c. Contact in the notice

Prefix (Mr. Ms, Miss): Mr

First/Last Name: Pat Allen

Suffix (Jr, Sr, III): N/A Title: General Manager Credential: N/A

Organization Name: Green Valley Special Utility District

Phone No.: (830) 914-2330 Extension: N/A

d. Public place information

If the facility and/or outfall is located in more than one county, a public viewing place for each county must be provided.

Public Building name: N/A

Location within the building: N/A

Physical address of building: N/A

City: N/A County: N/A

Contact Name: N/A

Phone No.: N/A Extension: N/A

e. Bilingual notice requirements

For new permit applications, major amendment and renewal applications. Not applicable for minor amendment or minor modification applications.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice is required.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?

☐ Yes ■ No

(**If No**, alternative language notice publication is not required; skip to item 7. Regulated Entity and Permitted Site Information.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

☐ Yes ☐ No N/A

3. Do the students at these schools attend a bilingual education program at another location?

☐ Yes ☐ No N/A

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under *19 TAC §89.1205(g)*?

☐ Yes ☐ No N/A

5. If the answer is yes to 1, 2, 3, or 4, public notice in an alternative language is required. Which language is required by the bilingual program?

N/A

This section of the application is only used to determine if alternative language notice will be needed. Complete instructions on publishing the alternative language notice will be in your public notice package.

7. Regulated Entity and Permitted Site Information

(Instructions, Page 30)

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at:
http://www15.tceq.state.tx.us/crpub/index.cfm?fuseaction=regent.RNSearch

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

TCEQ issued RE Reference Number (RN): **RN:** N/A

a. State/TPDES Permit No.: N/A Expiration date: N/A

EPA Identification No. (TPDES Permits only): TX N/A

b. Name of project or site (the name known by the community where located):
Santa Clara Creek No. 1 - Wastewater Treatment Plant

c. Is the facility located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County?

☐ Yes ■ No

(**If Yes**, additional information concerning protection of the Edwards Aquifer may be required.)

d. Site location description information

Complete both sections, A and B. If the site does not have a physical address, check "No" in Section A and continue to Section B.

Section A: Site physical address.

Does the site have a physical address?

■ Yes ☐ No

Verify the address with USPS and proceed to Section B below. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergencies, or other online map tool to confirm an address.

Physical Address of Project or Site:

Street Number: 3930 Street Name: Linne Rd

City: Marion, TX ZIP Code: 78124

Section B: Site location information.

Is the location of the facility used in the existing permit correct?

☐ Yes ☐ No N/A

If the location description is not accurate or this is a new permit application, provide a written location access description to the site:

The facility is located at the southwest corner of the Linne Road and Interstate 10 intersection, approximately 3 miles south of Marion, TX in Guadalupe County.

(Ex.: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

e. City where the site is located or, if not in a city, what is the nearest city:

Marion, Texas

f. ZIP Code where the site is located: 78124

g. County where the site is located: Guadalupe

h. Latitude: 29.5253 Longitude: -98.1141

i. In your own words, briefly describe the primary business of the Regulated Entity: *(Do not repeat the SIC and NAICS code)*

N/A

j. Owner of treatment facility: Green Valley Special Utility District

Ownership of Facility: ■ Public ☐ Private ☐ Both ☐ Federal

k. Owner of land where treatment facility is/will be:

Green Valley Special Utility District

(If not the same as the facility owner, there must be a long term lease agreement in effect for at least six years. In some cases, a lease may not suffice - see instructions page 33.)

l. Owner of effluent disposal site:

(If not the same as the facility owner, there must be a long term lease agreement in effect for at least six years.)

m. Owner of sewage sludge disposal site:

Green Valley Special Utility District (Same property as proposed WWTP)

(Required only if authorization is sought in the permit for sludge disposal on property owned/controlled by the applicant.)

8. Discharge/Disposal Information

(Instructions, Page 34)

ALL permits complete the following

a. Is the facility located on or does the treated effluent cross Indian Land?

☐ Yes ■ No

b. Provide an **original** full size USGS Topographic Map with all applicable required information. Indicate by a check mark that the information is provided.

- ☑ Applicant's property boundary
- ☑ Treatment facility boundaries
- ☑ Labeled point of discharge and highlighted discharge route
- ☑ Onsite sewage sludge disposal site
- ☐ Effluent disposal site boundaries
- ☑ New and future construction
- ☑ 1 mile radius and 3 miles downstream information
- ☑ All ponds

c. If the existing permit contains an onsite sludge disposal authorization, is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No

If no, or if a new onsite sludge disposal authorization is being requested for the first time in this permit application, please give an accurate description.

N/A

TPDES permits complete the following

d. Is the point of discharge and the discharge route in the existing permit correct?

☐ Yes ☐ No N/A

If no, or a new or amendment permit application, please give an accurate description.

The effluent will discharge southwest of the facility and will travel approximately into Santa Clara Creek. The flow then travels approximately 4.4 miles south within Santa Clara Creek to Lower Cibolo Creek, segment 1902, of the San Antonio River Basin.

e. City or Town in which the outfall(s) is or will be located

Marion, Texas is the closest City Center to point of discharge

f. County where outfall(s) are located: Guadalupe

g. Outfall - Latitude: 29.5225 Longitude: -98.1179

Use degrees-minutes-seconds to the nearest second or decimal degrees to 4 decimal places (Ex: 30 - 10' - 25" or 30.1736).

h. Will the treated wastewater be discharged to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ■ No

If Yes, indicate by a check mark if:

☐ Authorization granted ☐ Authorization pending

(For new and amendments, provide copies of letters that show proof of contact and the approval letter upon receipt.)

i. For all applications involving an average daily discharge of 5 million gallons per day or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge.

Guadalupe, Wilson, Karnes, Goliad

TLAP permits complete the following

N/A

j. Is the location of the effluent disposal site in the existing permit accurate?

☐ Yes ☐ No

If no, or a new or amendment permit application, please give an accurate description.

N/A

k. City or Town in which the disposal site is or will be located: N/A

l. County where disposal site is located: N/A

m. Disposal site - Latitude: N/A Longitude: N/A

Use degrees-minutes-seconds to the nearest second or decimal degrees to 4 decimal places (Ex: 30 - 10' - 25" or 30.1736).

n. If a TLAP, describe the routing of effluent from the treatment facility to the effluent disposal site:

N/A

o. For TLAP applications please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:

N/A

9. Miscellaneous Information

(Instructions, Pages 37)

a. List each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application:

N/A

b. Do you owe fees to the TCEQ?

☐ Yes ■ No

If yes, please provide:

Account number: N/A Amount past due: N/A

c. Do you owe any penalties to the TCEQ?

☐ Yes ■ No

If yes, please provide:

Enforcement order number N/A Amount past due N/A

10. Signature Page

(Instructions, Page 39)

Permit Number_____

Applicant Green Valley Special Utility District

Certification:

I/We certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under *30 Texas Administrative Code §305.44* to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Print or Type Signor's Name: Dennis Dreyer

Provide Signor's Title: President

Signature *(Use blue ink)*: Dennis Dreyer

Date: 1-15-15

Subscribed and Sworn to before me by the said Dennis Dreyer

on this 15th day of January, 20 15.

My commission expires on the 17th day of March, 20 16.

Notary Public Signature: Tracy S. Rappmund [SEAL]

TRACY S. RAPPMUND
Notary Public, State of Texas
My Commission Expires
March 17, 2016

Guadalupe County, Texas

If co-permittees are necessary, each entity must submit an original, separate signature page.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC

TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:
Application type: ☐ Renewal ☐ Major Amendment ☐ Minor Amendment ☐ New
County:
Admin Complete Date:
Agency Receiving SPIF:
☐ Texas Historical Commission ☐ U.S. Fish and Wildlife
☐ Texas Parks and Wildlife Department ☐ U.S. Army Corps of Engineers

Supplemental Permit Information

(Instructions, Page 40)

This form applies to TPDES permit applications only. The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed and/or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

Do not refer to a response of any item in the permit application form. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee: Green Valley Special Utility District

2. Permit No. WQ_____(EPA ID No.) TX_____

3. Address of the project (location description that includes street/highway, city/vicinity, & county).

The facility is located at the southwest corner of the Linne Road and Interstate 10 intersection, approximately 3 miles South Marion, TX in Guadalupe County

4. Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Name: Pat Allen Phone number: (830) 914-2330
Company: Green Valley SUD Fax number: (830) 420-4138
Street No.: 529 Street name: South Center
Street type: Street
P.O. Box: 99 Email: pallen@gvsud.org
City: Marion State: TX Zip code: 78124

5. List the county in which the facility is located.

Guadalupe

6. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

7. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in *30 TAC Chapter 307*). If known, please identify the Segment Number.

