



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 11, 2011

RECEIVED

OCT 1 4 2011

COUNTY ENGINEER

Mr. Benjamin Engelhardt, P.E., Area Engineer San Antonio District Texas Department of Transportation 4102 IH 35 South New Braunfels, TX 78132

Re: Edwards Aquifer, Comal County Loop 337 at Ridge Hill; Near the Intersection of Loop 337 and Ridge Hill Drive; New Braunfels, Texas Request for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer Edwards Aquifer Protection Program ID No. 13-11081110

Dear Mr. Engelhardt:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the Austin Regional Office by the Texas Department of Transportation on August 11, 2011. Final review of the WPAP submittal was completed after additional material was received on October 7, 2011. 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 WPAP. 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% of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed alteration to the current roadway design consists of adding a left turn lane to Loop 337 by widening the pavement 8 feet to the west, and to create a 5-foot shoulder within current right-of-way (ROW). The project ROW is approximately 11.3 acres. The project extends 800 feet in either direction from its intersection with Ridge Hill Drive.

The project is within the Recharge Zone and approves:

Widening and adding shoulders,

- Adding engineered, vegetated filter strips (VFS) to treat highway runoff and prevent infiltration to sensitive features,
- Re-stabilizing the ROW after construction.
 TCEQ Region 11 2800 S. Interstate Hwy. 35, Ste. 100 Austin, Texas 78704-5700 512-339-2929 Fax 512-339-3795

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Mr. Benjamin Engelhardt, P.E.	OCT 1 4 2011
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In addition to the described activities, temporary erosion and sedimentation controls will be installed prior to commencing site disturbance and maintained during construction. No wastewater will be generated by this roadway project.

PERMANENT POLLUTION ABATEMENT MEASURES

The selected BMPs for this project are a placement of vegetated filter strips (VFS) as shown on the erosion control sheets. The amount of additional construction is 0.24 acres, and this is expected to have minimal impact on the pollutant load which exists today. Existing culverts and drainage channels will cross under Loop 337 and continue to carry and divert off-site runoff around the project. The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project. Design calculations were sealed by William Hornung, P.E., on August 2, 2011 to demonstrate the total treatment load removal to exceed the required 215 lbs. increase caused by the project by 18 lbs. in those watershed areas traversed by the roadway.

GEOLOGY

According to the geologic assessment included with the application, there are several sensitive karst related features and the project drains to the Dry Comal Creek. The upper Person strata are prevalent on the site. Rock outcrops in the area consist of the Edwards limestone. The site visit generally confirms the description given in the assessment. The site slopes is graded to the east and project runoff runs to natural drainage of the Dry Comal. Most of the features are found in road cuts and the visible portions are located more than 3 feet above grade and are not expected to receive project water. F-15 (and MB-1) is a zone of features which will be overlain by flowable fill to prevent infiltration to the aquifer, as well as to restore a former manmade drainage channel. F-20 is a void which is 1 foot below grade and no construction will be conducted near it and have a construction berm installed, as well as it will be provided VFS protection. F-3 will also have VFS protection provided.

SPECIAL CONDITIONS

I. Since this is a roadway construction project, deed recordation of this approval letter is not required.

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. 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.
- 3. 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.

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<u>Mr. Benjamin Engelhardt, P.E.</u> Page 3 October 11, 2011

COUNTY ENGINEER

- 4. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
- 5. 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. 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.
- 6. 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:

- 7. 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.
- 8. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment.
- 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 the Austin 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 evidence wells exist. 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.

Mr. Benjamin Engelhardt. P.E.		OCT 1 4 2011
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- 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. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
- 13. 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.
- 14. 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:

- 15. 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 Austin Regional Office within 30 days of site completion.
- 16. 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 Austin Regional Office within 30 days of the transfer.
- 17. 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 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.

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Mr. Benjamin Engelhardt, P.E.	OCT 1 4 2011
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- 18. 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 Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
- 19. 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 require additional information, please contact Mr. Kevin Lee Smith, P.E. of the Edwards Aquifer Protection Program with the Austin Regional Office at (512) 339-2929.

Sincerely,

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

MRV/kls

 Mr. John Bryant, P.G., San Antonio District, Texas Department of Transportation Mr. Billy Hornung, P.E., Texas Department of Transportation, Seguin Ms. Lynn Bumgaurdner, Water Section Manager, San Antonio Regional Office Mr. Jim Klein, City Engineer, City of New Braunfels Mr. Thomas Hornseth, P.E., Comal County Engineer Mr. Karl Dreher, General Manager, Edwards Aquifer Authority TCEO Central Records, Building F, MC212 Bryan W. Shaw, Ph.D., P.E., *Chairman* Toby Baker, *Commissioner* Zak Covar, *Commissioner* Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 22, 2015

Jessica Castiglione, P.E. Texas Department of Transportation 4102 IH 35 South New Braunfels, Texas 78132

RECEIVED

JUN 01 2015

COUNTY ENGINEER

Re: Edwards Aquifer, Comal County Loop 337 at Ridge Hill; Near the Intersection of Loop 337 and Ridge Hill Drive; New Braunfels, Texas Request for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer Edwards Aquifer Protection Program ID No. 13-15040810

Dear Ms. Castiglione:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the Austin Regional Office by the Texas Department of Transportation on April 8, 2015. 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 WPAP. 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% of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

Previous plans for Loop 337 at Ridge Hill under EAPP ID 13-11081110 have expired and shall not be used.

PROJECT DESCRIPTION

The proposed alteration to the current roadway design consists of adding a left turn lane to Loop 337 by widening the pavement 8 feet to the west, and to create a 5-foot shoulder within current right-of-way (ROW). The project ROW is approximately 11.5 acres. The project extends 800 feet in either direction from its intersection with Ridge Hill Drive.

The project is within the Recharge Zone and approves:

TCEQ Region 11 • P.O. Box 13087 • Austin, Texas 78711-3087 • 512-339-2929 • Fax 512-339-3795

Jessica Castiglione, P.E. May 22, 2015 Page 2

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- Widening and adding shoulders,
- Adding engineered, vegetated filter strips (VFS) to treat highway runoff and prevent infiltration to sensitive features,
- Re-stabilizing the ROW after construction.

In addition to the described activities, temporary erosion and sedimentation controls will be installed prior to commencing site disturbance and maintained during construction. No wastewater will be generated by this roadway project.

PERMANENT POLLUTION ABATEMENT MEASURES

The selected BMPs for this project are a placement of vegetated filter strips (VFS) as shown on the erosion control sheets. The amount of additional construction is 0.35 acres, and this is expected to have minimal impact on the pollutant load which exists today. Existing culverts and drainage channels will cross under Loop 337 and continue to carry and divert off-site runoff around the project. The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project. Design parameters were sealed by William Hornung, P.E., on March 31, 2015 to demonstrate the total treatment load removal to exceed the required increase caused by the project in those watershed areas traversed by the roadway.

GEOLOGY

According to the geologic assessment included with the application, there are several sensitive. karst related features and the project drains to the Dry Comal Creek. The upper Person strata are prevalent on the site. Rock outcrops in the area consist of the Edwards limestone. The site visit generally confirms the description given in the assessment. The site slopes is graded to the east and project runoff runs to natural drainage of the Dry Comal. Most of the features are found in road cuts and the visible portions are located more than 3 feet above grade and are not expected to receive project water. Special considerations given to the following features:

- F-15 (and MB-1) is a zone of features which will be overlain by flowable fill and gabion to prevent infiltration to the aquifer, as well as to restore a former manmade drainage channel.
- F-20 is a void 1 foot below grade, adjacent to F-19, an above grade cave; virtually no construction will occur within 50 feet and it will have a construction berm installed; and finally it will be provided VFS protection.
- o F-3 is a solution cavity and will also have VFS protection provided.

SPECIAL CONDITIONS

- Since this is a roadway construction project, deed recordation of this approval letter is not required.
- II. A staging area was not proposed for this project. If the contractor desires a staging area, information indicating the proposed location and placement of appropriate temporary erosion and sedimentation controls must be submitted to the TCEQ for review and approved prior to its installation.

Jessica Castiglione, P.E. May 22, 2015 Page 3

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STANDARD CONDITIONS

- 1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
- 2. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

- 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 Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
- 6. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls, 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. 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

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applicant or his agent must immediately notify the Austin 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. 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.
- 11. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
- 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.
- 14. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment.

After Completion of Construction:

- 15. 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 Austin Regional Office within 30 days of site completion.
- 16. 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 Austin Regional Office within 30 days of the transfer.

Jessica Castiglione, P.E. May 22, 2015 Page 5

- 17. 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 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.
- 18. 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 Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
- 19. 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.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Kevin Lee Smith, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

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Carolyn Runyon, Water Section Manager Austin Region Office Texas Commission on Environmental Quality

CDR/kls

 Mr. John Bryant, P.G., San Antonio District, Texas Department of Transportation Mr. Billy Hornung, P.E., Texas Department of Transportation, Seguin Ms. Lynn Bumgaurdner, Water Section Manager, San Antonio Regional Office Mr. Garry Ford, P.E., City Engineer, City of New Braunfels Mr. Tom Hornseth, P.E., Comal County Engineer
 Mr. Roland Ruiz, General Manager, Edwards Aquifer Authority TCEQ Central Records, Building F, MC212 Bryan W. Shaw, Ph.D., P.E., *Chairman* Toby Baker, *Commissioner* Zak Covar, *Commissioner* Richard A. Hyde, P.E., *Executive Director*



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COUNTY ENGINEER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution April 13, 2015

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

Re: Edwards Aquifer, Comal County PROJECT NAME: Loop 337 at Ridge Hill Drive; Loop 337 at Ridge Hill Drive; New Braunfels, Texas PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213; Edwards Aquifer Protection Program ID No. 13-13040810

Dear Mr. Hornseth:

The enclosed WPAP application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities, groundwater conservation districts, and counties in which the proposed regulated activity will be located.

Please forward any comments to this office by May 13, 2015.

Should you have any questions concerning this matter, please contact Mr. Kevin Smith, P.E. of the Edwards Aquifer Protection Program at the Austin Regional Office (512) 339-2929.

Sincerely,

Carolyn D. Runyon Water Section Manager Austin Regional Office

CDR/pc

Enclosure

TCEQ Region 11 • P.O. Box 13087 • Austin, Texas 78711-3087 • 512-339-2929 • Fax 512-339-3795

COMAL CO.

	Edv and Re	<u>General Information Form</u> For Regulated Activities on th wards Aquifer Recharge and Trans elating to 30 TAC §213.4(b) & §213 Effective June 1, 1999	RECEIVED ition Zones 3.5(b)(2)(A), (B) APR 0 8 2015 TCEQ
REGUL COUN	ATED ENTITY NAME	: <u>Loop 337 at Ridge Hill Drive</u> STRI	AUSTIN - REGION 11 EAM BASIN: Dry Comal Creek RECEIVED
EDWA	RDS AQUIFER:	<u>X</u> RECHARGE ZONE TRANSITION ZONE	APR 2 1 2015
PLAN ⁻	TYPE:	<u>X WPAP</u> AST SCS UST	EXCEPTIONUNTY ENGINEER
сизто	DMER INFORMATION	(
1.	Customer (Applicant):		
	Contact Person: Entity: Mailing Address: City, State: Telephone:	Billy Hornung TxDOT 2028 Hwy 46 North Seguin, TX 830-303-0130	Zip: <u>78155</u> FAX: <u>830-372-5169</u>
	Contact Person: Entity: Mailing Address: City, State: Telephone:	(ii any).	Zip: FAX:
2.	X This project is This project is This project is	inside the city limits of <u>New</u> outside the city limits but inside t not located within any city's limits o	Braunfels he ETJ (extra-territorial jurisdiction) of or ETJ.
3.	The location of the p and clarity so that the for a field investigation	roject site is described below. Th TCEQ's Regional staff can easily n.	e description provides sufficient detail locate the project and site boundaries

The project is located on the northwest side of New Braunfels on Loop 337 at Ridge Hill Drive, which is approximately 0.7 miles southwest of SH 46. The project limits extend 850' north and 800' south of Ridge Hill Drive.

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

- X_ Project site.
- X USGS Quadrangle Name(s).
- X Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- X Drainage path from the project to the boundary of the Recharge Zone.
- 6. X Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. The TCEQ must be able to inspect the project site or the application will be returned.
- 7. <u>X</u> 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
 - X Existing paved and/or unpaved roads
 - Undeveloped (Cleared)
 - Undeveloped (Undisturbed/Uncleared)
 - ____ Other: _____

PROHIBITED ACTIVITIES

- 9. <u>X</u> I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:
 - (1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
 - (2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
 - (3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
 - (4) the use of sewage holding tanks as parts of organized collection systems; and
 - (5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- 10. X I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:
 - (1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
 - (2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
 - (3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

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

footage of all collection system lines.

