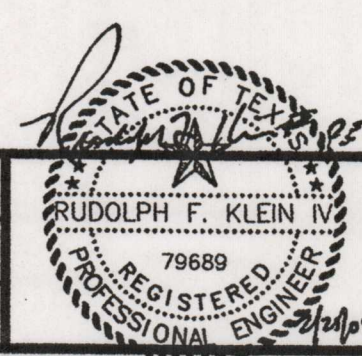
- Written construction notification must be given to the appropriate TNRCC regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.
- All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TNRCC letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
- If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TNRCC regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TNRCC has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. Controls specified in the temporary storm water section of the approved Edwards Aquifer Protection Plan are required during construction. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized.
- 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).
- Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake must be provided that can indicate when the sediment occupies 50% of the basin volume.
- 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).
- All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
- 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 construction activity temporary 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 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 and conditions, stabilization measures shall be initiated as soon as practicable.
- The following records shall be maintained and made available to the TNRCC 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.
- The holder of any approved Edwards Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
 - any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office 1921 Cedar Bend, Suite 150 Austin, Texas 78758-5336 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329
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NOTE:
SEE SHT. 4 FOR GRADING
SEE SHT. 14 FOR BASIN DETAILS

REVISIONS				DESIGNED BY: B.M.C.	SCALE: 1" = 10'
				DRAWN BY: F.R.	DATE: DECEMBER 2003
				CHECKED BY: R.F.K.	JOB No.: 07-33
△	REV'D. BASIN SIZE & LOCATION	C.B.	08/24/04		



KLEIN ENGINEERING, INC.
CIVIL / MUNICIPAL / ENVIRONMENTAL ENGINEERS
SAN ANTONIO, TEXAS

NEW BRAUNFELS

TUSCAN RIDGE

TEXAS

W.P.A.F.
BASIN
TCEQ-0600 ATTACHMENT F

SHEET
OF 2

WPAP BASIN CALCULATIONS

IC= 0.64 fraction of Imp. Cover
 A= 3.28 Contributing drainage area (acres)
 P= 33 Average annual precipitation (inches)

County	inches
Comal	P = 33

$R_v = 0.546 * IC^2 + 0.328 * IC + 0.030$
 Rv= 0.46 Runoff coefficient for fraction of Imp. Cover

Background Load $L = P (A_u * 0.54 + A_d * R_v * 38.4)$

Au= 3.28 undeveloped portion of the tract (acres)
 Ad= 0 developed portion of the tract (acres)

L= 58 annual pollutant load (pounds)

Post Development Load $L = A * P * R_v * C * 0.226$

C= 170 average TSS concentration (mg/L)

L= 1,913 annual pollutant load (pounds)

Required Reduction $L = 0.8 * (\text{post development load} - \text{predevelopment load})$

L= 1,484 annual pollutant load (pounds)

Offline BMP $L_R = L_i * F * \text{Fraction Site Treated} * (\text{TSS Removal Eff.})$

1 Fraction of site Treated
 0.89 TSS Removal Eff. For sand filter

BMP	TSS Red.
Sand Filters	89

F= 0.87 Fraction of the load capture by the BMP

Depth 0.67 Runoff Depth from attached table (inches)

Water Quality Volume= 7,977 ft³
 20% accumulation

Volume= 9,573 ft³

Min. surface area of sand filter

$$A_f = (\text{Vol.} * L) / (k (h/2 + L) * t)$$

L = 1.5 thickness of sand bed (ft)
 h = 7.25 avg. height above sand (ft)
 t = 2 basin draw down time (days)
 k = 2 permeability (ft/d)

Min.=2 Max=10

A_f= 700 ft²

Type	Perm.
Full	3.5
Partial	2

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

Regular inspections will occur two times a year. During each inspection erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately. Any identified damage to the structure will be repaired immediately. After heavy rain, inspection will occur for erosion. Damaged areas will be repaired within 7 days. Sediment shall be removed when the sediment build up fills the 20% volume allocated for sediment accumulation. Silt shall be removed when it has reached a depth of about 0.5 inches on the surface of the filter media or the drainage time has increased to more than 48 hours. The filter underdrain will be cleaned to remove sediment build up every 2 years, or as needed to maintain the designed drawdown time. When the drawdown time exceeds 72 hours, the upper layer of the geotechnical material and gravel ballast should be removed and replaced with new materials meeting the original specifications. Access for routine maintenance will be from ladders secured against the wall of the basin. Due to space limitations, access for equipment to remove and replace the filter media will be by rental of a crane. A crane will place a "bobcat" type machine in the basin for the purpose of maintaining the media.