The effluent will discharge southwest of the facility and will travel approximately into Santa Clara Creek. The flow then travels approximately 4.4 miles south within Santa Clara Creek to Lower Cibolo Creek, segment 1902, of the San Antonio River Basin.

8. Please provide a separate 7.5 minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required **in addition to** the map in the administrative report).

9. Please provide original photographs of any structures 50 years or older on the property. None Known

10. Does your project involve any of the following? **If Yes,** check the appropriate boxes.

- [x] Proposed access roads, utility lines, construction easements
- [ ] Visual effects that could damage or detract from a historic property's integrity
- [ ] Vibration effects during construction, or as a result of project design
- [x] Additional phases of development that are planned for the future
- [ ] Sealing caves, fractures, sinkholes, other karst features
- [x] Disturbance of vegetation or wetlands

11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features).

The site will require approximately 6 surface acres to be impacted with construction activities. Depth of excavation will be minimized, only to a depth required to provide a stable base for the proposed facility.

12. Describe existing disturbances, vegetation and land use.

The Wastewater Treatment Plant site vegetation is made of up trees and assorted grasses. The site does not appear to be disturbed, having no existing roads.

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS.

13. List construction dates of all buildings and structures on the property.

All structures on the property appear to be severely dilapidated and made of sheet metal and wood timbers.

14. Provide a brief history of the property, and name of the architect/builder, if known.

The property has been predominately used for agricultural purposes throughout recent history. The property is undeveloped with the exception of several dilapidated sheds and various buildings.

DOMESTIC ADMINISTRATIVE REPORT 1.1

The following is required for new and amendment applications.

1. Affected Landowner Information

(Instructions, Page 41)

a. Landowner map components

Indicate by a check mark that the landowner map or drawing, with scale, includes the following, as applicable.

- ☒ The applicant's property boundaries
- ☒ The facility site boundaries within the applicant's property boundaries
- ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
- ☒ The property boundaries of all landowners surrounding the applicant's property
- ☒ The point(s) of discharge and highlighted discharge route clearly shown for one mile downstream
- ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
- ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay estuary, or affected by tides
- ☐ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site), all evaporation/holding ponds within the applicant's property
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located
- ☒ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
- ☒ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located

b. Landowner list media

Indicate by a check mark in which format the landowners list is submitted:

☒ Read/Writeable CD or Disk ☐ 4 sets of labels

c. Cross-referenced landowner list

Has a separate list with the landowners' names and mailing address cross-referenced to the landowners map been provided.

☒ Yes ☐ No

d. Landowner data source

Provide the source of the landowners' names and mailing addresses.

Guadalupe County Appraisal District

e. School fund land

As required by *Texas Water Code §5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If yes, provide the location, foreseeable impacts, and effects this application has on the land(s).

N/A

2. Buffer Zone Map

(Instructions, Page 44)

a. Buffer zone map components

Provide a buffer zone map on 8.5 x 11-inch paper. The applicant's property line and the buffer zone line may be distinguished by using dashes or symbols and appropriate labels. Indicate by a check mark that all the following information is included on the map.

- ☒ The applicant's property boundary
- ☒ The required buffer zone
- ☒ Each treatment unit
- ☒ The distance from each treatment unit to the property boundaries

b. Buffer zone compliance method

How will the buffer zone requirement be met?

- ☒ Ownership
- ☐ Restrictive easement
- ☐ Nuisance odor control
- ☐ Variance

c. Unsuitable site characteristics

Does the facility comply with the requirements regarding unsuitable site characteristic found in *30 TAC §309.13(a) through (d)*?

☒ Yes ☐ No

3. Original Photographs

(Instructions, Page 48)

- ☑ Provide original ground level photographs. Indicate by a check mark that the following information is provided.
- ☑ At least one original photograph of the new or expanded treatment unit location
- ☑ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☑ At least one photograph of the existing/proposed effluent disposal site
- ☑ A plot plan or map showing the location and direction of each photograph

Texas Commission on Environmental Quality

Water Quality Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

- Complete items 1 through 5 below.
- Staple your check in the space provided at the bottom of this document.
- Do not mail this form with your application form.
- Do not mail this form to the same address as your application.

Mail this form and your check to:

BY REGULAR U.S. MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: WQP Wastewater Permit No: WQ00

1. Check / Money Order No: Check #57180
2. Amount of Check/Money Order: $2050.00
3. Date of Check or Money Order: February 13, 2015
4. Name on Check or Money Order: Green Valley Special Utility District
5. APPLICATION INFORMATION

If the check is for more than one application, list each Project/Site (RE) Name and Physical Address exactly as provided on the application. DO NOT SUBMIT A COPY OF THE APPLICATION WITH THIS FORM AS IT COULD CAUSE DUPLICATE PERMIT ENTRIES.

See Attached List of Sites (If more space is needed, you may attach a list.)

Project/Site (RE) Name: _____

Project/Site (RE) Physical Address: _____

57180

GREEN VALLEY SPECIAL UTILITY DISTRICT
P.O. BOX 99
MARION, TEXAS 78124
(830) 914-2330

MARION STATE BANK
88-1157-1149

DATE	AMOUNT
Feb 13, 2015	2,050.00

PAY Two Thousand Fifty and 00/100 Dollars

TO THE ORDER OF: TCEQ
P.O. Box 13089
Austin, TX 78711

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Security features. Details on back.

Exhibit D

Garry Montgomery

From: Garry Montgomery
Sent: Monday, April 04, 2016 11:39 AM
To: 'Larry Diamond'
Subject: GVSUD - Permit No. WQ0015360001
Attachments: TCEQ 2015.05.04 Part A.pdf

Larry,

Attached is Part A of our response that you requested this morning. Please let me know if you need any other information. I will send a second email with the second section and we are preparing the regionalization map now. I will send it out later today or tomorrow.

Thanks,

Garry Montgomery, P.E., CFM, SIT
Engineer IV

RIVER CITY ENGINEERING
Civil, Environmental and Surveying

1011 W. County Line Rd.
New Braunfels, Texas 78130
Office: 830-626-3588 x 153
garry@rcetx.com
www.rcetx.com

Exhibit D

RIVER CITY ENGINEERING
CIVIL, ENVIRONMENTAL & CONSULTING
Texas Registered Engineering Firm F-1546

May 1, 2015

Lisa Iroanya
Municipal Permits Team
Water Quality Division
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Re: Application for Proposed Green Valley Special Utility District Wastewater Permit No. WQ0015360001
(CN600684294)
(RN108208646)

Dear Ms. Iroanya:

This letter is in response to your April 10, 2015 comments. A summary of your comments and how they were addressed are provided below.

In addition, after receiving your comments we have revised the proposed Interim Phase design flow to 2.5 MGD in lieu of 2.0 MGD. We have also removed the request for "Land Application for Beneficial Use Authorized in the Wastewater Permit" as a sludge disposal method. Instead, we are requesting to add "Permitted or Registered Land Application Site for Beneficial Use" as a sludge disposal method. Page 13 of the administrative report, and Pages 1, 12, 13, 20, 22, 24, & 26 of the technical report, along with updated USGS Maps, have been revised to reflect these changes and are also attached to this letter.

1. Item 6.d. on page 10 of the Administrative Report: The public place information was not provided. Please provide the name of the building and address of a building supported by taxpayer funds in the county of the proposed facility. Please provide this information and resubmit the corrected page.

    - *Attached is revised page 10 of the Administrative report which includes the public place information.*

2. Item 7.d. Section A. on page 12 of the Administrative Report: We were unable to verify the street address of 3930 Linne Road, Marion, Texas 78124 with the US Postal Service. If this is a 911 address please state so in your response, otherwise, please confirm that the address provided is a valid address and resubmit the corrected page.

    - *This is a 911 address. See attached verification letter.*

3. Signature page on page 17 of the Administrative Report: You provided a signature page that is a copy of the original. The agency requires the original, notarized, wet signatures. Please resubmit the signature page containing original, notarized, wet signatures.

    - *Attached are the signed originals of the Administrative Report.*

4. Item 1.a. on page 21 of the Administrative Report 1.1: Please combine the two affected landowners' maps into one map (to scale) that shows all applicable items on page 21 of the administrative report.