- <u>NA</u> For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.
- <u>NA</u> A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- NA A request for an extension to a previously approved plan.

Note: TxDOT is not required to submit a fee.

- 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:
 - NA TCEQ cashier
 - NA Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 - NA San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
- 13. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional 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.

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:

Print Name of Customer/Agent

~31~15

Signature of Customer/Agent

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.





ATTACHMENT C PROJECT DESCRIPTION

TxDOT proposes to add a left turn lane by widening LOOP 337 at Ridge Hill Drive in New Braunfels, Comal County, Texas. The project would be located within an 11.50 acre section of existing state owned right of way.

The existing roadway is 48 feet wide with two, 12-foot northbound lanes and one, 12-foot southbound lane. Shoulders are 3 feet and 9 feet wide

TxDOT proposes to widen the existing roadway 8 feet to the west, or outside of the curve, to add a 12-foot left turn lane with a 5-foot shoulder. The length of the widening would be approximately 1,610 feet.

The project would add 0.34 acres of impervious cover. A filter strip would be constructed to remove at least 80 percent of the net increase in TSS resulting from the impervious cover. The VFS would treat runoff from approximately 0.35 acres of pavement, or a 275' section of pavement that is 56' wide.

Water Pollution Abatement Plan Application

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

REGULATED ENTITY NAME: Loop 337 at Ridge Hill Drive

REGULATED ENTITY INFORMATION

- 1. The type of project is:
 - ____ Residential: # of Lots:
 - ____ Residential: # of Living Unit Equivalents: _____
 - ___ Commercial
 - ____ Industrial
 - X Other: Left turn lane

2. Total site acreage (size of property): <u>11.50</u>

- 3. Projected population: None None
- 4. The amount and type of impervious cover expected after construction are shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops		÷ 43,560 =	0
Parking		÷ 43,560 =	0
Other paved surfaces		÷ 43,560 =	0
Total Impervious Cover	108,015	÷ 43,560 =	2.48
Total Impervious Cover ÷ Total Acr	21.6		

- 5. X ATTACHMENT A Factors Affecting Water Quality. A description of any factors that could affect surface water and groundwater quality is provided at the end of this form. Attachment A information is provided here. Water quality can be affected during and after construction. Potential pollutants are discussed in the temporary and permanent stormwater sections. The project would add impervious cover. Runoff from existing and proposed roadway pavement contains suspended solids and other pollutants. The project would not change the character of traffic using the road.
- 6. <u>X</u> Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY

Complete questions 7-12 if this application is exclusively for a road project.

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

8. Type of pavement or road surface to be used: Concrete Asphaltic concrete pavement Other: ____feet. Length of Right of Way (R.O.W.): 9. Width of R.O.W.: feet. L x W = _____ Ft² ÷ 43,560 Ft²/Acre = 11.5 acres. (Calculated with Microstation) ____feet. 10 Length of pavement area: Width of pavement area: (average feet. 2.14 acres. (Calculated with Microstation) L x W = ____ Ft² ÷ 43,560 Ft²/Acre = Pavement area 2.14 acres ÷ R.O.W. area 11.5 acres x 100 = 18.6% impervious cover.

Preconstruction impervious cover is 2.14 acres. The proposed project would add 0.34 acres of impervious cover and the post construction impervious cover would be 2.48 acres or 21.6%.

- A rest stop will be included in this project. 11. Х A rest stop will **not** be included in this project.
- 12. NA Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

13. Х ATTACHMENT B - Volume and Character of Stormwater. A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and postconstruction conditions. Attachment B information is provided here. Changes in runoff volume and character will be negligible. Runoff coefficient will change from 0.192 to 0.211.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

- 14 The character and volume of wastewater is shown below:
 - __% Domestic ____0 gallons/day
 - 0 gallons/day % Industrial
 - % Comminaled

TOTAL 0 gallons/day

- 15. Wastewater will be disposed of by:
 - **On-Site** Sewage Facility (OSSF/Septic Tank): NA
 - ATTACHMENT C Suitability Letter from Authorized Agent. An on-site sewage facility will be used to treat and dispose of the wastewater. The appropriate licensing authority's (authorized agent) written approval is provided at the end of this form. It states that the land is suitable for the use of an onsite sewage facility or identifies areas that are not suitable.
 - Each lot in this project/development is at least one (1) acre (43,560 square feet)

in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

- <u>NA</u> Sewage Collection System (Sewer Lines):
 - Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
 - Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.
 - _ The SCS was previously submitted on _
 - ____ The SCS was submitted with this application.
 - ____ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

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

- ____ existing.
- ___ proposed.
- 16. <u>NA</u> All private service laterals will be inspected as required in 30 TAC §213.5.

SITE PLAN REQUIREMENTS

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

- 17. The Site Plan must have a minimum scale of $1^{"} = 400^{\circ}$. Site Plan Scale: $1^{"} = _100^{\circ}$.
- 18. 100-year floodplain boundaries
 - ____ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
 - X No part of the project site is located within the 100-year floodplain.

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

FEMA floodplain panel 0435F dated September 2, 2009, is included at the end of this form.

- 19. ____ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.
 - X The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Note: Negligible changes will occur in contours at the pavement widening site, only. Contours are provided on the USGS Quadrangle / Recharge Zone Map included with the General Information Form, and shown on the SW3P and WPAP Layouts.
- 20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
 - X There are <u>Zero</u> (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

NA The wells are not in use and have been properly abandoned.

<u>NA</u> The wells are not in use and will be properly abandoned.

- _NA The wells are in use and comply with 16 TAC §76.
- X There are no wells or test holes of any kind known to exist on the project site.
- 21. Geologic or manmade features which are on the site:
 - X All **sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled. **See Geologic Assessment.**
 - ____ No **sensitive** geologic or manmade features were identified in the Geologic Assessment.
 - ____ ATTACHMENT D Exception to the Required Geologic Assessment. An exception to the Geologic Assessment requirement is requested and explained at the end of this form.
- 22. <u>X</u> The drainage patterns and approximate slopes anticipated after major grading activities. **No Change.**
- 23. X Areas of soil disturbance and areas which will not be disturbed. See SW3P Layout for disturbed areas.
- 24. <u>X</u> Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25. X Locations where soil stabilization practices are expected to occur. See SW3P Layout for disturbed areas.
- 26. X Surface waters (including wetlands). No wetlands identified.
- 27. X Locations where stormwater discharges to surface water or sensitive features
 - ____ There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

- 28. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 29. X Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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

William Hornung Print Name of Customer/Agent

William Homing

Signature of Customer/Agent 0

TCEQ-0584 (Rev. 10-01-10)

<u>3-31-15</u> Date

WATER POLLUTION ABATEMENT PLAN - LP 337 at RIDGE HILL



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: Loop 337 at Ridge Hill Drive

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

- 1. <u>X</u> Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
- 2. X These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
 - X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
 - A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is provided below:
- 3. <u>X</u> 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. <u>NA</u> 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. <u>NA</u> The executive director may waive the requirement for other permanent BMPs for multifamily 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.

- **ATTACHMENT A 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.
- ____ This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- ____ This site will not be used for multi-family residential developments, schools, or small business sites.

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

- A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is identified as **ATTACHMENT B** at the end of this form.
- 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. Attachment B information is presented here. With the exception of one driveway, no upgradient flow will cross the work area due to the superelevation of the roadway. Rock filter dams will be installed upstream and downstream of the driveway. After construction, soil retention blankets will be installed, and vegetation will be reestablished.
- _____ 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.**

- <u>X</u> 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. **Attachment C information is presented** here. A vegetative filter strip will be located at the south end of the project on the east side of the roadway.
- 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. <u>X</u> ATTACHMENT D BMPs for Surface Streams. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" has been addressed. Attachment D information is presented here. A vegetative filter strip will be constructed.
- 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.
 - X 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. <u>X</u> 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.
 - <u>NA</u> **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. Attachment I information is presented here. The project will utilize temporary and permament BMP's to minimize stream impacts. The project will not substantially alter in-stream velocities or the way water enters streams.

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. <u>X</u> 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:

William Hornung Print Name of Customer/Agent

William Hommy <u>3-3/-15</u> Signature of Customer/AgeNt Date

ATTACHMENT E

REQUEST TO PERMANENTLY SEAL FEATURE

TxDOT proposes to seal feature F-15 as previously requested by TCEQ (9/23/2011). We propose to seal the feature using the similar method previously proposed by TxDOT (10/7/2011) and approved by TCEQ (10/11/2011). The previously approved method would have involved base materials covered by flowable backfill. The new proposed method would involve cement-stabilized base covered by a gabion mattress.

ATTACHMENT G

INSPECTION, MAINTENANCE, REPAIR, AND RETROFIT PLAN

PERMANENT STORMWATER SECTION

Edwards Aquifer Recharge Zone Maintenance Guidelines Roadway: LOOP 337 at Ridge Hill Drive Comal County, Texas RMC: 6280-21-001

These maintenance guidelines were prepared at the request of the Texas Commission on Environmental Quality (TCEQ) with regard to their approval of an Edwards Aquifer Protection Plan for the above referenced project. These guidelines apply to the portions of the project limits that are subject to the Edwards Aquifer Rules.

Pest management: Any vegetated areas that have noxious vegetation, insects, or other pests will be remedied with the minimum amount of selective pesticide necessary to control the pest. All chemicals are EPA labeled, registered, and approved. Personnel licensed and/or trained according to the Texas Department of Agriculture (TDA) laws and regulations will apply pesticides. Records are kept for each application in accordance with TDA laws and regulations.

Seasonal mowing and vegetation management: *Right-of-Way areas*, <u>which include the</u> <u>vegetative filter strip BMP for this project</u>, will be mowed by contract. The cutting height is usually 5-7 inches for all areas.

Inspection cycles: Maintenance forces will review roadways and roadsides on regular basis, most of which are visited within a weekly cycle. Drainage ditches and structures are inspected after large storms with consideration for any damage to grass cover, litter accumulation, or erosion. Any problem areas are duly noted particularly if there is an absence of vegetation, any accumulation of brush, debris or litter, and/or any areas of significant erosion. These items will then be scheduled for repair on priority basis.

Debris and litter removal: Litter, debris and brush accumulation is assessed not only for aesthetic reasons, but also for the tendency to clog drainage paths or impede the intended flow of a structure's hydraulic design. Areas are cleaned periodically by state forces or by outside contractor. Areas documented as trouble spots are scheduled on a priority basis.

Sediment Removal: During inspections, if sediment has accumulated to a depth that hinders original design characteristics, it will be removed. Excessive sedimentation, or a significant load of silt, does not normally occur in filter strip areas, grassy swale areas, or in permanent pond structures after project completion, but it may occur from other drainage areas or construction underway beyond state right-of-way.

Maintenance Contact

The Maintenance Supervisor may be contacted for questions or concerns pertaining to maintenance of this facility. The current Maintenance Supervisor whose maintenance section is in charge of this project area may be contacted at the following location:

Mr. James Browne Texas Department of Transportation 4102 I.H. 35 South New Braunfels, Texas 78132

-----James Browne

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: Loop 337 at Ridge H ill Drive

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 that 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.
 - X Fuels and hazardous substances will not be stored on-site.
- 2. X ATTACHMENT A Spill Response Actions. A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form. Attachment A information is presented here. TxDOT's plans require the contractor to remediate any spills that they cause, and to report such spills to the following:

National Response Center (800) 824-8802, Edwards Aquifer Authority (210) 222-2204, NBU (New Braunfels Utilities)

- 3. X 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. <u>X</u> 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. Attachment B information is presented here. Potential pollutants during construction include disturbed soil, rock, and plant matter; spills or leaks of fuel and oil from construction equipment, and asphalt products from paving operations.
 - ____ There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

5. <u>X</u> 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. Attachment C information is presented here. Contractor will be performing the work and will be responsible for the sequence of activities and traffic control and safety of the construction job. Temporary BMP's will be installed. Soil disturbing activities are estimate to be 1.14 acres. The soil disturbing activites include excavating material to widen the subgrade, backfilling the pavement edges, and grading the sideslope. One driveway will reconstructed.

6. <u>X</u> 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: <u>Dry Comal Creek</u>

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. Attachment D information is presented here. Temporary sediment control fence, and rock filter dams will be installed prior to construction. See SW3P Layout for locations.
 - 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. Attachment information is provided here. Water would flow across a driveway that is to be reconstructed. Rock filter dams will be located upstream and downstream of the driveway. No other water originates upgradient and flows across the work area because the pavement widening is on the outside of a superelevated curve, or the high point of the cross section.
 - 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. See Attachment D information above.
 - c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer. See Attachment D information above.
 - 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. Attachment information is presented here. Attachment information is presented here. Sensitive features will be protected with TBMP's that are designed to filter sediment while maintaining flow. Reference SW3P Layout and Geological Assessment for locations of TBMP's and sensitive features.