PETE JURICA, PRINCIPAL

NEW BRAUNFELS VENTURES, LP

10-12-04
DATE

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

The proposed project will be graded to a sedimentation sand filter basin. Pollutants will be removed from the runoff as the runoff filters through the filter media. The discharge of the basin is designed to produce a constant flow. Also, all disturbed soil will be stabilized prior to removal of pollution abatement controls.

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

I PETE JURICA
Print Name

PRINCIPAL
Title - Owner/President/Other

of NEW BRAUNFELS VENTURES, LP
Corporation/Partnership/Entity Name

have authorized RUDOLPH F. KLEIN IV, P.E.
Print Name of Agent/Engineer

of KLEIN ENGINEERING, INC.
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 Form must be provided for the person preparing the application, and this form must accompany the completed application.

Pete Jurica
Applicant's Signature

10-12-04
Date

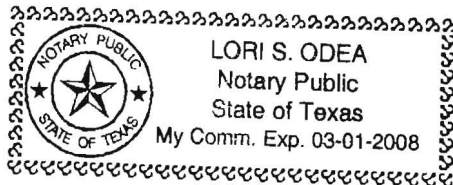
THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Pete Jurica 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 3rd day of October, 2004

Lori S. O'Dea
NOTARY PUBLIC



Lori S. O'Dea
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 03/01/08

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

NAME OF PROPOSED REGULATED ENTITY: TUSCAN RIDGE NEW BRAUNFELS VENTURES, L.P.
REGULATED ENTITY LOCATION: NEW BRAUNFELS, COMAL COUNTY, TEXAS
NAME OF CUSTOMER: PETE JURICA
CONTACT PERSON: RUDOLPH F. KLEIN IV, P.E. PHONE: 210-828-7070
(Please Print)

Customer Reference Number (if issued): CN 602598542 (nine digits)
Regulated Entity Reference Number (if issued): RN 104216130 (nine digits)

AUSTIN REGIONAL OFFICE (3373)

- ☐ Hays
☐ Travis
☐ Williamson

SAN ANTONIO REGIONAL OFFICE (3362)

- ☐ Bexar ☐ Medina
☒ Comal ☐ Uvalde
☐ Kinney

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):

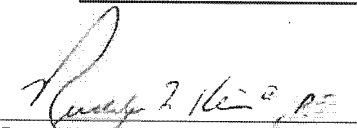
☒ **SAN ANTONIO REGIONAL OFFICE**

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

☐ **AUSTIN REGIONAL OFFICE**

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

Type of Plan	Size	Fee Due
Water Pollution Abatement, One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement, Multiple Single Family Residential and Parks	3.28 Acres	\$ 1,000.00
Water Pollution Abatement, Non-residential	Acres	\$
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

10/11/2004
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 §213.14 (effective 11/14/97) & 30 TAC §213.9 (effective 6/1/99)

Water Pollution Abatement Plans and Modifications

PROJECT	PROJECT AREA IN ACRES	FEE
One Single Family Residential Dwelling	<5	\$500
Multiple Single Family Residential and Parks	<5	\$1,000
	5 < 10	\$2,000
	10 < 50	\$3,000
	≥50	\$5,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$2,000
	1 < 5	\$3,000
	5 < 10	\$4,000
	≥10	\$5,000

Organized Sewage Collection Systems and Modifications

PROJECT	COST PER LINEAR FOOT	MINIMUM FEE MAXIMUM FEE
Sewage Collection Systems	\$0.50	\$500 - \$5,000

**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	\$500	\$500 - \$5,000

Exception Requests

PROJECT	FEE
Exception Request	\$250

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	\$100

NEW BRAUNFELS VENTURES LP
589 S MAGAZINE AVE
NEW BRAUNFELS, TX 78130



Frost National Bank
San Marcos, Texas 78666
www.frostbank.com

142

DATE 10-11-04

30-9/1140
40

PAY
TO THE
ORDER OF

TCEQ

\$ 1,000.00

One thousand dollars & 00/100

DOLLARS

THIS CHECK IS DELIVERED IN CONNECTION WITH THE FOLLOWING ACCOUNTS

Pat J. [Signature]

⑈000142⑈ ⑆114000093⑆

401293052⑈

TCEQ Core Data Form

TCEQ Use Only

If you have questions on how to fill out this form or about our Central Registry, please contact us at 512-239-5175.