    - *Please see attached revised Landowners Map, with revised cross-reference list. Note that since we are withdrawing request to Land apply sludge, we have removed the 0.5 Mile buffer and associated affected land owners.*

5. Item 1.c. on page 22 of the Administrative Report 1.1: The landowner list media is was not formatted in Avery 5160 format. Please resubmit the landowner list media CD-RW labeled with the applicant name and permit number. Within the file stored on the CD- RW, identify the name and addresses of each landowner in Avery 5160 format, in capitalized font, containing no punctuation, and the appropriate two-character abbreviation used for the state. Each entity listed must be blocked and spaced as shown.

    - *A revised CD-RW with landowners list in the appropriate format is attached.*

6. Item 1.c. on page 22 of the Administrative Report 1.1: The landowner's cross reference list is provided, however, with the edits to the landowners map a corrected cross reference list is required. Please resubmit the corrected cross reference list.

    - *Attached is a revised cross-reference list which reflects changes made to the landowners map as requested in comment #4*

7. Item 10.a. on pages 12-13 of the Technical Report: The sewage sludge management and disposal information was not provided. Please complete this information. If the sewage sludge is transported to another wastewater treatment facility or permitted sludge processing facility a written statement or copy of a contractual agreement confirming the identified wastewater treatment facility will accept sludge is required. Please complete the missing information and submit the corrected page.

   - *Please see attached pages 12 & 13 of the Technical Report.*
   - *Since this permit application is for a proposed wastewater treatment plant, it is not known at this time which treatment facility or permitted sludge processing facility sludge will be hauled to. We are requesting to leave this item open, however a TCEQ Permitted Site and Hauler will be used, and a written statement and/or copy of the contractual agreement will be provided to TCEQ prior to any sludge being hauled to these facilities.*

8. Item 11. A. on page 13 of the Technical Report: You provided a sludge landowners map and checked "Land application for beneficial use authorized in wastewater permit" as the sludge disposal method. Are you requesting to include authorization to land apply sewage sludge for beneficial use? If so, please complete the Application for Permit for Beneficial Land Use of Sewage Sludge (Form No. 10451).

   - *We are no longer requesting authorization to land apply sewage sludge for beneficial use as a sludge disposal method.*

9. A preliminary technical review was performed by the technical staff and it has been determined that additional information needs to be addressed before the application can be declared administratively complete or technically complete. Please provide a complete response to each item identified in Attachment 1 of this letter.

   - *The preliminary technical review comments are listed below, along with how each of those comments were addressed.*

10. The following is a portion of the Notice of Receipt of Application and Intent to Obtain a Water Quality Permit. Please read it carefully and indicate if it contains any errors or omissions.

    - *We take no exceptions to the portion of the Notice of Receipt of Application and Intent to Obtain a Water Quality Permit, provided the "location to be verified" and "at a location to be determined" sections are updated in accordance to our responses to comments #1 & #2.*

Preliminary Technical Review Comments:

1 Please include dates for this item. Dates of construction and completion were included in Technical Report 1.1. Include those in a new page 1 of the Technical Report.

- *Please see attached revised Page 1 of the Technical Report.*

2 More details are needed in an attachment for this response. Number of LUE or connections for each phase are needed on a per year continuing. Normally this is included as a table with build-outs expected each year. If some of the expected contributions are from non-residential sources also include those. Give justification for all phases including the Final phase of 5 MGD.

- *Please see attached LUE projections for the proposed WWTP.*

3 Technical Report 1.1, Item 2c - Include information for all phases not just for the initial proposed phase.

- *See attached tables which includes information for the Initial, Interim, and Final phases. Also included is a revised page 23 of the technical report.*

4 There was no TCEQ Form No.10451 in my copy of the permit. Is beneficial use authorization for land adjacent to the treatment plant being requested? If it is then all Form No. 10451 with all of the required information is necessary. If it is not, then please submit a revised page 26 to indicate this.

- *We are withdrawing our request to authorize land applying sludge for beneficial use on land adjacent to the treatment plant. Please see revised page 26 of the Technical Report.*

5 I only found design calculations for the proposed 5 MGD phase. Please include design calculations for each proposed phase.

- *Please see attached design calculations for each of the proposed phases.*

6 I only located the flow diagram for the initial plant phase. Please submit flow diagrams for the 2 MGD propose phase and the 5 MGD proposed phase.

- *Please see attached flow diagrams for all phases.*

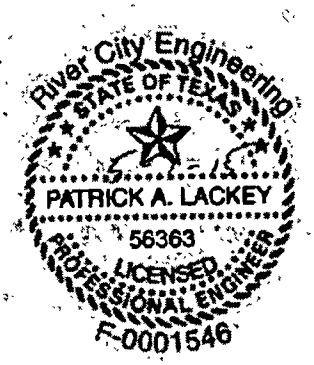
7. Sewage sludge management plans are needed for each phase. I did not locate any. There are examples of plans in the TCEQ form 10053ins as Example 5.

   - *Please see attached Sewage Sludge Management Plan for each phase.*

Two additional copies of the complete response are attached. If you have any further questions or need additional information, please do not hesitate to contact us.

Sincerely,

Patrick A. Lackey, P.E.



c. Contact in the notice

Prefix (Mr. Ms, Miss): Mr

First/Last Name: Pat Allen

Suffix (Jr, Sr, III): N/A Title: General Manager Credential: N/A

Organization Name: Green Valley Special Utility District

Phone No.: (830) 914-2330 Extension: N/A

d. Public place information

If the facility and/or outfall is located in more than one county, a public viewing place for each county must be provided.

Public Building name: Green Valey Special Utility District - Main Office

Location within the building: Front Desk

Physical address of building: 529 South Center Street

City: Marion County: Guadalupe

Contact Name: Pat Allen

Phone No.: 830-914-2330 Extension: N/A

e. Bilingual notice requirements

For new permit applications, major amendment and renewal applications. Not applicable for minor amendment or minor modification applications.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice is required:

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?

☐ Yes ■ No

(**If No**, alternative language notice publication is not required; skip to item 7. Regulated Entity and Permitted Site Information.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

☐ Yes ☐ No N/A

Exhibit D

Guadalupe County
Road & Bridge Department

Mark Green, Administrator
Roger Hurt, Assistant Administrator

2/20/2015

Green Valley Special Utility District,
529 South Center Street (PO Box 99)
Marion, TX 78124

RE: ADDRESS ASSIGNMENT VERIFICATION

To Ms/Mr. Green Valley Special Utility District

This notice is to inform you of your physical location address. The address assigned to the location is:

3930 Linne Rd

Please display this address on your structures and/or driveway with 3" or larger reflective numbers so emergency personnel can easily locate these structures in an emergency. **Please check with your local post office before using this new address for mailing purposes.** If you receive mail at a post office box, your mailing address will not change. In this case, the address listed above will be used for location purposes only.

If you have any questions regarding this assignment, please contact me at (830)379-9721 or (830) 379-9761

Thank you,

Senisa Blandford
Address Coordinator

78155
2G0313-0000-00600 & 2G0313-0000-0280 (Split-out-of)

****Note: Any new driveways entering *public* right-of-ways need to be permitted through this office, the Texas Department of Transportation or a municipality. New driveways entering private lanes or private drives do not need a permit.****

Office: (830) 379-9721
Fax: (830) 372-3249
2605 N. Guadalupe
Seguin, TX 78155-7356

REQUEST FOR 911 LOCATION ADDRESS **Date:**

GUADALUPE COUNTY ROAD & BRIDGE
2605 N. Guadalupe St.
Seguin, TX 78155
Phone (830) 379-9721
Fax (830) 372-3249

Read Instructions Completely
1. Please complete Step 1 & 2 completely.
2. Directions to the site and a map are mandatory.
3. In most cases, the address will be determined based on where the driveway makes contact with the public or private road. It is important that the driveway be marked if it doesn't already exist.
4. Please provide the Guadalupe Appraisal account number so that the parcel can be located.
5. If the land has just been purchased, provide the previous owner's name.
6. Addresses are assigned on Fridays by 5:00p.m.

NOTE: If all of the steps are not filled out completely this may cause a delay in the address assignment.