- 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.
 - <u>NA</u> **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. Refer to the attached TxDOT Storm Water Pollution Prevention Plan (SW3P) Narrative sheet, Layout, and Erosion Control Standard sheets.
- 10. <u>NA</u> **ATTACHMENT G Drainage Area Map**. A drainage area map is provided at the end of this form to support the following requirements.
 - <u>NA</u> For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - NA For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
 - <u>NA</u> 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. **Note: Since the disturbed area is small, a drainage area map is not included.**
- 11. NA **ATTACHMENT H Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.
- 12. X ATTACHMENT I Inspection and Maintenance for BMPs. A plan for the

inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan. Inspections and maintenance will be performed and recorded on the form included as ATTACHMENT I.

- 13. <u>X</u> All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
- 14. X If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
- 15. 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. Attachment J information is presented here. Grass will be re-established for permanent soil stabilization.
- 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:

William Hornung Print Name of Customer/Agent

Signature of Customer/Agent

<u>3~3/~/5</u> Date

ATTACHMENT I - TEMPORARY STORMWATER SECTION

CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN FIELD INSPECTION AND MAINTENANCE REPORT

Form 2118 (Rev. 01/14) Page 1 of 2

of Transportation	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dest	and Information			
1212304	-	Proj	ect information			List Karl
Inspection Cycle (select only one):			CSJ:	Inspection Date:		
At least once every 7 calendar days.		alendar days.	Project:	TCEQ Authorization No.:		
			Highway:	Date of Last Rainfall:		
☐ At least or	ice every 14	calendar days and within 24 hours aπer 0.5 inches or more of rainfa	II. County:	Amount of Last Rain	fall:	(inches)
□ *Other						
,	'For "other"	options, the Engineer must verify compliance with Part III.F.7(a	a) of the TPDES Construction General Permit (CC	SP) and approve revisions to	o the SWP3.	
3 3 6 3	5 3.5	Inspected Best Man	agement Practice (BMP)/Areas		2.5	
 Disturbed Discharge Erosion co Sediment 	areas locations ontrol BMPs control BMPs	All of these BMPs/areas must b Concrete truck washout areas Areas where litter/debris/trash collect Areas that generate dust Postings	e inspected when present on the right-of-way Material stockpiles Areas where vehicles enter/leave site Portable sanitary facilities	 Construct Parking/e Chemical 	tion material quipment sto /fuel storage	storage areas orage areas areas
Other						
Arrest 2	Sec. and	Corrective Actions, Maintena	ance, Upgrading or Additional Controls			
Except the item identify the high	is listed below way or proje	 v, all areas/BMPs indicated above have been inspected and do not ct location of the BMPs/areas requiring maintenance or improvement 	require maintenance, upgrading or additional contro nt. Document all changes to the SWP3.	ils. If multiple highways or proj	ect locations	are involved,
Station(s) or Location	Left or Right of Centerline	Issue/BMP	Corrective Action		Priority*	Date of Corrective Action Completed
Other/Notes				Cause		
Other/Notes				Cause		
Other/Notes				Cause		
010 0689082 11 mmun 11						
Other/Notes	1 1			Cause		
				1		
Other/Notes				Cause		
High - must b Med - addres	e addressed s as soon as	immediately; all other project work is stopped until issue is resolved practicable or as directed; other work can continue.	l.			

Low - address within 7 days or before the next rainfall event.

Form 2118 (Rev. 01/14) Page 2 of 2

Erosion Control and Stabilization

When construction activities perma- must be initiated immediately, unless	nently cease, or tempor as excepted by Part III.F	arily cease and are not expected to re .2(b)(iii) of the CGP (page 28). Indica	esume for 14 or more days, on a dis ate the stabilization measure that ha	turbed portion of the site, erosion ve been initiated under these circ	n control and stabilization measures cumstances.
Station	Left or Right of Centerline	Stabilization Measure	Date Initiated	Other/N	lotes
to					
		Complia	ance Certification		
 With the corrective actions note The site is in potential non-com 	d (if any), the site is in c pliance with the CGP re	Check One a compliance with the CGP regulations gulations and/or the SWP3. Potentia	and Complete Signature. and the SWP3. al non-compliance issues are describ	bed below.	
TxDOT's Representative's Si	gnature:	Potential No	n Compliance logues		
Detectiol and and discussion in	lood - Ab - Colloca Ab - add	Potential No	on-compliance issues		
other potential non-compliance issues may i	identified in the CGP. No	otify the Engineer immediately of any p	otential non-compliance issues.	on-site discharges of sediment, of	r-site discharges of other pollutants, or
Station	Station Left or Right of Centerline Describe Potential Non-Compliance Issue				
to					
and and the second	1. 1. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Contra	ctor Notification		and the second second
Furnish a copy of this inspection repor than 7 calendar days after being able t Engineer. Time charges will continue u	t to the Contractor within o access the site. If correc intil the project is brough	one calendar day of the inspection. Co ctive actions are not made within this ti t into compliance and documentation	orrective actions must be taken as soor meframe and become potential nonco of corrective action is provided. This in	n as possible and before the next a ompliance issues, other work on the no way releases the contractor of	nticipated rain event, but in no case later e project may be suspended by the liability for noncompliance.
Contractor's Representative's Name (F	Contractor's Representative's Name (Print clearly): Title: Date			Date:	
Contractor's Representative	e's Signature:				
	Contraction of the	Inspect	ion Certification	Contraction of the	
l certify under penalty of law that this of evaluate the information submitted. B best of my knowledge and belief, true,	document and all attachm based on my inquiry of the accurate, and complete.	nents were prepared under my directio e person or persons who manage the sy I am aware there are significant penalt	n or supervision in accordance with a s stem, or those persons directly respon ies for submitting false information, inc	ystem designed to assure that qua sible for gathering the information cluding the possibility of fine and in	lified personnel properly gather and a, the information submitted is, to the mprisonment for knowing violations.
TxDOT's Certifying Representative's N	lame (Print clearly):		Title:		Date:
TxDOT's Certifying Represe	ntative's Signature:				
IMPERVIOUS COVER CALCULATIONS

PROJECT:	LOOP 337 AT RIDGE HILL DRIVE, NEW BRAU CSJ: 6280-21-001	JNFELS, TI	EXAS, CON	MAL COUN	ITY, TEXAS
Length of Project =	1660' = 0.314 miles				
EXISTING ROW (Area calculated in M	icrostation)	500,989	sf	11.50	ac
EXISTING ROADWA (Area calculated in M	Y icrostation - includes Ridge Hill Dr.intersection)	88,502	sf	2.03	ac
EXISTING DRIVEWA (Area calculated in M	AYS licrostation)	2421	sf	0.05	ac
EXISTING RIPRAP (Area calculated in M	licrostation)	2292	sf	0.05	ac
TOTAL EXISTING IN	IPERVIOUS COVER	93,215	sf	2.14	ac
PROPOSED ROW (Same)		500,989	sf	11.50	ac
PROPOSED ROADV (Existing + 8' x 1660'	VAY - 2 x (50' x 8')/2 = 12,880 sf)	101,382	sf	2.33	ac
PROPOSED DRIVE	WAYS odified for widening, - 8' x 15' = -120 sf)	2301	sf	0.05	ac
PROPOSED RIPRAI (Add drainage chann	p lel)	4332	sf	0.10	ac
TOTAL PROPOSED	IMPERVIOUS COVER	108,015	sf	2.48	ac
Pre-Construction Fra Post-Construction Fr	action of Impervious Cover action of Impervious Cover	9997		18.61% 21.56%	
Net increase in Impe	rvious Area (An)	14,800	sf	0.34	ac
Runoff Coefficient Co Pre Construction Rv = 1.72 IC = Post Construction Rv = 1.72 IC =	alculations $(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02 =$ fracion of impercious cover $(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02 =$ fracion of impercious cover	0.192	WIL	LIAM G. H 1050 LIAM G. H	TE HORNUNG

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: LP 337 & Ridge Hill Date Prepared: 3/30/2015

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project	<u>t:</u> C	alculations	rom RG-34	8	Pages 3-27 to 3-30	
Page	3-29 Equation 3.3: L _M = 2	7.2(A _N x P)				
where:	$L_{M \text{ total project}} = R$ $A_{N} = N$ $P = A$	equired TSS et increase verage annu	S removal re in imperviou al precipita	esulting from the proposed us area for the project tion, inches	I development = 80% of in	creased load
Site Data: Determine Required Load Removal Bas Total project a Predevelopment impervious area within Total post-development impervious area within Total post-development impe	sed on the Entire Project County = area included in plan * = the limits of the plan * = entities of the plan * = envious cover fraction * = P =	Comal 11.50 2.14 2.48 0.22 33	acres acres acres inches	[8' x 1660'-2 x 50 x 8 /	2+170 x 12] / 43560 =	0.34 ac

3. Indicate the proposed BMP Code for this basin.

	Proposed BMP = Vege	tated Fil	ter Strips			
	Hemoval eπiciency =	85	percent		Aqualogic Cartr Bioretention Contech Storm Constructed We Extended Deter Grassy Swale Retention / Irrig Sand Filter Stormceptor Vegetated Filter Vegetated Filter Vortechs Wet Basin Wet Vault	ridge Filter Filter etland ntion ation r Strips
Maximum TSS Load (L_B) from the Contributing Area treater	ated by the Veqetative Fil	ter Strip	1	Calculations from RG-	348	Page 3-3(
	L _R = (BMF	efficienc	sy) x 0.226 x F	• x (Ai x Ri x TSSi + Ap	x Rp x TSSp)	
where:	L _R = TSS	Load fron	n this contribu	ting area removed by th	ne proposed BM	IP
	BMP efficiency = 85%					
	0.226 = conve	ersion fac	tor			
	Ai = 0.34 a	ac = Impe	ervious area ir	the contributing area		
	HI ≈ 0.9 = TSSi = 170 p	runott co	efficient for in	pervious areas	2102	
	An = 0 ac =	Perviou	s area in the	contributing area	alea	
	Rp = 0.03 =	= runoff c	oefficient for r	pervious areas		
	TSSp = 80 mg	g/L = tota	l suspended s	olids from pervious are	а	
	A ₁ =	0.34	acres	265' x 56' / 43560 = 0.	34 ac	

L_R = **330** lbs

LOADING SUMMARY ANALYSIS

PROJECT:	LOOP 337 AT RIDGE HILL DRIVE, NEW BRAUNFELS, TEXAS, COMAL C CSJ: 6280-26-001	COUNTY, TEXAS
Summary:	TSS reduction requirments for the project =	305 lbs/yr
	TSS removed by vegetative filter strip	330 lbs/yr
Conclusion:	The required TSS load reduction from increased impervious cover is 305 lb The vegetative filter strip with a maximum slope of 20% and minimum width would remove 330 lbs/yr exceeding the requirement.	s/yr. i of 15'



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

REGULATED ENTITY NAME: Loop 337 at Ridge Hill Drive

TYPE OF PROJECT: <u>x</u> WPAP __AST __SCS __UST

LOCATION OF PROJECT: <u>x</u> Recharge Zone <u>Transition Zone</u> Contributing Zone within the Transition Zone

PROJECT INFORMATION

- 1. <u>x</u> Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**.
- 2. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (*Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A,* Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Soil Units, Infiltration Characteristics & Thickness			
Soil Name	Group*	Thickness (feet)	
Eckrant-rock (ErG)	С	2	
Rumple-Comfort (RUD)	С	3	

* Soil (Abbreviate	Group ed)	Definitions
A. Soils hav when thoroug	ing a <u>high</u> ghly wetted	infiltration rate
B. Soils hav rate when the	ring a <u>mode</u> proughly we	erate infiltration etted.
C. Soils hav	ving a <u>slow</u> ghly wetted	infiltration rate
D. Soils hav rate when the	ring a <u>verγ</u> proughly we	slow infiltration atted.

- 3. <u>x</u> A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.
- 4. <u>x</u> A NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.
- 5. <u>x</u> Appropriate **SITE GEOLOGIC MAP(S)** are attached:

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

Applicant's Site Plan Scale	1" =	100 '
Site Geologic Map Scale	1" =	100 '
Site Soils Map Scale (if more than 1 soil type)	1" =	250

6. Method of collecting positional data:

Global Positioning System (GPS) technology.

x Other method(s).