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.

SECTION I: General Information

1. Reason for Submission *Example: new wastewater permit; IHW registration; change in customer information; etc.*

WPAP MODIFICATION of a PREVIOUSLY APPROVED PLAN

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

X YES NO WPAP Modification of a Previously Approved Plan Application

3. Customer Reference Number-if issued

4. Regulated Entity Reference Number-if issued

CN 602598542 (9 digits) RN 104216130 (9 digits)

SECTION II: Customer Information

5. Customer Role (Proposed or Actual) -- As It Relates to the Regulated Entity Listed on This Form

Please check one of the following: Owner Operator X Owner and Operator

Occupational Licensee

Volunteer Cleanup Applicant

Other

TCEQ Use Only

Superfund

PST

Respondent

6. General Customer Information

New Customer

Change to Customer Information

Change in Regulated Entity Ownership

X

No Change *

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

7. Type of Customer:

Individual

Sole Proprietorship - D.B.A.

Partnership

Corporation

Federal Government

State Government

County Government

City Government

Other Government

Other:

8. Customer Name (If an individual, please print last name first)

If new name, enter previous name:

9. Mailing Address:

City

State

ZIP

ZIP + 4

10. Country Mailing Information if outside USA

11. E-Mail Address if applicable

12. Telephone Number

13. Extension or Code

14. Fax Number if applicable

15. Federal Tax ID (9 digits)

16. State Franchise Tax ID Number if applicable

17. DUNS Number if applicable (9 digits)

18. Number of Employees

0-20

21-100

101-250

251-500

501 and higher

19. Independently Owned and Operated?

Yes

No

SECTION III: Regulated Entity Information

20. General Regulated Entity Information

New Regulated Entity

Change to Regulated Entity Information

X

No Change*

*If "No Change" and Section I is complete, skip to Section IV - Preparer Information.

21. Regulated Entity Name <i>(If an individual, please print last name first)</i>					
22. Street Address (No PO Boxes)					
		City	State	ZIP	ZIP + 4
23. Mailing Address					
		City	State	ZIP	ZIP + 4
24. E-Mail Address:					
25. Telephone Number		26. Extension or Code		27. Fax Number if applicable	
28. Primary SIC Code (4 digits)		29. Secondary SIC Code (4 digits)		30. Primary NAICS Code (5 or 6 digits)	
				31. Secondary NAICS Code (5 or 6 digits)	
32. What is the Primary Business of this entity? <i>(Please do not repeat the SIC or NAICS description)</i>					
Questions 33 - 37 address geographic location. Please refer to the instructions for applicability.					
33. County					
34. Description of Physical Location					
35. Nearest City			State	Nearest Zip	
36. Latitude (N)			37. Longitude (W)		
<i>Degrees</i>	<i>Minutes</i>	<i>Seconds</i>	<i>Degrees</i>	<i>Minutes</i>	<i>Seconds</i>
38. TCEQ Programs In Which This Regulated Entity Participates <i>Not all programs have been listed. Please add to this list as needed. If you don't know or are unsure, please mark "Unknown". If you know a permit or registration # for this entity, please write it below the program.</i>					
	Animal Feeding Operation		Petroleum Storage Tank		Water Rights
	Title V - Air		Wastewater Permit		
	Industrial & Hazardous Waste		Water Districts		
	Municipal Solid Waste		Water Utilities		Unknown
	New Source Review - Air		Licensing - TYPE(s)		
Section IV: Preparer Information					
39. Name RUDOLPH F. KLIEN IV, P.E.			40. Title PRESIDENT—KLEIN ENGINEERING, INC.		
41. Telephone Number 210-828-7070		42. Extension or Code N/A		43. Fax Number if applicable 210-828-7076	
44. E-mail Address:		RKLEIN@KLEINENGINEERING.COM			