Request By:	Company Name:	Contact Person:
GARRY MONTGOMERY	Green Valley Special Utility District	PAT ALLEN

Purchased Date (if a recent purchase, include prior owner's name): MURPHEY JOANN F & CLAUDETTE JUNE TURK

STEP 1: Owner's name and address

Owner's Name: Green Valley Special Utility District

Renter's Name:

Current Mailing Address (number and street): 529 South Center Street, PO. BOX 99

City, State, Zip Code: Marion, TX 78124 | Phone (area code and number): (830) 914-2330

Guadalupe County Appraisal District account number (if known): 70990 AND 70940

STEP 2: Description of Property/structure

Subdivision Name:	Unit #:	Blk:	Lot:

Acres: 65.000 AC

Street or road location: LINNE RD @ IH 10

Describe the structure to be addressed (example residence, single-wide mobile home, future homesite): FUTURE PLANT FACILITIES

Is this structure going to be your homesite? NO

STEP 3: Directions to structure

Directions to structure
Head west on I-10 Frontage Rd, Turn left onto the ramp to Linne Rd 0.1 mi,
Turn right onto Linne Rd 0.1 mi OR Head west on I-10 Frontage Rd, Turn right onto the Farm to Market Road 465 ramp to Marion 0.1 mi, Turn right onto Linne Rd 0.3 mi

STEP 4: Map to property

Draw directions to the property on reverse side. SEE ATTACHED SURVEY

STEP 5: Sign and date

Authorized signature Sign here G Montgomery | Date: 02/18/2015

FOR OFFICE USE ONLY:

Notify:

☐ Owner ☐ Post Office ☐ Other: _____ ☐ Ck - ____

GCAD Account Number:	Map/Plat #
2G0313-0000-001000-0-00 & 2G03	13-000-02800-0-00 (Split out of)

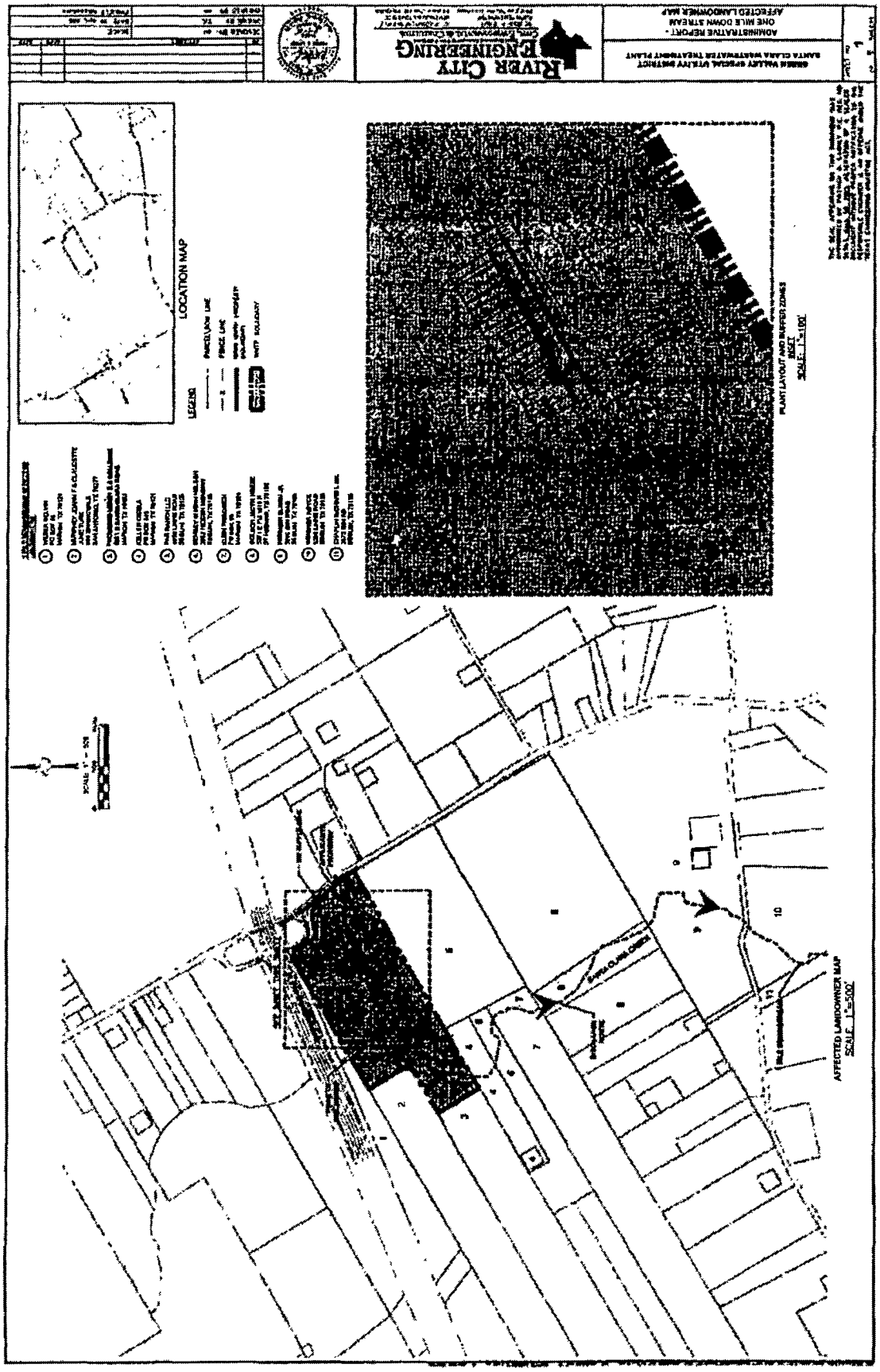
ASSIGNED ADDRESS: 3930 Linne Rd.

POST OFFICE CARRIER:	ZIP CODE:
Seguin	78155

ASSIGNED BY:	DATE:
Susan Blandford	2/20/2015

GREEN VALLEY SUD
SANTA CLARA CREEK NO. 1 WASTEWATER TREATMENT PLANT
TCEQ DISCHARGE PERMIT PERMIT
AFFECTED LANDOWNERS LIST

#	OWNER	MAILING ADDRESS
1	WEBER DELVIN	PO BOX 95 MARION, TX 78124
2	MURPHEY JOANN F & CLAUDETTE JUNE TURK	606 SPRINGVALE SAN ANTONIO, TX 78277
3	FROBOESE LEROY E & NELLEENE	4251 S SANTA CLARA ROAD MARION, TX 78124
4	KELLER GISELA	PO BOX 846 MARION, TX 78124
5	PNR RANCH LLC	4080 LINNE ROAD SEGUIN, TX 78155
6	DEMSEY SHAWN NELSON	2982 HIDDEN MEADOW SEGUIN, TX 78155
7	KLEIN FRIEDRICH	PO BOX 95 MARION, TX 78124
8	GOLSON JACYN HOESE	5271 E FM-1518 N ST HEDWIG, TX 78152
9	WIEDNER ELMON JR	3240 GIN ROAD SEGUIN, TX 78155
10	WIEDNER ROYCE	5200 LINNE ROAD SEGUIN, TX 78155
11	CHAPLIN RICHARD L SR	3575 GIN RD SEGUIN, TX 78155


RIVER CITY ENGINEERING
ADMINISTRATIVE REPORT -
ONE MILE DOWN STREAM
AFFECTED LANDOWNER MAP
SANTA CLARA WASTEWATER TREATMENT PLANT
LOCATION MAP
LEGEND
PARCELLION LINE
FENCE LINE
PLANT LAYOUT AND BUFFER ZONES
SCALE: 1"=100'
AFFECTED LANDOWNER MAP
SCALE: 1"=500'

Aluminum, mg/l					
Alkalinity ($CaCO_3$), mg/l					

9. Facility Operator

(Instructions, Page 58)

Provide the name, license classification and level, and operator license number for the facility operator:

Not known at this time, however a certified operator will be used.

10. Sewage Sludge Management and Disposal

(Instructions, Page 58)

a. Sludge disposal method

To Be Determined

Check the current and anticipated sludge disposal method or methods. More than one method can be checked.

- [x] Permitted landfill
- [x] Permitted or Registered land application site for beneficial use
- [ ] Land application for beneficial use authorized in the wastewater permit
- [ ] Permitted sludge processing facility
- [ ] Marketing and distribution as authorized in the wastewater permit
- [ ] Composting as authorized in the wastewater permit
- [ ] Permitted surface disposal site (sludge monofill)
- [ ] Surface disposal site (sludge monofill) authorized in the wastewater permit
- [x] Transported to another permitted wastewater treatment plant or permitted sludge processing facility (a current statement or agreement is required, see the item below)
- [ ] Written statement/contractual agreement from the wastewater treatment plant or permitted sludge processing facility accepting the sludge is attached
- [ ] Other method (provide description):

b. Sludge disposal site

Provide the disposal site name: Not known at this time, however a TCEQ permitted site will be used.