- 7. <u>x</u> The project site is shown and labeled on the Site Geologic Map.
- 8. <u>x</u> Surface geologic units are shown and labeled on the Site Geologic Map.
- 9. <u>x</u> Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
 - ____ Geologic or manmade features were not discovered on the project site during the field investigation.
- 10. <u>NA</u> The Recharge Zone boundary is shown and labeled, if appropriate. Note: No boundaries within mapped area.
- 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 Chapter 76.
 - <u>x</u> There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

12. <u>x</u> Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Date(s) Geologic Assessment was performed: <u>April 27, July 6, July 7, July 19, 2011</u> Date(s)

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

John D. Bryant Print Name of Geologist	STATE OF TEHAS	(210) 6 <u>15-5838</u> Telephone
Signature of Geologist	JOHN D. BRYANT B GEOLOGY 3959 HOSTORIAL & GEOSCIA Date	Fax
Representing: <u>Texas De</u> (Name of	partment of Transportation	

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.

Geological Assessment Loop 337 at Ridge Hill Drive New Braunfels, Comal County, Texas

Purpose

The purpose of this study is to comply with 30 TAC 213 regulations requiring the preparation of a Geological Assessment to accompany a Water Pollution Abatement Plan for regulated construction activities.

Procedures

This geological assessment was performed in accordance with 30 TAC 213 and the TCEQ's "Instructions to Geologists" (2004). The geological assessment consisted of research and field study.

Research Information

The following sources of information were reviewed in conjunction with this study.

- USGS Water Resource Investigation Report 94-4117.
- USDA Web Soil Survey
- USGS New Braunfels West, Tx 7.5 minute topographic quadrangle.
- TxDOT as-built plans for Loop 337.
- 2010 aerial photography
- TxDOT proposed construction plans

Field Survey

On-site mapping was performed by the geologist walking the project limits and visually inspecting the land surface for geologic and manmade features. Field work was conducted on April 27, July 6, July 7 and July 19, 2011. Before and during this time frame, the area had been in drought. The routinely mowed and maintained portions of the ROW, which encompass the bulk of the proposed work areas, exhibited low growth and therefore good visibility for identification of features. Some portions of the ROW were obscured by the stockpiles or dense vegetation such as prickly pear cactus and Ashe juniper.

Potential features were marked with spray paint for follow up location mapping and investigation. Features determined appropriate for mapping, either individually or as zones, were located using detailed aerial photographs, measuring wheel and GIS tools.

The field work focused on the identification of features which may be impacted by the proposed project and other representative features even if there was no potential for them to be impacted by the project. The impact assessment presented here would not be valid for any projects other than the proposed project, which is small scale project.

Results

Research Results

Small and Hanson (1994) mapped the site as Person Formation (map nomenclature is Kep), specifically cyclic and marine members (see inset). This is the uppermost member of the Person Formation Edwards and Group and is moderately permeable. No mapped faults cross the proposed project. A stratigraphic column is presented in Attachment B.

TxDOT as built plans and proposed construction plans show no indications of geologic features.

No features were apparent on aerial photography or the topographic map, although the Comal Springs Fault can be clearly seen approximately $\frac{1}{2}$ mile southeast of the project location.



Field Survey Results

Site Conditions

The proposed project location is the TxDOT right of way (ROW) for Loop 337. Loop 337 is a two to three lane road within the project limits. The ROW has been impacted by past land disturbance associated with roadway and utility construction. Modern Loop 337 was constructed in the 1960's. Within the project limits, the Loop 337 ROW passes through two hilltop road cuts and an intervening valley fill section. The fill may obscure features.

An ephemeral stream conveys storm water runoff east to west via a 300 ft long box culvert at the base of the valley fill section. The streambed substrate consists of gravel and boulders with no obvious in-situ bedrock exposures.

There are four exposures of road cuts, two north of the ephemeral stream and two south of it. The road cuts allow inspection of strata and features that may otherwise be undetected. The road cuts range from less than 1 foot to over 10 feet in height. The area between the cuts has been altered by past excavation to accommodate the grade of the road and roadside drainage. This area includes roadway pavement, thin rocky soils with sparse grasses and forbs, and scattered gravel and fines which may obscure features. The areas between the road cuts and the ROW (i.e., property line) is less altered by past roadway construction. Two stockpiles of aggregate materials were present in the project limits, and were bordered by rock berms on their down slope sides.

Overhead power lines follow the ROW (property) boundary. Several large power line support towers are located on or adjacent to the ROW. Underground water, telecommunication and gas lines are present. The water and telecommunication lines were not mapped. However, a portion of the gas line was mapped as a manmade feature in bedrock (MB-1).

Surface Drainage Patterns

Approximate surface drainage patterns are indicated on the Geologic Map (Attachment C). In the project limits, Loop 337 is in a wide sweeping curve that is banked. The entire roadway pavement is sloped generally east towards the inside of the turn. Therefore, runoff from the existing roadway pavement drains generally eastward until it is intercepted by ditches which convey runoff to the ephemeral stream. The ephemeral stream drains to the west under Loop 337 via a culvert.

The road cuts on the west side of the ROW are up slope of Loop 337 roadway runoff. They are topographically higher than the road and there is a berm that parallels most of the western road cuts that further isolates them from existing road runoff.

Site Specific Geology

The field work results are illustrated on the Geologic Map (Attachment C). The strata observed at the site consists typically of thin bedded limestones and include a range of mudstones to fossiliferous grainstones. Collapse breccia with solution cavities and extensive calcite spar are present locally. The section is altered by past collapse and includes several folds. Fractures are more prevalent in some beds and absent in others. Solution cavities have formed along bedding planes and are prevalent in some bedding units and absent in others. Based soley on visual impressions, voids that formed along bedding planes represent a substantial percentage of the overall porosity of this section.

Potential for diffuse recharge is high due to the inherent permeability of the rock layers exposed in this specific area. Overall, the geologic conditions are conducive to infiltration due to the number of voids in the limestone and the thin soil cover.

Features

Each of the mapped features is summarized below along with a discussion on how it may be impacted by the proposed project. Most of the features were found in road cuts and the visible portions of most of them are probably not active in current recharge. Some of the features located near the base of the road cuts (such as F-8 through F-11, F-20, F-24, F25) may be active in recharge during large storm events which produce higher than usual ditch flows. There was a drift line indicating former high water levels just below F-10.

Additional details (such as dimensions) on the features are presented in the Geologic Assessment Table (Attachment D) and photographs of each feature are presented in Attachment E. The need for special precautions is indicated as appropriate.

	Summary of Features
Feature ID	Description
F-1	F-1 is a solution cavity located approximately 3 feet above the roadway grade, which is where regulated activities (soil disturbance) would take place. In this position, it is not subject to construction or post construction runoff from the proposed project.
F-2	F-2 is a solution cavity formed in collapse breccia. It is approximately 3 feet above grade; therefore, it is not subject to construction or post construction runoff.
F-3 ¹	F-3 is a solution cavity and one of the few features which could be impacted by the proposed project. Although the void is approximately 1 foot above grade, it is located in close proximity to a proposed work area, and could be subject to construction phase runoff during a large runoff event. Temporary and permanent water quality controls would be required to protect this feature. Appropriate sedimentation controls, such as a silt fence or mulch log (provided they are approved BMPs for use on the Recharge Zone) should be installed prior to construction to isolate this feature from the project's areas of soil disturbance. A filter strip is proposed to be constructed between this feature and the edge of pavement.
F-4	F-4 consists of solution enhanced fractures and is one of the few features found that is not located in a road cut. It is an open void in the ground at grade level on the side of a hill. The area has dense Ashe juniper growth which limits visibility. The thin layer of soil has collapsed into underlying voids. The underlying voids are open fractures. The largest fracture aperture was approximately 3 inches. The void is topographically isolated from the Loop 337 pavement and proposed work areas because there is a valley between the work area and the hill this feature was found on. There is no potential for the proposed project to impact this feature.
F-5 ²	F-5 is a soil piping feature. Because this feature is located within or adjacent to a relatively thick valley fill section, soil may be piping due to voids in underlying backfill and/or voids in underlying bedrock. Its presence is considered evidence of flow; however, recharge volumes would be low because the drainage area is very small. Note: A piping feature is not listed as a feature to be mapped pursuant to the TCEQ forms or instructions to geologists. The investigator did not determine the underlying cause of the feature to classify it further. For purposes of completing the Geologic Assessment Table, F-5 was recorded as a solution cavity since SC features are common in this area, and to address it conservatively.

F-6 ²	F-6 is a solution cavity. The void is approximately 2 feet above the flow line of the nearby roadside ditch.
F-7 ²	F-7 is a solution cavity developed along bedding planes. The voids are several feet above grade. The voids are approximately 2 to 5 feet above the flow line of the nearby roadside ditch.
F-8 ²	F-8 is a solution cavity. The void is approximately 1 foot above the flow line of the nearby roadside ditch.
F-9 ²	F-9 is a solution cavity near the base of a road cut about 6 inches above the flow line of the road side ditch.
F-10 ²	F-10 is a solution cavity with a pronounced horizontal elongation. It appears to extend back horizontally at least 8 feet and opens up to larger dimensions to the northeast. The opening smells like animal urine. The void is approximately 1 foot above the flow line of the nearby roadside ditch. Ditch flood debris is just below its opening.
F-11 ²	F-11 is a horizontal solution cavity located near the base of a road cut. It contains skunk hair and skunk odor. The void is approximately foot above the flow line of the nearby roadside ditch.
F-12	F-12 is a zone of solution cavities developed along bedding planes. The zone is confined to the upper portion of the road cut. The voids are located more than 3 feet above grade; therefore, they are not subject to construction or post construction runoff.
F-13	F-13 is a vertically-oriented, soil filled solution cavity in a road cut. The soil infilling is relatively loose. Its lowest point is located approximately 10 inches above grade; therefore, it is not subject to construction or post construction runoff. There is a rock bern located between this road cut feature and an adjacent stockpile.
F-14	F-14 is a small solution cavity in bedrock on the side of a hill. The void is topographically isolated from the Loop 337 pavement and proposed work areas.
F-15'	F-15 is a zone of solution-enhanced fractures exposed a steep eroded ditch. Erosion has exposed bedrock in a zone which is approximately 80 feet in length and up to approximately 12 feet wide. There are scattered fractures exposed in this ditch. The fracture density is roughly one fracture every 2 feet over a distance of approximately 20 feet, near its southwestern (furthest down slope) extent. The fracture intensity decreases to the northeast (up slope). There is one notable fracture just down slope of the natural gas line (MB-1), and the fracture has an aperture of approximately 8 inches. It is filled with loose soil. This zone may be subject to construction phase impacts such as the storm water
	conveyance of eroded soils in its drainage area and it should be protected. Due to the super elevation of the roadway, its pavement slopes generally east toward the inside of the turn; therefore, post construction runoff from the pavement would not flow into this sensitive feature.
F-16 ³	F-16 is a subvertical solution cavity that formed along a fracture. The solution cavity is sculptured by past dissolution. It is no longer a feature capable of transmitting fluids to the subsurface but it was mapped because it may be indicative of permeable

		areas that are not evident at the surface.				
		-3 F-17 is a zone of solution enhanced fractures and vuggy rock. The voids obs				
F-17 ⁵ in this road cut are located three feet above grade.		in this road cut are located three feet above grade.				
	F-18 ³	-18^3 F-18 is a small solution cavity near the base of a road cut.				
F_{103} F-19 is a cave. It is humanly accessible for only a few feet. The cave or		F-19 is a cave. It is humanly accessible for only a few feet. The cave opening is				
	F-19°	located approximately 2 feet above grade.				
	h	F-20 is a void adjacent to the cave and it has horizontal dimensions of approximately				
$F-20^3$ F-20 ³ F-20 ³ 7 inches x 12 inches. It is located at grade and extends approximately 1 grade. No construction is proposed within the drainage area of this feature						
						limited by the earthen berm that closely parallels the road cut. If construction were
		near this feature, it would warrant protection.				
	- <u></u>	F-21 is a 170 ft section of road cut mapped as zone. It includes numerous				
	F-21 ³	subhorizontal solution cavities and vuggy rock. None of the voids are at grade.				
		Collapse breccia and folds are present.				
ĺ	$F-22^{3}$	F-22 is a subhorizontal solution cavity located approximately 10 inches above grade.				
[F-23 ³	F-23 is a subhorizontal solution cavity approximately 9 inches above grade.				
[F-24 ³	F-24 is a solution cavity formed along bedding planes. The beds dip due to a fold.				
	F-25 ³	F-25 is a solution cavity formed along bedding planes. The beds dip due to a fold.				
		MB-1 is a utility trench that has been cut into bedrock and it is exposed where it				
		crosses a steep eroded ditch. A natural gas pipe line can be seen underneath a				
		concrete cap. Surface runoff in the ditch would readily enter the utility trench.				
		However, the permeability of the rock intersected by the trench is unknown. In				
		accordance with the rules, this feature is considered sensitive lacking data to the				
		contrary.				
	MB-1					
		Only the portion of this utility trench in proximity to where it was exposed in a ditch				
		is mapped as MB-1. The ditch is 18 inches wide and the depth is unknown but the				
		gas line is very shallow in this eroded area.				
		This area should be protected from construction phase storm water runoff along with				
	15	BMPs designed to protect F-15 which is exposed in the same ditch.				
	Features	F-3, F-15 and MB-1 are most likely to experience construction phase or post				
	construction phase impacts and warrant protection.					
	² Decording Features F. 5 through F. 11					
	⁻ Kegarding Features F-5 through F-11 No nondway construction is managed along the south is duide of the south and the fit					
ł	therefore no need for temporary adimentation or avaging controls is indicated. The avage					
	along that aviate between the adage of neuroment and the fractions will some in interest.					
	slope that	exists between the edge of pavement and the features will remain infact.				
	³ Recordin	a Features F. 16 through F. 25				
	Regarding realures F-10 through F-25					
	the readway and associated work areas. In addition most of this section of read out is					
	naralleled by a berm which further isolates them from the proposed project. Therefore no need					
	paralleled by a berm which further isolates them from the proposed project. Therefore no need for BMP specific temporary or permanent controls is indicated					
L		specific temporary of permanent controls is indicated.				

Soils

A soil map for the area encompassing the project is included in **Attachment A**. The valley fill area is mapped as Eckrant-rock complex, although much of this area with the ROW has been altered by the valley fill. These soils may exist on the margins of the fill. The bulk of the project limits is mapped as Rumpel-Comfort Association.

Soil is not uniformly present or thick. There are numerous exposures of apparent bedrock throughout the project limits, particularly in steeply sloped areas north and south of the ephemeral stream. The field work was conducted during a drought, and the soils were observed to be dry and cracked. The soil cracks would permit initial rapid transmission.

Based on the intermittent, thin and cracked nature of the soil and the porosity observed in roadcuts, the overall soil and bedrock conditions are conducive to infiltration.

Attachments

Attachment A	Soils Map
Attachment B	Stratigraphic Column
Attachment C	Geologic Map
Attachment D	Tabulated Features
Attachment E	Photographs

References

Small, T.A, and Hanson, J.A., 1994, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Comal County, Texas; USGS Water Resources Investigations 94-4117, 10 pp.

7/20/11 Mugat

JOHN D. BRYANT GEOLOGY 3959

ATTACHMENT A SOILS MAP

Soil Map—Comal and Hays Counties, Texas (LP 337 at Ridge Hill)



5/27/2011 Page 1 of 3

ATTACHMENT B STRATIGRAPHIC COLUMN

 Table 1. Summary of the lithologic and hydrologic properties of the hydrogeologic subdivisions of the Edwards aquifer outcrop, Cornal County, Texas

[Hydrogeologic subdivisions modified from Maclay and Small (1976); groups, formations, and members modified from Rose (1972); lithology modified from Dunham (1962); and porosity type modified from Choquette and Pray (1970). CU, confining unit; AQ, aquifer]

Hydrogeologi subdivision		ngeologic division		fo	Group, ormetion, r member	Hydro- logic function	Thickness (feet)	Lithology	Peid Identification	Cavern development	Porosity/ permeability type				
Γ			Nav Gi	on s noup	and Taylor s, undivided	CU	600	Clay, chalky limestone	Gray-brown clay; marly limestone	None	Low porosity/low permeability				
Cretacecus	Upper confining units		Austin Group		CU; rarely AQ	130 - 150	White to gray limestone	White-chalky limestone; Gryphaea aucella	None	Low porosity; rare water production from fractures/low permeability					
Jpper Cre			Eag	le Fo	ord Group	CU	30 - 50	Brown Cyclic and	Marine	None	Primary porosity lost/low permeability				
			Bud	a Lii	mestone	ເບ	40 - 50	Buff, ligne gray, usase mudstone	timestone	Minor surface karst	Low porosity/low permeability				
			Del	Río	Clay	CU	40 - 50	Blue-green to yellow- brown clay	Fossiliferous; Nymatogyra aristina	None	None/primary upper confining unit				
3 A.	T		G∞	rgeto	own Formation	cu 🖌	Jess than 10	Gray to light tan marl y fimestone	Marker fossil: Waconella waconsis	None	Low porosity/low permeability				
	п				Cyclic and marine members, undivided	AQ	80 - 100	Mudstone to packstone; miliolid grainstone; chert	Light tan, massive; some Toucasia	Many subsurface; may be associated with earlier karst development	Laterally extensive; both fabric and not fabric/ water-yielding; one of most permeable				
soous	m			Person Formation	Leached and collapsed members, undivided	AQ	80 - 100	Crystalline limestone; mudstone to grainatone; chert; collapsed breccia	Bioturbated iron- stained beds separated by massive limestone beds; Montastrea sp.	Extensive lateral development, large rooms	Majority not fabric/one of most permeable				
	īv	Edwards aquifer	Edwards Group		Regional dense member	5	20 - 24	Dense, argillaceoux mudstone	Wispy iron-oxide stains	None, only vertical fracture enlargement	Not fabric/low permeability; vertical barrier				
Lower Creta	v			Edwards	Edwards	Edwards	Edwards		Grainstone member	ΛQ	50 - 60	Miholid gminstone; mudstone to wackestone; chert	White crossbedded gminstone; Toucasia	Few	Not fabric/recrystallization reduces permeability
	νī			mation	Kirschberg evaporite member	AQ	50 - 60	Highly altered crystalline himestone; chalky mudstone; chert	Boxwork voids, with necepsr and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable				
	VII							Kainer For	Dolomitio member	AQ	110 - 130	Mudstone to grainstone; crystallino limestone; chert	Massively bedded light gray, <i>Toucasia</i> abundant	Caves related to structure or bedding plages	Mostly not fabric; some bedding plane- fabric/water-yielding; locally permeable
	VIII				Basal nodular member	Karst AQ; not karst CU	50 - 60	Shaly, nodular limestone; mudstone and miliolid grainstone	Massive, nodular and mottled, <i>Exogyra</i> lexana	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric/large conduit flow at surface; no permeabibity in subsurface				
	Lowi confin unit	er ing t	Upp Gl	er m en R	ember of the lose Limestone	CU: evaponite beds AQ	350 - 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography, alternating limeatono and mari	Some surface cave development	Some water production at evaporite bods/ relatively impermeable				

Stratigraphic column from Small and Hanson (1994).

ATTACHMENT C GEOLOGIC MAP



INDEX OF SHEETS

SHEET NO. GENERAL DEPARTMENT OF TRANSPORTATION TITLE GENERAL NOTES 2A-2D TYPICALS 3-4 PLANS OF PROPOSED 5 ESTIMATE & QUANTITY HIGHWAY ROUTINE MAINTENANCE CONTRACT TRAFFIC CONTROL PLAN **TYPE OF WORK:** SCHEDULE OF TRAFFIC CONTROL & WARNING DEVICES 6 TCP SEQUENCE OF WORK AND NARRATIVE 7 ADD LEFT TURN LANE 8-19 ★ BC (1)-14 - BC (12)-14 ★ TCP (1-1)-14 - TCP (1-4)-14 20-23 PROJECT NO.: RMC 6280-21-001 24-27 ★ TCP (2-1)-12 - TCP (2-4)-12 HIGHWAY: LP 337 at Ridge Hill Drive 28 TCP (3-1)-13 29-30 ★ TCP (3-3)-13 - TCP (3-4)-13 LIMITS: FROM: 850' SOUTH OF RIDGE HILL DRIVE 31 WZ (TD) -13 TO: 810' NORTH OF RIDGE HILL DRIVE 32 🛨 WZ (STPM) -13 33 ★ WZ(UL)-13 PROJECT LENGTH: 0.314 MILES ROADWAY 34 LEFT TURN LANE PLAN 35 MBGF PLAN SIGNING & PAVEMENT MARKINGS LAYOUT 36 37 DVWY & TURNOUT DETAILS 38 D&OM(1)-10 39 D&OM(4)-04 D&OM(VIA)-04 40 41-44 MB-14(1) ★ PM(1)-12 - PM(3)-12 45-47 ENVIRONMENTAL 48 ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC) 49 STORM WATER POLLUTION PREVENTION PLAN (SW3P) 50 SW3P LAYOUT WPAP LAYOUT (VEGETATIVE FILTER STRIP) 51 52 DRAINAGE CHANNEL TYPICAL DRIVE ★ EC(1)-09 53 54 EC(2)-93 ★ THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT. END PROJECT X WILLIAM G. HORNUNG BEGIN PROJECT 105021 SCALE: N.T.S. EXCEPTIONS: NONE Wallrim S. Homm march 31, 2015 EQUATIONS: NONE RAILROAD: NONE DATE SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014, AND SPECIAL SPECIFICATION ITEMS INCLUDED IN THE (C) 2015 by Texas Department of Transportation all rights reserved CONTRACT SHALL GOVERN ON THIS PROJECT.

STATE OF TEXAS

SUBMIT

GRAPHICS FILE		MAINTENAN	SHEET NO.		
		6280	-21-00	01	1
CHECKED	STATE	STATE DIST.		COUNTY	
	TEXAS	SAT	COMAL		and the second se
CHECKED	CONT.	SECT.	80L	HIGHMA	Y NO.
	6280	21	001	LP 337	

AREA OF DISTURBED SOIL = 1.14 ACRES

TEXAS DEPARTMENT OF TRANSPORTATION

TED	FOR	ICTT	INIC .
IEU	FUR	LEII	ING.

AREA ENGINEER	, 20
RECOMMENDED FOR LETTING	
DIST. MAINTENANCE CONTRACT OFFICE	, 20
RECOMMENDED FOR LETTING	
DIRECTOR OF OPERATIONS	, 20







DECODIDITION		
DESCRIPTION	QUANTITY	UNIT
WIDENING (ODD COND)		
WIDENING (ORD COMP)	16.6	STA
NI (FINAL) (ORD COMP) (TY B)	300	EA
	16.6	STA
B GR 4)	17	CY
FRS-2P, OR CRS-2P)	701	GAL
(SQ) TY-B PG 64-22	812	TON
(SQ) TY-C SAC-B PG 70-22	203	TON
7		

I. Stormwater Pollution	Prevention - Clean Water Act Se	action 402		1
TPDES TXR 150000: Stor	mwater Discharge Permit or Constru	ction General Permit required for		VI. Hozordous Materials or
projects with 1 or mor protect for erosion an	e acres distrubed soil. Projects d sedimentation in accordance with	with ony disturbed soil must Item 506.	Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, film, pottery, etc.) cease work in the immediate area and contact the Engineer Immediately.	General (applies to all projects Comply with the Hazard Comm materials by conducting safety
No Action Required	Required Action		No Action Required	potential hazards in the workp equipment appropriate for any t
Action No.				Obtain and keep on-site Materi
1. Prevent stormwater pol with TPDES Permit TXR	lution by controlling erosion and sed 150000	imentation in accordance	ACTION NO.	project, which may include, b asphalt products, chemical add protected storage, off bare g
2. Comply with the SW3P of the Engineer.	nd revise when necessary to control p	ollution or required by	2.	Maintain an adequate supply of of a spill, take actions to mith
3. Post Construction Site accessible to the publ	Notice, (CSN) with SW3P information of and TCEQ, EPA or other inspectors.	on or neor the site,	3.	practices, and contact the Area for the proper containment and
4. When Contractor project acres or more, Contract	t specific locations (PSL's) increase or shall submit NOI to TCEQ and the Er	disturbed soil area to 5 ngineer.	4.	• Dead or distressed ve
I. Work in or near Strea	ms. Waterbadies and Westands Cl		5.	 Trash piles, drums, d Undesirable smells or Evidence of leaching d
401 \$ 404		BUI NOTER ACT SECTIONS	IV. Vegetation Resources	Any other address to the
USACE Permit required for	r filling, dredging, excavating or other	work in any jurisdictional	Preserve native vegetation to the extent practical.	Any other evidence indicating p
water bodies, rivers, creek	ks, streams, wetlands or wet areas.		No Action Required Required Action	Hazardous Materials or
The Contractor must adhere	to all of the terms and conditions assoc	clated with the following permit(s):	Action No.	No Action Required
No Permit Required				lation No.
Nationwide Permit 14	- PCN not Required			ACTION NO.
Nationwide Permit 14	- PCN Required		2.	۱.
Individual 404 Permit	Required			
U other Nationwide Permi	it Required: NWP*		3.	2.
Required Actions: List wat Best Management Practices	ters of the US permit applies to, loca planned to control erosion, sedimenta	tion in project and check tion and post-project TSS.	4.	3.
1.				4.
2.			V. Federal Listed, and Proposed Threatened and Endangered Species, Critical	VII. Other Environmental La
			LISTED SPECIES	The Environmentor is
3.			If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer Immediately. The work may not remove active nests from bridges and other	(includes regional issue
4.			structures during nesting season of the birds associated with the nests.	No Action Required
			in caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.	Action No.
Best Management Practices:			No Action Required I Required Action	 Water Pollution Aba consisting of a veg
Erosion	Sedimentation	Post-Construction TSS	Action No. R/L of Controlling Complement	2.
Temporary Vegetation	Silt Fence	Vegetative Filter Strips	1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the	
Blankets/Matting	Rock Berm	Retention/Irrigation Systems	following requirements:	3.
Mulch	Triangular Filter Dike	Extended Detention Basin	A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active pests that shall get be	
Sodding	Sand Bag Berm	Constructed Wetlands	until the nests become inactive.	
Interceptor Swale	Straw Bale Dike	Wet Basin	B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity basics.	
Diversion Dike	Brush Berms	Erosion Control Compost	deterrent materials may be applied to the structures to prevent future nest building.	
Mulch Filter Berm and Sc	L'Erosion Control Compost	Mulch Filter Berm and Socks	cease work in the immediate area. Do not disturb species or habitat and contact the	
Compost Filter Berm and	Socks Compost Filter Berm and Socks	Compost Filter Berm and Socks	Ligineer immediately.	
	Stone Outlet Sediment Traps	Sand Filter Systems	J. See Item 5 in General Notes.	
	Sediment Basins		4.	
		States and the states and		

relative position.