TCEQ permit or registration number: Not Known at this time, however a TCEQ permitted site will be used.

County where disposal site is located: Not known at this time

c. Sludge transportation method

Provide the method of transportation (truck, train, pipe, other): Truck

Name of the hauler: Not known at this time, however a TCEQ permitted hauler will be used

Hauler registration number: Not known at this time, however a TCEQ permitted hauler will be used

Transported as: ☐ liquid ☐ semi-liquid ■ semi-solid ☐ solid

Land application for: ☐ reclamation ☐ soil conditioning

11. Permit Authorization for Sewage Sludge Disposal

(Instructions, Page 58)

a. Beneficial use authorization

Does the existing permit include authorization for land application of sewage sludge for beneficial use?

☐ Yes ■ No No Existing Permit

If yes, are you requesting to continue this authorization to land apply sewage sludge for beneficial use?

☐ Yes ■ No No Existing Permit

If yes, is the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)** attached to this permit application (see the instructions for details)?

☐ Yes ☐ No

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
DOMESTIC WASTEWATER PERMIT APPLICATION

DOMESTIC TECHNICAL REPORT 1.0

The Following Is Required For All Applications

Renewal, New, And Amendment

1. Permitted or Proposed Flows

(Instructions, Page 49)

Table 1.0(1) - Existing/Interim I Phase

Design Flow (MGD)	0.25
2-Hr Peak Flow (MGD)	0.75
Estimated construction start date	01/2016
Estimated waste disposal start date	08/2016

Table 1.0(2) - Interim II Phase

Design Flow (MGD)	2.5
2-Hr Peak Flow (MGD)	7.5
Estimated construction start date	01/2019
Estimated waste disposal start date	01/2020

Table 1.0(3) - Final Phase

Design Flow (MGD)	5.0
2-Hr Peak Flow (MGD)	15.0
Estimated construction start date	01/2044
Estimated waste disposal start date	01/2045

Current operating phase: N/A

Provide the startup date of the current phase: N/A

Provide the startup date of the facility: Pending Permit Approval

GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD) PROJECTED FLOWS

Green Valley Special Utility District (GVSUD) has a wastewater CCN area of approximately 73,175 acres. GVSUD CCN boundary generally overlaps their water CCN boundary, except for the Northeast & Northwest parts of their water CCN area. This was helpful in identifying land use and estimating EDU/connection's per year to help size the capacity and loading of the proposed plant. To project future plant capacity and EDU's/connections per year, a 10% growth rate was used. This growth rate is similar to the growth rates of nearby municipalities that provide wastewater service. This growth rate is also similar to the growth rate of GVSUD's water system in areas where wastewater service is available over the past 10 to 15 years. This growth rate, along with land use maps, was used to determine EDU/ connections per year on a continuing basis. The Santa Clara Creek Watershed map provided in the permit provides locations of existing city limits and extraterritorial jurisdictions of surrounding municipalities.

The proposed initial phase is 0.25 MGD. GVSUD currently has an application for wastewater service for a proposed development on a tract of land to the west and up gradient of the proposed wastewater plant within the Santa Clara Creek Watershed. The proposed development is seeking capacity for an average flow 130,000-gpd (approx. 530 EDU's). The development of this tract is anticipated to take four years. The initial phase includes commercial/industrial developments along with other anticipated initial connections, and is anticipated to have approximately 950 EDU's (228,000-gpd).

The proposed interim phase is for 2.5 MGD, and the Final Phase is for 5 MGD. As mentioned above, a 10% growth rate was used to determine EDU/connections to the plant on a per year basis and the results are provided below.

Green Valley Special Utility District
Santa Clara Creek WWTP No. 1

Year	Land Use	Projected EDU's	Projected Volumes (GPD)
Initial Phase: 0.25 MGD			
2016	Residential/Commercial Land Use	205	49,200
2017	Residential/Commercial Land Use	430	103,200
2018	Residential/Commercial Land Use	660	158,400
2019	Residential/Commercial Land Use	952	228,360
Phase II: 2.5 MGD			
2020	Residential/Commercial Land Use	1,047	251,196
2021	Residential/Commercial Land Use	1,151	276,316
2022	Residential/Commercial Land Use	1,266	303,947
2023	Residential/Commercial Land Use	1,393	334,342
2024	Residential/Commercial Land Use	1,532	367,776
2025	Residential/Commercial Land Use	1,686	404,554
2026	Residential/Commercial Land Use	1,854	445,009
2027	Residential/Commercial Land Use	2,040	489,510
2028	Residential/Commercial Land Use	2,244	538,461
2029	Residential/Commercial Land Use	2,468	592,307
2030	Residential/Commercial Land Use	2,715	651,538
2031	Residential/Commercial Land Use	2,986	716,692
2032	Residential/Commercial Land Use	3,285	788,361
2033	Residential/Commercial Land Use	3,613	867,197
2034	Residential/Commercial Land Use	3,975	953,916
2035	Residential/Commercial Land Use	4,372	1,049,308
2036	Residential/Commercial Land Use	4,809	1,154,239
2037	Residential/Commercial Land Use	5,290	1,269,663
2038	Residential/Commercial Land Use	5,819	1,396,629
2039	Residential/Commercial Land Use	6,401	1,536,292
2040	Residential/Commercial Land Use	7,041	1,689,921
2041	Residential/Commercial Land Use	7,745	1,858,913
2042	Residential/Commercial Land Use	8,520	2,044,805
2043	Residential/Commercial Land Use	9,372	2,249,285
2044	Residential/Commercial Land Use	10,309	2,474,213
Phase III: 5 MGD			
2045	Residential/Commercial Land Use	11,340	2,721,635
2046	Residential/Commercial Land Use	12,474	2,993,798
2047	Residential/Commercial Land Use	13,722	3,293,178
2048	Residential/Commercial Land Use	15,094	3,622,496
2049	Residential/Commercial Land Use	16,603	3,984,746
2050	Residential/Commercial Land Use	18,263	4,383,220
2051	Residential/Commercial Land Use	20,090	4,821,542
2052	Residential/Commercial Land Use	22,099	5,303,696

Average Influent Loading (lbs/day = total average flow x average BOD_5 conc. X 8.34)

730 #/D Initial Flow

Provide the source of the average organic strength or BOD_5 concentration.

Engineer opinion and experience of comparable facilities.

If the increased flow will impact the existing organic strength, the following table must be completed.

c. Proposed organic loading

This table must be completed if applying for a new permit or if increased flow will impact organic loading.

Table 1.1(4) – Design Organic Loading SEE ATTACHED TABLES

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/l)
Municipality	See Attached Tables	
Subdivision (Residential)		
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW		
AVERAGE BOD_5		

DESIGN ORGANIC LOADING - INITIAL PHASE

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/L)
Municipality		
Subdivision (Residential)	0.05	350
Trail Park - transient		
Mobile Home Park		
School with cafeteria and shower		
School with cafeteria and no shower		
Recreational park, overnight use		
Recreational Park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing Home		
Other	0.20	350

TOTAL FLOW ***0.25***

AVERAGE BOD_5 ***350***

DESIGN ORGANIC LOADING - INTERIM PHASE

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/L)
Municipality		
Subdivision (Residential)	1.75	350
Trail Park - transient		
Mobile Home Park		
School with cafeteria and shower	0.25	350
School with cafeteria and no shower		
Recreational park, overnight use		
Recreational Park, day use	0.01	
Office building or factory	0.05	350
Motel		
Restaurant	0.05	
Hospital		
Nursing Home		
Other	0.39	350
TOTAL FLOW	***2.50***	
AVERAGE BOD_5		***350***

DESIGN ORGANIC LOADING - FINAL PHASE

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/L)
Municipality		
Subdivision (Residential)	3.90	350
Trail Park - transient		
Mobile Home Park		
School with cafeteria and shower	0.25	350
School with cafeteria and no shower		
Recreational park, overnight use		
Recreational Park, day use	0.01	350
Office building or factory	0.05	350
Motel		
Restaurant	0.05	350
Hospital		
Nursing Home		
Other	0.74	350
TOTAL FLOW	***5.00***	
AVERAGE BOD_5		***350***

b. Wind rose

☒ Indicate by a check mark that a wind rose has been submitted.

6. Permit Authorization for Sewage Sludge Disposal

(Instructions, Page 67)

a. Beneficial use authorization

Are you requesting to include authorization to land apply sewage sludge for beneficial use on property located adjacent to the wastewater treatment facility under the wastewater permit:

☐ Yes ☒ No

If yes, is the completed Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451) attached to this permit application (see the instructions for details):

☐ Yes ☒ No

b. Sludge processing authorization

Are you requesting to include authorization for any of the following sludge processing, storage or disposal options at the wastewater treatment facility:

☐ Yes ☒ No Sludge Composting

☐ Yes ☒ No Marketing and Distribution of sludge

☐ Yes ☒ No Sludge Surface Disposal or Sludge Monofill

If yes to any of the above sludge options and if the applicant is requesting to continue this authorization, is the completed **DOMESTIC WASTEWATER PERMIT APPLICATION: SEWAGE SLUDGE TECHNICAL REPORT (TCEQ Form No. 10056)** attached to this permit application?

☐ Yes ☐ No

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Initial Phase

GIVEN

Influent:			*Effluent:*		
Q =	250,000	gpd	BOD_5 =	20	mg/l
Peaking Factor =	3		TSSeff =	20	mg/l
Qp =	750,000	gpd (influent to Plant)	NH3N =	3	mg/l
BOD_5 =	350	mg/l			
TSS =	300	mg/l			
Chemical Oxygen Demand (COD) =	700	mg/l (.3-.8 (BOD/COD), used 0.55)	Chlorine Residual =	1	mg/l @ 20 min det
TKN =	50	mg/l			
NH3N =	26	mg/l			
Organic N_{14} =	24	mg/l			
Alkalinity =	200	mg/l			
Winter Temp. Min. =	15	°C			
Summer Temp. Max. =	30	°C			

ASSUME

θc =	10	days, mean cell residence time
Y =	0.6	maximum yield coefficient, range: 0.4 - 0.8 (Metcalf & Eddy Table 8-7)
k_d =	0.06	day^-1, endogenous decay coefficient, range: 0.025 - 0.075 (Metcalf & Eddy Table 8-7)
a =	0.95	growth constant, range: 0.8 - 1.10
b =	0.08	growth constant
MLSS =	3000	mg/l, conc. Of suspended solids in aeration tank
MLVSS =	70%	of MLSS
MLVSS (X) =	2100	mg/l; conc. Of volatile suspended solids in aeration tank

DESIGN CALCULATIONS

A. BOD_5 Loading

$$F = \frac{8.34 \times Q \times (S_o - S)}{10^6}$$

F = 688.1 lb BOD_5 /day

B. TSS Loading

$$TSS = \frac{8.34 \times Q \times (TSS_{inf.} - TSS_{eff.})}{10^6}$$

TSS = 583.8 lb TSS /day

C. Aeration Basin Volume

1. $$V = \frac{\theta c \times Q \times Y \times (So - S)}{MLVSS(1 + kd \times \theta c)}$$

Minimum Aeration Basin Volume = 147,321 gal = 19,694 ft^3

2. TCEQ Criteria

25 lbs BOD5/day/1,000 ft^3 (Conventional Activated Sludge w/ Nitrification)

Minimum Aeration Basin Volume = 27,522 ft^3

Minimum Required Aeration Basin Volume= 27,522 ft^3

Proposed Aeration Basin Volume = 31,500 ft^3

Volumetric BOD Loading = 21.8 lbs/1000 ft^3 - day

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Initial Phase

D. Hydraulic Retention Time (θ)

Hydraulic Retention Time = V/Q

Hydraulic Retention Time = 22.62 hrs

E. Food to Mass Ratio

$$F / M = \frac{So}{\theta \times MLVSS}$$

F/M = 0.177 lb/lb-day

F. Micro-Organism Mass in Aeration Basin

$$Mv = F \times \frac{\theta c \times Y}{1 + (kd \times \theta c)}$$

Mv = 2,580 lbs

G. Sludge Residence Time (SRT)

$$SRT = \frac{1}{a \times \left(F/Mv\right) - b}$$

SRT = 5.8 days

H. Clarifier

1. Weir Loading

	20,000	gpd/lf max at peak flow
Minimum Length =	37.5	lf
Proposed Length =	50.0	lf

2. Surface Area

	1,200	gpd/sf max overflow rate at peak flow
Minimum Surface Area =	625.0	ft^2
Proposed Surface Area =	1,964.0	ft^2

3. Volume/Detention Time

	1.8	hours minimum detention time at peak flow
Minimum Volume =	7,519.6	ft^3
Proposed Volume =	35,352.0	ft^3

I. Return Activated Sludge (RAS)

1. Ratio

r = $MLVSS_{AER}$ / ($MLVSS_{BLDG}$ - $MLVSS_{AER}$)

Assume Clarifier concentrates to 1.5% solids = 15,000 mg/L

r= 16%

2. RAS

RAS = r x Q = 28.3 gpm

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Initial Phase

J. Sludge Yield

$$Volatile = Mv \times \left[(a)\left(F/Mv\right) - b\right]$$

Volatile = 447.2 lbs/day
Sludge Yield = 638.9 lbs/day

Assume Percent Solids = 1.5 %

Qsludge = 5,107 gal/day

K. Digester

Minimum Retention Time = 15 days

Required Digester Volume = 76,607 gal = 10,241 ft³
Proposed Digester Volume = 95,000 gal = 12,700 ft³

L. Oxygen Requirements

1. Aeration Basins

Minimum oxygen requirement = 3,200 scf per lb BOD_5 per day @ 12' submergence and 20 deg C
Minimum oxygen requirement = 1,529 scfm @ 12' submergence and 20 deg C

Diffuser Submergence Depth (ft)	Airflow Correction Factor
8	1.82
10	1.56
12	1.00
15	0.91
18	0.73
20	0.64

Diffuser Submergence Depth = 18 ft
Correction Factor = 0.73

Minimum oxygen requirement = 1,116 scfm @ 20 deg C

2. Digester

Oxygen Requirement = 30 scfm per 1,000 ft³

Minimum oxygen requirement = 381 scfm

M. Disinfection

Chlorine Contact Basin Minimum Detention Time = 20 minutes
Minimum Required Volume = 1,392.5 ft³
Proposed Volume = 2,250 ft³

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

INFLUENT

Flow:

Average:	2.5	MGD
Peak:	7.5	MGD

Site Elevation: 550 ft MSEL

Composition:

	Design Values	
Assumed Values		
Peak Biological Oxygen Demand 5-day (BOD_5):	350	mg/l
Total Suspended Solids (TSS):	300	mg/l
Ammonia (NH_3-N):	26	mg/l
Chemical Oxygen Demand (COD):	700	mg/l
Alkalinity	200	mg/l
Total Dissolved Solids (TDS):	550	mg/l
Total Nitrogen (N):	50	mg/l
Phosphorus (P):	9	mg/l

Temperatures:

Winter Temp (Min.):	15	°C
Summer Temp (Max.):	30	°C

EFFLUENT

Composition:

Biological Oxygen Demand 5-day (BOD_5):	10	mg/l
Total Suspended Solids (TSS):	15	mg/l
Ammonia (NH_3-N):	3	mg/l
Dissolved Oxygen:	4	mg/l

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

CHARACTERISTICS & COEFFICIENTS

MLSS =	3000	mg/l at normal operating level
Volatile Suspended Solids =	70	% of Total Suspended Solids
Minimum DO during aeration =	2.0	mg/l

Kinetic Coefficients for heterotrophic bacteria

Y=	0.40	g VSS / g bCOD
kd =	0.12	g VSS / g VSS*d
kd =	1.04	unitless
kd, 15°C =	0.099	g / g*d
fd =	0.15	unitless

Kinetic Coefficients for nitrification

Yn =	0.12	g VSS / g NH4-N
Ko =	0.50	g / m^3
Kn =	0.74	g NH4-N / m^3
Kn =	1.053	unitless
Kn, 15°C =	0.572	g / m^3
kdn =	0.080	g VSS / g VSS*d
kdn =	1.040	unitless
kdn, 15°C =	0.066	g / g*d
μmn =	0.75	g VSS / g VSS*d
μn =	1.07	unitless
μm,15°C =	0.535	g / g*d

a:. Metcalf & Eddy, Wastewater Engineering Treatment & Reuse, 4th Ed., Tables 8-10 & 8-11, Pgs 704-705