IT'S

Revised 9-08-03



Contamination Issues

5):

nunication Act (the Act) for personnel who will be working with hazardous y meetings prior to beginning construction and making workers aware of place. Ensure that all workers are provided with personal protective hazardous materials used.

Ial Safety Data Sheets, (MSDS) for all hazardous products used on the but are not limited to the following categories: Paints, acids, solvents, ditives, fuels and concrete curing compounds or additives. Provide pround and covered, for products which may be hazardous. Maintain by the Act.

of on-site spill response materials, as Indicated in the MSDS. In the event ilgate the spill as indicated in the MSDS, in accordance with safe work by Engineer immediately. The Contractor shall be responsible if cleanup of all product spills.

the follwing are detected:

egetation (not identified as normal) canister, barrels, etc. odors or seepage of substances

possible hazardous materials or contamination discoverd on site.

Contamination Issues Specific to this Project:

Required Action

SU85

es such as Edwards Aquifer District, etc.)

Required Action

ptement Plan for the Edward's Aquifer petative filter strip.

Texas	Departi Design Div	nent of Islon (Re	r 7 bodw	rans,	port	atio	n
Enviror Issues	omen and EF	tal Cor PIC		Per nit	me	it en	s, ts
ILE: epic.dgn	DNR TxDOT	CKI CL	Ditta	VP C	t: CL	T	
CTXDOT May 2010	DIST	FE	DERA	AID PRO	JECT		SHEET
REVISIONS	SAT	RMC	:	6280-	21-0	001	48
		OUNTY		CONTROL	SECT	JOB	HIGHWAY
	C	OMAL		6280	21	011	LP 337

<form> A. GENERAL SITE DATA A. GENERAL SITE DATA</form>			
<form>A minimum in the property intervent in</form>	A. GENERAL SITE DATA	B. BEST MANAGEMENT PRACTICES	C. OTHER REQUIREMENTS & PRACTICES
 4. Month and the matrix and	1. PROJECT LIMITS: Same as stated on the Title Sheet	General timing or sequence for implementation of BMPs shall be as required and/or as directed/approved by the Engineer to provide adequate controls. BMPs shown on plan sheets are to be considered "proposed" unless/until install date is	1. MAINTENANCE: All erosion and sediment controls shall be maintained in good working order. If a repair is persease, it shall be performed before the control in good working order. If a repair is
<form> A contract of the series of the se</form>	2. PROJECT SITE MAPS:	shown. BMPs are to reduce sediments from road construction activities.	days after the surrounding exposed acrued be anticipated storm event but no later than 7 calendar
<form>A province of the state of</form>	* Project / dtitude 2942'20 40 N Project / positude 0000045 55 W	1. SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable	equipment. If maintenance prior to the pert anticipated storm event is transatively to
<form>b. Second se</form>	* Project Londou 2542 20,40 W Project Longitude 30 09 45,55 W		maintenance must be scheduled and accomplished as soon as nearlinghed. Disturbed areas on which
<form>Bess descendent for sport productions have an origination of an any ordination of any ord</form>	* Drainage Patterns: Shown on SW3P and WPAP Lavaut Sheets	P SEEDING PRESERVATION OF NATURAL RESOURCES	construction activities have ceased, temporarily or permanently, shall be stabilized within it colordar
<form>Network of the state is and the stat</form>	* Approx. Slopes Anticipated After Major Gradinas and Areas of Soil Disturbance. Shown on Typical	MULCHING (Hay or Straw) FLEXIBLE CHANNEL LINER	days unless they are scheduled to and do resume within 2 calendar days. The areas ad incent to
<form> Product of control of a distribution framework is been as first of the series of the series</form>	Sections	BUEFER ZONES RIGID CHANNEL LINER	creeks and drainageways shall have priority followed by protecting storm sewer inlets.
The set of the	* Major Controls and Locations of Stabilization Practices: Shown on SW3P and WPAP Sheets	COMPOSITIVIII CH ELLITER REPAIR	2. <u>INSPECTION</u> :
 A start in s	* Project Specific Locations: Off-site waste, borrow, or storage areas are not part of this SW3P.	SODDING OTHER	rol aleds of the construction site that have not been finally stabilized, areas used for storage of
	* Surface Waters and Discharge Locations: Shown on SW3P and WPAP Sheets		personal provided by the completion and locations where vehicles enter or exit the site.
 A sufficiency double on whether whether has a sub-section of the sub-section of		2. <u>STRUCTURAL PRACTICES:</u> (Select T = Temporary or P = Permanent, as applicable)	at least once every fourte per limited and raminar with the SW3P must inspect disturbed areas
<form> Market de utilitée en ander de la partie. A sont de la partie de</form>	3. PROJECT DESCRIPTION: ADD LEFT TURN LANE	T STIT FENCES	a storm of 0.5 Inches or arenter As an alternative to be observed and a local local the end of
 A contraction on the stand of the s		HAY BALES	of once every fourteen (I4) calendar days and within twenty four (24) bours of a charge
<form>A definition of another production of a non-section o</form>	Non-Joint Bid Utilities are not part of this SW3P.	ROCK FILTER DAMS	of 0.5 Inches or greater, the SW3P may be developed to require that these become will
<form> A match built full built full built buil</form>		DIVERSION, INTERCEPTOR, OR PERIMETER DIKES	occur at least once every seven (7) calendar days. If this alternative schedule is developed the
<form> A. See And sets answer general and set out of the set out of the set of the set of the set of the set out of the set o</form>		DIVERSION, INTERCEPTOR, OR PERIMETER SWALES	Inspection must occur on a specifically defined day, regardless of whether or not there has been
<form> In the order thread and a read or and a black human many of the data and in the data when human in the data and in the data when human in the data and in the data when human in the data and in the data when human in the data and in the data when human in the data and in the data when human in the data and in the data when human in the data and international and the data and the data</form>	4. FOR MAJOR SOIL DISTURBING ACTIVITIES SEQUENCE OF EVENTS:	PIPE SLOPE DATA SWALE COMBINATIONS	rainfall since the previous Inspection An Inspection and Maintenance Report shall be prepared
Section in infiniting of a local case and and infiniting particles. And the section of a local case and the section of		PAVED FLUMES	for each inspection and the controls shall be revised on the SW3P within seven (7) calendar days
A point of work o	install controls down-slope or work area and initiate inspection and maintenance activities.	ROCK BEDDING AT CONSTRUCTION EXIT	following the inspection.
<form>I where the near the showe the standard water and the show the standard of the show the s</form>	2. Beals phased construction with interim stabilization acasticas and interimentation	TIMBER MATTING AT CONSTRUCTION EXIT	3. WASTE MATERIALS:
<form> A bit is diginary in the second of the secon</form>	controls during construction to meet requirements and changing conditions and sedimentation	CHANNEL LINERS	All non-hazardous municipal waste materials such as litter, rubbish trach and parhage located as
<form>A by so of shalling of shalls as a for a finite is: dipret way reaction, and is in the finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shall as a finite is: dipret way reaction, and is interest. A by so of shalls are shalls are shall as a finite is: dipret way reaction, and is interest. A by shall are shalls are shall as a finite is: dipret way reaction, and is interest. A by shall are shall are shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the shall as a finite is: dipret way reaction of the sha</form>	approved by the Engineer.	SEDIMENT RASINS	or originating from the project shall be collected and stored in a securely lidded metal dumoster
 A big is delay delay and planting should be der an diskel in right of an generation of the factor of an and the factor of an		STORM INLET SEDIMENT TRAP	provided by the Contractor. The dumpster shall be emptied as necessary or as required by local
 Setter find the brace code goals. If the grading and finder state of a leader in a finder in a leader in a leader	3. Major soll disturbing activities may include but are not limited to: right-of-way preparation, cut	STONE OUTLET STRUCTURES	regulation and the trash shall be hauled to a permitted disposal facility. The burying of
In a details I a details were and as a detail of a galaxies. I a details a galaxie de adapte de la detail de detail de	and/or fill to improve roadway profile, final grading and placement of topsoil and the following	CURBS AND GUTTERS	non-hazardous municipal waste on the project shall not be permitted. Construction material waste
 A character for and basis Control (codd) (du/Th/Codd) Contro (codd) (du/Th/Codd) Contro (codd) (du/Th/Codd)<	(If marked):	STORM SEVERS	sites, stockplies and haul roads shall be constructed to minimize and control the amount of sediment
Extension with a grading unperformance or matigates The standarding of mathematical and	X Placement of road base	P OTHER GABION MATTRESSES	that may enter receiving waters. Construction material waste sites shall not be located in any
S. TOTAL MALE MANDERSON CONSTITUTION: Set and an other in a model is an advanced in a model is a model in a model is an advanced in a model is a model in a model is a model in a model is a model in a model in a model is a model in	Exstensive ditch grading		weiland, water body or stream bed. Construction staging areas and vehicle maintenance areas
- Improve getter radial	Upgrading or replacing culverts or bridges		shall be constructed in a manner to minimize the runoff of pollutants.
 	Temporary detour road(s)	3. STORM WATER MANAGEMENT:	
 set restriction Auto propriests constitutions: be restriction Auto propriests constitutions: constitution and a biolity vegativity constitutions: constitution and a biolity vegativity constitution: constitution: constitution:	Other:	The proposed facility was designed in consideration of hydraulic design standards to convey	4. OFFSITE VEHICLE TRACKING:
 b: <u>ITSTING AND PROPOSED Conductions:</u> c: <u>ITSTING AND Proposed Conductions: <u>ITSTING AND Proposed</u></u>		stormwater in a manner that is protective of public safety and property. The control of erasion	Off-site vehicle tracking of sediments and the generation of dust must be minimized. Excess
 A close of the statisty specifies cover, statistic specifies cover, statistispecifies cover, statistic specifies cover	5 EVISTING AND PROPOSED CONDITIONS	from the facility is inherent to the design. Additional factors affecting post-construction	sediments on road shall be removed on a regular basis as directed/approved by the Engloser
beschlip detalling vegletige open, NATEC COASSES beschlip detalling vegletige open, NATEC COASSES beschlip detalling vegletige open, NATEC COASSES Existing vegletige open, NATEC COASSES Description of solid vegletige open, NATEC COASSES Description of solid vegletige open, NATEC COASSES Provide vegletige open, NATEC COASSES Provid	S. EXISTING AND PROPOSED CONDITIONS:	stormwater at the project location include: (mark all that apply)	get the control of the Lighter.
Proceeding of earling sequelate core: ess: Existing sequelate core: ess: Existing sequelate core: ess: Existing sequelate core: ess: The or bridge The despination of essisting and the set of th	Description of existing vegetative cover: NATIVE GRASSES	<u>X</u> Existing or new vegetation provides natural filtration.	5. <u>OTHER:</u>
Eventing segretion convertingers convertingers convertingers and impriving surfaces. Profet by strategingers in the convertingers convertingers and impriving surfaces. Profet by strategingers in the convertingers convertingers in the convertingers con	Percentage of existing vegetative cover: 85%	X The design includes provisions for permanent erosion controls	See the FPIC sheet for additional additionmental information
	Existing venetative cover (mark one) X That as a francisco to the second	provided by strategically placed pervious and Impervious surfaces.	See the Erice sheet for deditional environmental information.
 In our of nilling cover We cover and many cover We cover and a cover and many cover and many cover and covever and cover and cover and cover and cover and cover and co	Thick or Unit ormiy established	Project includes permanent sedmentation controls (other than arras)	
basic life/indic closes/training and description of solid Sile arrorge in 15 Kencep distribution of solid Sile arrorde in 15 Lobardows from fire divisor Sile arrorde in 16	None or minimal cover	Velocities do not require dissinction devices	
Sile Acronge II.5 Acronge dilutratedi. 1,14 Sile Acronge II.5 Manage dilutratedi. 1,14 Sile Acronge II.5 Sile Acronge dilutratedi. 1,14 A classified stream des role opsis Incoph project. Actastified stream des role opsis Incoph project. And Grader across of the project. Opc. Cond Creek to Cond River. Discretering across through project. Num of receiving works rew with reveals condrol across in condrol across. Discretering across through project. Num of receiving works rew with reveals condrol across. Discretering across through project. Num of receiving works rew with reveals condrol across. Discretering across through project. Num of receiving works rew with reveals condrol across. Discretering across through project. Num of receiving works rew with reveals condrol across. Discretering across through project. Num of receiving works rew with reveals condrol across. Discretering across through project. Num of receiving works reveals across. Discretering across through project. Num of receiving works reveals across. Discretering across through project. Num of receiving	Description of soils: (Provide classification and description of soils)	Velocity dissipation devices included in the design	
She rundf coefficient (preconstruction)	Site Acreage: 11.5	Other :	
Sectivities watered water delay watered and watered general watered as a coloured table as a section of the former of the solution of the former of the	Site rupoff coefficient (pre-construction), o upp		
	Site runor coerricient (post-construction): 0,192 Site runor coerricient (post-construction): .21		
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 A classified stream passes through project. Name Segment Number I. Otscharges fram first fighting cathlines and/or fire hydrant flushings. Verdie, netrore building, ond power where where delargers and scapes or and used on where splits or hotscales have not accurred (unless of start building). Verdie, netrore building frame, and power hydra builts have not accurred (unless of the direct frame). Pich weter used to control dust. Pick building frame, accurred to the site should be prohibited or minimized. If allowed is control to the solution is solven as control control dusts. Pick building frame, accurred to the solution is solven as control dust. Pick building frame, accurred to the solution and the independent on the solution and the independent on the solution and the independent on the solution. Pick as discontrol to the control to the independent on the solution and the independent on the solutis account and the independent on the solution and the independ	X A classified stream does not pass through project.	Off-site discharges are prohibited except as follows:	
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In an distribution with receive discordings Isolation of four distribution of fooding direct is to Control River. She Is In a Wunicipal Separate Storm Sever System (MS4). W54 Operator (namek. Isolation of fooding direct and solation of fooding direct originating from addate and solations. Isolation of fooding direct and solations and the disposed property and reported to the Kallowing of X4 nour period to the Kallowing Response Isolation of fooding direct and the spectral direct originating of the solation of fooding direct originating to the Kallowing of X4 nour period to the Kallowing Response Isolation of fooding direct originating to the Kallowing of X4 nour period to the Kallowing Response Isolation of fooding direct originating the solation of fooding direct originating the solation of fooding direct originating the solation of fooding direct origination or fooding direct originating the solation of fooding direct origination. Isolation of fooding direct origination or fooding direct origination or fooding direct origination or fooding direct origination. Isolation or fooding direc	Name of receiving waters that will a set in the set of	2. Vehicle, external building, and pavement wash water where deteraents and scaps are set	
all splited moderial base on energe vigent <u>bay space to the contract trace</u> and splited moderial base been removed. 3. Plain water used to control dust. 4. Plain water originating from padale water sources. 5. Uncontaininated groundwater, spling water or cocumulated stormwater. 5. Uncontaininated groundwater, spling water or cocumulated stormwater. 5. Uncontaininated groundwater, spling water or cocumulated stormwater. 5. Uncontaininated groundwater, spling water or cocumulated stormwater. 7. Other: They must not be located in a monorer so as not to containinate with process must be located in a monorer so as not to containinate surface water. They must not be located in a monorer so as not to containinate surface water. 1. Nature uses of concent fully drive shows not the SNP Liquid and included in the Inspections. Nissilis must be cleaned and disposed properly and reported to the Engineer. Report any refease of or door the reportable quantity during a 24 hour period to the Mational Response Center at H800-424-8802.	from disturbed greats of the project. Dry Correl Court to Court Di	used and where spills or leaks of toxic or hazardous materials have not occurred (unless	
 3. Pidh water used to control dust. 4. Pidh water used to control dust. 5. Pidh water used to control dust. 4. Pidh water used to control dust. 5. Pidh water used to control dust. 6. Pidh water used to control dust. 6. Pidh water used to control dust. 7. Other: Concrete truck wash water discharges on the site stould be provibiled or minimized. If allowed by the Engineer, they must be honologid in a numer so as not to contaminate with process must be should be provibiled or minimized. If allowed by the Engineer, they must be honologid in the inspections. The must not be located in reas or construction from inimized. A minimum. His includes applicate with a minimum. His includes applicate with allowed not the balance on an initiated. Not minimum. His includes applicate with allowed not disposed properly and reported to the Engineer. Report on minimized. A minimum. His includes applicate with allowed not disposed properly and reported to the Engineer. Report on minimized. Not minimum. His includes applicate with allowed to the location in disposed properly and reported to the Engineer. Report on minimized. Not minimum. His includes applicate with allowed to the location in disposed properly and reported to the Engineer. Report on minimized. Not minimum. His includes applicate with allowed to the location in disposed properly and reported to the Regioner. Report on the Regioner of Regionstruct to the National Response 500-000-000-000-000-000-000-000-000-000	Unit distributed dreas of the project: <u>Dry Lomai Creek to Comal River</u>	all spilled material has been removed).	
Site is in a Multicipal separator inomely. 4. Plain water ariginating from potable water sources. 5. Plain water ariginating from potable water sources. 6. Plain water ariginating from potable water sources. 6. Promotion or fooling arigina water, spring water or accumulated stormwater. 7. Others 7. Others 7. Others 7. They must not be located in areas of concentrated flow. Concrete truck washout locations and realisation on the SMPS Dayation t		3. Plain water used to control dust.	
S. Uncontaining de dir insider S. Uncontaining de grandwater, spring witter or accumulated stormwater. G. Foundation or fooling drains where flows are not containinated with process metricits such as solvents. 7. Other: Concrete truck wash water discharges on the site stould be prohibited or minimized. If allowed by the Engineer, they must be managed in a manner so as not to containinate surface water. There must be shown on the SW3P Layout and included in the Inspections. Hazardous material split/loak stall be prevented or minimized. N ar minimum, this Includes asphalt products, fuels, solis, luciforations, solvers, polits, acids, concrete cruck wash-add reported to the Engineer. Report any release of to above the reportable quantity during a 24 hour period to the National Response Enter at 1400-424-8802. Figure at 1400-424-8802. Substance in the integender in the integender in the integender in the integender in the National Response Revision Date: 08/04 6280 21 011 4 49	Sile is in a municipal Separate Storm Sewer System (MS4).	4. Plain water originating from potable water sources.	
6. Foundation or footing drains where flows are not contaminated with processs 7. Other;		5. Uncontaminated groundwater, spring water or accumulated stormwater.	
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7. Other:		materials such as solvents.	Texas Department of Transportation
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All splils must be cleaned and disposed properly and reported to the Engineer. Report any release at or above the reportable quantity during a 24 hour period to the National Response Center at 1-800-424-8802.		additives for soil stabilization. BMPs shall be implemented to the storage areas of these products	DIV. NO. FEDERAL AID PROJECT NO. NO.
release at or above the reportable quantity during a 24 hour period to the National Response State District county Center at I-800-424-8802. REVISION DATE: 08/04 6280 21 OI1 49		All spills must be cleaned and disposed properly and reported to the Engineer. Report any	6 KML: 6280-21-001 LP 337
Center at I-800-424-8802. Signature of Registrant & Date IEXAS SAI COMAL REVISION DATE: 08/04 6280 21 011 49		release at or above the reportable quantity during a 24 hour period to the National Response	William & Honny, P.E. 3/31/15 TEVIS CAT COUNTY
CONTROL SECTION JOB NO. REVISION DATE: 08/04 6280 21 011 49		Center at 1-800-424-8802.	Signature of Registrant & Date ILXAS SAI COMAL SHEET
REVISION DATE: 08/04 6280 21 011 49			CUNIROL SECTION JOB NO.
			6280 21 011 49