LOADING

BOD5 Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34 x Q (BOD_5 \text{ inf} - BOD_5 eff)}{10^6}$$

BOD5 Removed = 7,089 lbs/day

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 x Q x (TSS \text{ inf} - TSS eff)}{10^6}$$

TSS Removed = 5,942 lbs/day

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

FINE SCREEN

Bar Spacing:	0.25	in
Average Flow Rate:	2.5	MGD
Approximate Volume of Screenings:	13	cf/MG
Anticipated Volume of Screenings:	32.5	cf per day

COARSE SCREEN (BYPASS/OVERFLOW BAR SCREEN)

INFLUENT FLOW RATE:

Average Influent Flow Rate:	2.50	MGD	=	1736	gpm	=	3.868 cfs
Peak Influent Flow Rate:	7.50	MGD	=	5208	gpm	=	11.604 cfs

CHANNEL GEOMETRY:

Channel Width:	5.0	ft
Design Channel Flow Depth:	0.7	ft
Max. Channel Depth:	1.8	ft

BAR RACK GEOMETRY:

Bar Size:	0.375	in
Clear Space Between Bars:	0.500	in
Incline Angle:	60	degrees
No. of Bars in Rack:	68	
Clear Space:	2.875	sf per ft of channel depth

HEADLOSS THROUGH BAR SCREEN:

Channel Area (Avg):	3.5	sf
Channel Area (Max):	9.0	sf
Approach Velocity (Avg):	1.11	fps (using design channel depth)
Approach Velocity (Peak):	1.29	fps (using max. channel depth)
Bar Screen Area (Avg):	2.01	sf
Bar Screen Area (Max):	5.18	sf
Velocity Through Bars (Avg):	1.92	fps (using design channel depth)
Velocity Through Bars (Max):	2.24	fps (using max. channel depth)

$$HeadLoss = \frac{V^2 - v^2}{0.7 \times 2 \times g}$$

V= Velocity of flow through openings in rack
v= Approach velocity
g= Acceleration of gravity, 32.2

Assuming No Clogging:

Head Loss (Design):	0.0549	ft
Head Loss (Max):	0.075	ft

Assuming Clogging:

Clogging Factor:	0.500	
Head Loss (Design):	0.219	ft
Head Loss (Max):	0.299	ft

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

INITIAL SBR BASIN DESIGN

Number of Basins =	2	
Number of Cycles per Day =	4	per Basin
Total Cycle Time =	6.00	hrs / cycle
Volume per Cycle =	312,500	gal / cycle
Side Water Depth (SWD) =	28.0	ft

Fill

Time to Fill = 24 hrs/day / Total No. of Cycles per day.

Time to Fill (T_f) = 3.00 hrs / cycle

Average Flow Rate = Volume per Cycle / Time to Fill

Average Flow Rate = 1,736.1 gpm

React

Minimum Required Aeration Volume:

Maximum Organic Loading: 25 lbs BOD5/day/1000 cf

(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)

BOD_5 Loading: 7,089 lbs/day

Minimum Required Aeration Volume (V_a): 283,560.0 cf

Initial Assumption:

Aerated Portion of Fill:	0%	
Aerated Portion of React:	100%	
React Portion of Total Cycle:	34%	
React Cycle Time (T_r):	2.04	hrs
Aerated React Cycle Time (T_{ra}):	2.04	hrs

Minimum Total Volume Required (V_t) = V_a / T_a

V_t = 834,000 cf = 6,238,737 gal

Minimum Total Volume Required per Basin = 417,000.0 cf = 3,119,368.5 gal

Minimum Surface Area Required per Basin = 14,892.9 sf

Proposed Basin Size = 94.0 ft x 160.0 ft x 28.0 ft SWD

Round Basin Size = 137.7 ft diameter

Proposed Volume per Basin = 421,120.0 cf

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

Settle

Maximum Overflow Rate @ 2-Hr Peak Flow =	1200	gal/day/sf	(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)
Min. Surface Area Required (Proposed Surface Area per basin) =	15,040.0	sf	
Maximum Overflow Rate =	12,533.3	gpm	
Volume per Cycle =	312,500	gal	
Minimum Settle Time (T_s) =	24.93	min	
Use Ts =	25.00	min = 0.42 hrs	

Decant

Assumed Flow Rate of Decanter =	6,950.0	gpm	
Decanters per Basin =	2		
Total Decant Flow Rate per Basin =	13,900.0	gpm	
Volume per Decant =	312,500	gal	
Decant Time (T_d) =	22.48	min =	0.37 hrs

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

SBR DESIGN

Number of Basins =	2				
Number of Cycles per Day =	4				
Volume per Cycle =	312,500	gal			
Side Water Depth (SWD) =	28	ft			
Minimum Total Volume Needed =	834,000	cf			
Minimum Volume per Basin =	417,000.0	cf			
Minimum Surface Area Required per Basin =	15,040.0	sf			
Proposed Basin Size =	94.0	ft x	160.0 ft x	28.0 ft SWD	
Proposed Surface Area =	138.4	ft diameter			
Volume Proposed Per basin	421,120	cf			
Volume Proposed Total	842,240	cf			
Total Cycle Time =	6.00	hrs			
Max. Fill Time (Tf):	3.00	hrs (at design flow)			
Anoxic Fill Time (T f,an):	*3.00*	*hrs*			
Aerated Fill Time (T f,aer):	*0.00*	*hrs*			
React Time (Tr):	2.04	hrs			
Settle Time (Ts):	0.42	hrs			
Decant Time (Td):	0.37	hrs			
Idle Time (Ti):	0.17	hrs			

Hydraulic Retention Time

$$\tau = V / Q$$

Hydraulic Retention Time = 2.52 days

F/M

$$F/M = \frac{Q \times BOD_{5,\text{inf}}}{MLSS \times V}$$

F/M = 0.046 gBOD/gMLSS-d

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

Wastewater Characteristics

bCOD = 1.6(BOD) =	560	mg/l (Biodegradable COD)
nbCOD = COD - bCOD =	140	mg/l (non-biodegradable COD)

iTSS = TSS - VSS

TSS =	300	mg/l
VSS =	210	mg/l
iTSS =	90	mg/l

$$\frac{bpCOD}{pCOD} = \frac{(bCOD/BOD)(BOD - sBOD)}{COD - sCOD}$$

sBOD: soluble BOD
sCOD: soluble COD
bpCOD: Biodegradable particulate COD
pCOD: Particulate COD

Assume: sCOD =	33%	of COD =	231	mg/l
Assume: sBOD =	33%	of BOD =	116	mg/l

bpCOD/pCOD = 0.80

$$nbVSS = \left[1 - \left(\frac{bpCOD}{pCOD}\right)\right] BOD$$

nbVSS = 70.0 mg/l (non-biodegradable VSS)

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

Sludge Retention Time

$$(P_{X,TSS})SRT = \frac{QY(S_o - S)SRT}{[1+(k_d)SRT](0.85)} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1+(k_{dn})SRT](0.85)} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1+(k_d)SRT](0.85)} + Q(TSS_o - VSS_o)SRT$$

$$(P_{X,TSS})SRT = (V)(X_{MLSS})$$

XMLSS = 3000 g/m^3

V = 421,120.0 cf/basin = 11,924.78 m^3 / basin

Q (per Basin) = 1.25 MGD = 4,731.76 m^3 / day

(PX,TSS)SRT = 35,774,338 g

Assume So = So -S

So = bCOD = 560 g/m^3

Assume Nox = 80% of TKN = 40.0 g/m^3

SRT = 29.16 days

MLVSS

$$(P_{X,VSS})SRT = \frac{QY(S_o - S)SRT}{[1+(k_d)SRT]} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1+(k_{dn})SRT]} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1+(k_d)SRT]}$$

$$(P_{X,VSS})SRT = V_T(X_{MLVSS})$$

(Px,vss)SRT = 21,300,780 g

MLVSS = 1786 mg/l

Sludge Yield

$$P_{X,TSS} = \frac{(V)(MLSS)}{SRT}$$

PX,TSS = 5,409

$$Q_{Sludge} = \frac{P_{X,TSS}}{8.34 \times PercentSolids}$$

Assume Percent Solids = 1.5 %

Qsludge = 43,236 gal/day

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

NITRIFICATION / DENITRIFICATION

Nitrification

$$K_n \ln\frac{N_o}{N_t} + (N_o - N_t) = X_n\left(\frac{\mu_{mn}}{Y_n}\right)\left(\frac{DO}{k_o + DO}\right)t$$