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BROADCAST SEED (PERM) (RURAL) (CLAY)5533SYSOIL RETENTION BLANKETS (CL 1) (TY A)2150SYTEMPORARY SEDIMENT CONTROL FENCE (INSTALL)300LFTEMPORARY SEDIMENT CONTROL FENCE (REMOVE)300LFROCK FILTER DAM (INSTALL) (TY 2)180SYROCK FILTER DAM (REMOVE)180SYFLOWABLE BACKFILL189CYFLEXBASE340CYVEGETATIVE WATERING80MG	BROADCAST SEED (PERM) (RURAL) (CLAY)5533SOIL RETENTION BLANKETS (CL 1) (TY A)2150TEMPORARY SEDIMENT CONTROL FENCE (INSTALL)300TEMPORARY SEDIMENT CONTROL FENCE (REMOVE)300ROCK FILTER DAM (INSTALL) (TY 2)180ROCK FILTER DAM (REMOVE)180FLOWABLE BACKFILL189FLEXBASE340VEGETATIVE WATERING80	SY SY LF
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VEGETATIVE WATERING 80 MG	VEGETATIVE WATERING 80	CY
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EXIST. STRIPING

LOOP 337 & RIDGE HILL

SW3P LAYOUT

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CONT	SECT	JOB		HIGHWAY
6280	21	011		LP 337
DIST		COUNTY		SHEET NO.
SAT		COMAL		50



ESTIMATED QUANTITIE	S		
DESCRIPTION		QUANTITY	UNIT
OMPOST MANUFACTURED TOPSOIL (BOS)	458	SY
ROADCAST SEED (PERM) (RURAL) (CLAY)	458	SY
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TO TOP OF SLOPE.

AT TOP OF SLOPE

EXHIBIT B TYPICAL SECTION FOR SEALING FEATURES IN ERODED DITCH

SHEET I OF I

FED. RD. DIV. NO.	PROJE	SHEET NO.	
6	6280	-21-0	01 52
STATE	STATE DIST. NO.		COUNTY
TEXAS	SAT	C	OMAL
CONT.	SECT.	JOB	HIGHWAY NO.
6280	21	001	LP 337





No warranty of any for the conversion "Texas Engineering Practice Act". . TXDOT assumes no responsibility ct results or damages resulting fro DISCLAIMER: The use of this standard is governed by the kind ande by TADDI for any purpose whatsoever of this standard to other formats or for incorre

Texas Departme	ent of Tra	nsp	ortation	, 1	Design Division Standard
TEMPOI SEDIME POLLUTION ROCK	CONT CONT CONT C(2)	E NI R	ROS D WA OL M 2 DAM 93	ION, TEF MEAS	SURES
FILE: ec293.dgn	DN: Tx	DOT	CK: HEJ	DW: BD	CK:
© TxDOT June 1993	CONT	SECT	JOB		HIGHWAY
REVISIONS	6280	21	00	1	LP 337
	DIST		COUNT	Y	SHEET NO.
	SAT		COM	AL	54

ATTACHMENT D GEOLOGIC ASSESSMENT TABLE

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GEO	LOGIC	ASSES	SMENT	TAE	BLE	PROJECT NAME: Loop 337 at Ridge Hill														
LOCATION						FEA	FEATURE CHARACTERISTICS									EVALUATION			SICAL	. SETTING
1A	19 *	10*	2A	28	3		4		5	5A	0	,	8A	88	9		10		1)	12
FEATURE. D		LONGITUDE	FEATURE TYPE	POINTS	FORMATION	OME	NSKINS (FEET)	TREND (CEOREES)	ş	DIENSITY (NOIFT)	APERTURE (FEET)	INFALL	RELATIVE INFE TRATION RATE	ΤΟΤΑ	SENSITIONTY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10		1				<40	>40	<1.6	<u>>1.5</u>	
F-1			SC	20	Кер	3.5	>6	2	n/a	0	n/a	n/a	N	20	40		x	х		Cliff
F-2			SC	20	Кер	1.5	2.5	0.5	n/a	0	n/a	n/a	N	20	40		x	х		Cliff
F-3			SC	20	Кер	1	>4	0.8	n/a	0	n/a	n/a	N	30	50		х	х		Cliff
F-4			SF	20	Кер	0.8	1	1.5	n/a	0	n/a	0.3	N	35	55		х	x		Hillside
F-5			SC	20	Кер	1	2	0.9	n/a	0	n/a	n/a	0	35	55		х	x		Hillside
F-6			SC	20	Кер	3	2.5	1.2	n/a	0	n/a	n/a	N	20	40		x	x		Cliff
F-7			SC	20	Кер	10	3	0.3	n/a	0	n/a	0.3	N	20	40		x	х		Cliff
F-8			SC	20	Кер	7	4	1.5	n/a	0	n/a	n/a	N	30	50		x	х		Cliff
F-9			SC	20	Кер	0.3	1.1	0.3	n/a	0	n/a	n/a	N	30	50		x	х		Cliff
F-10			SC	20	Кер	3	>8	1.2	N80E	0	n/a	n/a	N	30	50		х	х		Cliff
F-11			SC	20	Кер	3	>3	1	n/a	0	nla	n/a	N	30	50		х	х		Cliff
F-12			Z	30	Кер	12		3	n/a	0	n/a	0.3	N	20	50		x	х		Cliff
F-13			SC	20	Кер	0.4	0.8	1.8	n/a	0	л/а	n/a	0	20	40		х	x		Cliff
F-14			SC	20	Кер	0.2	0.5	0.3	n/a	0	n/a	n/a	N	20	40		x	х		Hillside
F-15			Z	30	Кер	12	80		N80W	0	0.5	0.7	N,O	35	65		x		х	Drainage
F-16			SC	20	Kep	0.3	1	3	n/a	0	n/a	n/a	N	20	40		х	х		Cliff
F-17			Z	30	Kep	12		4	n/a	0	n/a	0.3	N	20	50		х	х		Cliff
* DATUM	t	_																		
2A TYPE		TYPE		28	POINTS						8A	INFILLIN	łG							
С	Cave				30		N	None,	exposed	bedr	ock									
sc	Solution ca	avity			20		С	Coars	e - cobble	s, br	eakdow	n, sand, g	ravel							
SF	Solution-er	larged frac	ture(s)		20		0	Loose	or soft m	ud or	soil on	nanics le	aves si	icks, dark co	lors					
F	Fault		F	Fines	compact	ad cla	av-nich s	ediment	soil pro	file, grav or r	ed color	5								
0	Other natu	ral bedrock		v	Vegel	ation. Giv	e det	alls in n	arrative d	escontio	on on									
мв	Manmade feature in bedrock 30							Flows	tone, cem	ents.	cave d	eposits								
sw	Swallow hole 30							Other	materials	er 2008										
SH	Sinkhole		,																	
CD	Non-karst o	closed depr	ression		5	Γ				12 T	OPOGE	RAPHY								
7	Zone clust	ered or alig	ned featur	20	30		Clif	f Hi	liton H	lills	de F	rainad	ne Fl	oodolain	Stre	am	bed			

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature conditions that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date 7/20/11

Sheet 1 of 2

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



GEOL	OGIC /	ASSES	SMEN	T TAE	BLE		PR	OJE	CT NA	M	:	Loop 3	337 at	Ridge Hill						
LOCATION					FEA	FEATURE CHARACTERISTICS										EVALUATION			SETTING	
1A	18 *	10*	2A	28	3		4		5	5A	6	7	8A	88	•		10		11	12
FEATURE 10	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DMENSIONS (FEE		(FEET) TREND (DC 3REES)		NOW	DENSITY (NOIFT)	APERTURE (FEET)	MELL	RELATING NALTRATION RATE	TOTAL	SENSITINITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						×	Y	z		10						<40	>40	<1.8	>16	
F-18			SC	20	Кер	0.6	2	0.3	n/a	0	n/a	n/a	N	30	50		х	x		Cliff
F-19			C	30	Көр	12	>10	2	n/a	0	n/a	n/a	N	20	50		х	x		Cliff
F-20			SC	20	Кер	0.6	1	1	n/a	0	n/a	n/a	N	30	50		x	х		Cliff
F-21			Z	30	Кер	170		7	n/a	0	n/a	0.5	N	20	50		x	х		Cliff
F-22			SC	20	Кер	1.5	3	0.4	n/a	0	n/a	n/a	N	30	50		x	x		Cliff
F-23			SC	20	Кер	1	2	0.3	n/a	0	n/a	n/a	N	30	50		x	х		Cliff
F-24			SC	20	Kep	12	>4	0.8	n/a	0	n/a	0.8	N	30	50		x	x		Cliff
F-25			SC	20	Кер	20	>4	0.4	n/a	0	n/a	0.4	N	30	50		х	x		Cliff
MB-1			MB	30	Kep	20	1.5	unkr	n/a	0	n/a	n/a	O,C	35	65		х		x	Drainage
								1	~											
	_																			
* DATUM		_																		
2A TYPE		TYPE		28	POINTS	[8A	INFILLIN	IG							
С	Cave				30		N	None,	exposed	bedr	ock									
SC	Solution ca	vitv			20		С	Coars	e - cobble	s. br	eakdow	n, sand, d	ravel							
SE	Solution-en	larned frac	ture(c)		20	[0	0000	or soft m		e oil or	anice le	avec et	icko dark co	log					
c c	Foult	algoo nac	(0) 0(3)		20		с с	Einec	compacto	ho be	soli, or	adimont	coil prof							
0	Other galu	al hodrack	zv r Fines, compacted cray-non sediment, soil profile, gray or red colors																	
MB	Manmada	asture in h	e bedreek 20 EC Elevelane servede esta description																	
SW	Swallow bo	le	GUIUGR		30		Y I	Other	materiale	0113,	cave u	ahoaita								
SH	Sickhole				20	20 In Other IndendaS														
CD	Non-karet c	losed depr	noisea		20	Г				12 T	nence									
-	7	noseu uepr	0331011		5		Clif	e Di			ido F	Irainar		l nodoloin	Ctro	200	and			
۷	Zone, clust	ered or alig	ned featur	res	30	L	CIII	i, Mi	ntop, n	IIIS	iue, L	raina	je, Fi	oouplain	, stre	am)eq			

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

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



Date 7/20/11 Sheet 2 of 2

ATTACHMENT E PHOTOGRAPHS



1.) Feature F-1.



2.) F-2

PHOTOGRAPHS – ATTACHMENT E



3.) F-3 is a solution cavity located near base of road cut near a work area. It requires protection.



4.) F-4. Voids between fractures.

PHOTOGRAPHS – ATTACHMENT E


5.) F-5 is a soil piping feature in hill side.



6) F-6



7.). F-7 See tip of orange staff sticking out of feature in center of photo (arrow).



8) F-8 is a solution cavity near the base of a road cut.



9) F-9 is a solution cavity near the base of a road cut.



10) F-10 is an elongated solution cavity (see inset).



11) F-11 is a solution cavity with skunk hair in it.



12) F-12, a zone of subhorizontal solution cavities near the top of a road cut.



13) F-13, soil filled solution cavity.



14) F-14.



15) F-15 is zone of solution-enhanced fractures in a steep ditch. This zone requires protection during the construction phase.



16) MB-1. an exposed utility trench cut into bedrock. Natural gas line in inset.



17) F-16.



18) F-17 is a zone of solution-enhanced fractures and vuggy rock matrix in the top $\frac{1}{2}$ of outcrop shown here.



19) F-18 is a solution cavity at the base of the outcrop.



20) F-20 is a cave. The location of F-21 (obscured by grass) is indicated by arrow.



21) F-20 is a solution cavity located in the road cut below the cave opening .



22) F-21, a 170 foot section of road cut containing solution cavities and minor vuggy rock, begins at the staff and extends north (right). See Photo 23 for more.



23.) This photo shows the north end of F-21, a zone which begins at the staff and extends east (left). This is a continuation of area shown in Photo 22.



24) F-22, a solution cavity near the road cut base.



25) F-23 is a solution cavity .



26) F-24 is a solution cavity formed along bedding planes. It extends to the right, obscured by vegetation.



25) F-25 is a solution cavity formed along dipping bedding planes. It extends to the left out of view. The yellow marker is for the gas line exposed at MB-1 (Photo 16)





25) Viewing north across project area.



26) Viewing northeast across project area from F-16 area.

Bryah W. Shaw, Ph.D., P.E., Chairman Toby Baker, Commissioner Jon Niermann, Commissioner Richard A. Hyde, P.E., Executive Director



RECEIVED

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AUG 3 0 2017

Protecting Texas by Reducing and Preventing Pollution

COUNTY ENGINEER

August 25, 2017

Mr. Mario R. Jorge, P.E., District Engineer San Antonio District Texas Department of Transportation 4615 NW Loop 410 San Antonio, Texas 78229

Re: <u>Edwards Aquifer</u>, Comal County Loop 337 Hillcrest Dr to IH 35; From Wald Road to Gruene Road; New Braunfels, Texas Request for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer Edwards Aquifer Protection Program ID No. 13000460; RN104575741

Dear Mr. Jorge:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the Austin Regional Office by the Texas Department of Transportation on June 30, 2017. 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 WPAP. 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% of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

Previous plans for Loop 337 at Ridge Hill under EAPP ID 13-15040810 are superceded by this approval.

PROJECT DESCRIPTION

The project loops around the western edge of the older sections of the City. The proposed project converts existing Loop 337 to a 4-lane divided roadway by adding new lanes, and creating a 5-foot sidewalk within current right-of-way (ROW). The project ROW is approximately 144.1 acres within the Blieders Creek watershed.

The project is within the Recharge Zone and approves:

- Adding 2 lanes, shoulders, and a sidewalk in the project areas over the Recharge Zone,
- Constructing bridged lanes over Blieders Creek and the railroad,
- Adding engineered vegetated filter strips (VFS) to treat highway runoff and prevent infiltration to sensitive features,

TCEQ Region 11 • P.O. Box 13087 • Austin, Texas 78711-3087 • 512-339-2929 • Fax 512-339-3795

Mr. Mario R. Jorge Page 2 August 25, 2017

- Improving existing utilities, connecting driveways, and approaches,
- Re-stabilizing the ROW after construction.

Other roadway areas are being improved into the Transition Zone which drain away from the Recharge Zone.

In addition to the described activities, temporary erosion and sedimentation controls will be installed prior to commencing site disturbance and maintained during construction. No wastewater will be generated by this roadway project.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, engineered vegetated filter strips (VFS), in accordance with the TCEQ technical guidance document, <u>Complying with the Edwards</u> <u>Aquifer Rules: Technical Guidance on Best Management Practices (2005)</u>, will be installed to treat stormwater runoff.

The selected BMPs for this project are a placement of VFS as shown on the erosion control sheets. The amount of additional construction is 27.03 acres. Existing culverts and drainage channels will cross under Loop 337 and continue to carry and divert off-site runoff around the project. The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project. Treatment design calculations were sealed by Linda Cox P.E., on June 6, 2017 to demonstrate the total treatment load removal to exceed the required 24,262 lbs. increase caused by the project by 186 lbs. in those watershed areas traversed by the roadway.

GEOLOGY

According to the geologic assessment included with the application, there are several sensitive karst related features and the project drains to Blieders Creek watershed. The upper Person strata are prevalent on the site. Rock outcrops in the area consist of the Edwards limestone. The site visit of July 28, 2017 generally confirms the description given in the assessment. Most of the features are found in road cuts; the visible portions are located more than 3 feet above grade and are to be removed by lane construction. Void F-26 and swallow hole F-44 will remain and be protected by buffer areas upon treatment by BMP. F-42 is a manmade collapsed void to be filled by flowable fill with a concrete cap.

SPECIAL CONDITIONS

- I. Since this is a roadway construction project, deed recordation of this approval letter is not required.
- II. All construction activities, including staging, stockpiling, parking lots, and traffic shall be conducted inside the established ROW, and outside the 100-year floodplain, except in the case where proper BMPs are being installed or maintained, and approved prior to its installation.

Mr. Mario R. Jorge Page 3 August 25, 2017

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. 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.
- 3. 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.
- 4. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
- 5. 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. 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.
- 6. All borings with depths greater than or equal to 20 feet must be plugged with nonshrink 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:

- 7. 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.
- 8. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment.

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Mr. Mario R. Jorge Page 4 August 25, 2017

- 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 the Austin 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 evidence of wells exists. 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. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
- 13. 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.
- 14. 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:

- 15. 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 Austin Regional Office within 30 days of site completion.
- 16. 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

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Mr. Mario R. Jorge Page 5 August 25, 2017

responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer.

- 17. 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 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.
- 18. 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 Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
- 19. 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.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Kevin Lee Smith, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Shawn Stewart, Section Manager Austin Region Office Texas Commission on Environmental Quality

CSS/kls

Ms. Lynn Bumgaurdner, Water Section Manager, San Antonio Regional Office
Ms. Gina Salazar-Dounson, Texas Department of Transportation, San Antonio District
Mr. Garry Ford, P.E., City Engineer, City of New Braunfels
Mr. Thomas Hornseth, P.E., Comal County Engineer
Mr. H.L. Saur, Comal Trinity Groundwater Conservation District
Mr. Roland Ruiz, General Manager, Edwards Aquifer Authority