N_t = NH_4-N concentration at time t (mg/L)
X_n = Nitrifying bacteria concentration (mg/L)
DO = Dissolved Oxygen concentration= 2.0 mg/L

$$NO_x = TKN_o - N_e - 0.12P_{x,bio}/Q$$

NOx = Nitrogen oxidized (mg/L)
TKN_o = Influent TKN (mg/L)
N_e = Effluent NH_4-N (mg/L)
$P_{x,bio}$ = Nitrogen in cell tissue

$$P_{x,bio} = \frac{QY(S_o - S)}{1 + (k_d)SRT} + \frac{QY_n(NO_x)}{1 + (k_{dn})SRT} + \frac{(f_d)(k_d)QY(S_o - S)SRT}{1 + (k_d)SRT}$$

Q =	1,250,000	gpd/basin =	4,731.8	m^3/day/basin
So - S =	560	g/m^3 (from SRT calculation)		
Nox =	40.0	g/m^3 (from SRT calculation)		
SRT =	29.16270079	days		
Px,bio =	399,188	g/day =	399.2	kg/day
NOx =	36.9	g/m^3		

NOx added per cycle = Fill Volume x NOx = 43,623 g per fill cycle
NH_4-N remaining before Fill Cycle = Settle Volume x N_e = 32,225.56 g
Total Oxidizable N at beginning of Cycle = 75,848 g

N_o = Total Oxidizable N at beginning of Cycle / Total Basin Volume = 6.36 g/m^3

$$X_n = \frac{Q(Y_n)(NO_x)SRT}{[1 + (k_d)SRT]V}$$

X_n = 17.55 g/m^3

Time Needed: 0.06057 days = 1.454 hours
Aeration Time Proposed: 2.04 hours
Adequate Aeration time available for Nitrification

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

Denitrification

NO_x Added per Cycle:	43,623	g/fill cycle
Vt:	11,924.8	m^3
NO_3-N:	3.66	g/m^3 at end of aeration with tank full
Vs:	10,741.8	m^3
NO_3-N:	39,295	g after decant

$$x_b = \frac{QY(S_o - S)SRT}{(1+(k_d)SRT)Vt}$$

xb= 668.7 g/m^3

Biomass in System:	7,974	kg
BOD Feed Rate:	828	kg/day
F/Mb:	0.104	g/g*day
SDNRb:	0.07	g/g*day at 20°C

From Metcalf & Eddy, Fig. 8-23, Pg 755, for rbCOD/bCOD of 0.10

$SDNR_{14}$:	0.062	g/g*day

$NO_x = (SDNR_b)(x_b)(Vt) = NO_3$-N removal capacity

NOx:	490,949	g/day
Fill Time:	3.0	hrs
NOr at	3.0	hrs = 61,369 g
NO_3-N Available:	39,295	g

All NO3-N can be removed during Fill 156.2%

Alkalinity

Alkanity Required for Nitrification:	263	mg/l	
Alkanity Recovered in Denitrification:	132	mg/l	
Net Alkanity Required:	132	mg/l	
Residual Alkalinity Needed to maintain pH:	80	mg/l	
Total Alkalinity Required in Influent:	212	mg/l	
Alkalinity Available in Influent:	200	mg/l	
Alkalinity Addition Needed:	**12**	**mg/l**	
Added as $CaCO_3$:	**110.2**	**kg/day =**	**243.03 lbs/day**

Exhibit D

Garry Montgomery

From: Garry Montgomery
Sent: Monday, April 04, 2016 11:42 AM
To: 'Larry Diamond'
Subject: GVSUD W10015360001
Attachments: Response to TCEQ 2015.05.04- Part 2.pdf

Second email.

Garry Montgomery, P.E., CFM, SIT
Engineer IV

RIVER CITY ENGINEERING
Civil, Environmental and Surveying

1011 W. County Line Rd.
New Braunfels, Texas 78130
Office: 830-626-3588 x 153
garry@rcetx.com
www.rcetx.com

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

SBR OXYGEN REQUIERMENTS

Actual Oxygen Transfer Rate (AOTR)

TCEQ Criteria:	2.20	lbs O_2 / lb BOD removed
BOD_5 Removed =	7,089.000	lbs/day
AOTR =	15,596	lbs O_2 / day

Standard Oxygen Transfer Rate (SOTR)

$$SOTR = AOTR\left[\frac{C_{s,20}}{\alpha F(\beta C_{sd} - C)}\right](1.024^{20-T})$$

T = 30 °C

$$C_{s,20} = 9.07 \times \left(1 + \frac{0.4 \times D}{34}\right)$$

D =	28	ft (depth, SWD)
$C_{s,20}$ =	12.06	mg/l (DO saturation at standard conditions)

$$C_{sd} = Cst \times \left(Fe + \frac{0.4 \times D}{34}\right)$$

Cst =	8.24	mg/l (DO saturation at liquid temp & sea level)
Fe =	0.97	Elevation Factor
C_{sd} =	10.71	mg/l (DO saturation at design conditions)
α =	0.85	coefficient/correction factor
β =	0.95	Salinity-surface tension correction factor
F =	1.00	Fouling factor
C =	2.0	mg/l (operating Oxygen concentration)
SOTR =	21,357	lbs O_2 / day

Design SOTR

Aeration time/cycle =	2	hrs/cycle
Cycles/day/basin =	4	
Total Aeration time =	8	hrs/day/basin
No. of Basins =	2	
Design SOTR for Aeration =	1,309	lbs O2/hr/basin

Minimum Design Air Flow

Density of Air at Temp. of	30	°C =	0.07270626 lbs/cf
Amount of Oxygen =	0.01685	lbs/cf	
Minimum Design Air Flow =	3,698	SCFM (per basin being aerated)	

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

AEROBIC DIGESTER

Average Sludge Yield from SBR:	43,236	gal/day			
TCEQ Minimum Sludge Retention Time:	15	days			
SRT from SBR Treatment Basins:	29.1627	days			
Minimum SRT needed in Aerobic Digester:	0	days			
Minimum Proposed Aerobic Digester Volume:	750,000	gallons =	100,261	cubic feet	
Minimum Digester Sludge Retention Time:	17.3	days			
Total Sludge Retention Time:	46.5	days			

Oxygen Requirements

Criteria:	30.0	scfm per 1000 cf of volume
Minimum Design Air Flow =	3008	scfm

SBR EFFLUENT EQUALIZATION

Minimum Working Volume Equal to:	2.5	Cycles
Volume per Cycle:	312,500	gallons
Minimum Working Volume:	**781,250**	**gallons**

UV DISINFECTION

Average Flow:	2.5	MGD =	1737	gpm
Peak Flow:	7.5	MGD =	5209	gpm
No. of Lamps per Module:	40			
Lamp Length:	62	In		
Recommended Flow per Lamp:	18.0	gpm		
Minimum No.of Lamps Needed:	290	lamps		
No. of Modules Needed:	**7.3**	**modules, use:**	**8**	**modules**

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Interim Phase

BELT FILTER PRESS

Solids Generated

Percent Solids in Sludge:	1.5	%
BOD_5 removed	7,089	lbs/day
Dry Sludge Produced	5,409	lbs/day
Wet Sludge Produced	360,590	lbs/day
Wet Sludge Produced	43,236	gal/day

Length of Sustainded Peak (days)	Peaking Factor	Waste Sludge Mass Loading (lbs/day)	Total Sustained Loading (lb)
1	2.4	12,981	12,981
14	1.32	7,140	99,955

Belt Press Sludge Loading Rate: 600 lb/m*hr (200 to 1500 lb/m*hr typical)

Two 2.5 m Belt Filter Presses

Total Sludge Loading Rate: 3,000 lb/m*hr

Belt Press Average Mass Loading Condition (Press 7-days of Sludge in 5-day work week)

5,409 lbs/day x 7 days = 37,862 lbs
37,862 lbs / 5 days = 7,572 lbs /day

7,572 lbs/day / 3,000 lb/m*hr = **2.52 hrs/day**

Peak Mass Loading Condition (Press 14-days of Peak Sludge in 10-days)

7,140 lbs/day x 14 days = 99,955 lbs
99,955 lbs / 10 days = 9,996 lbs /day

9,996 lbs/day / 3,000 lb/m*hr = **3.33 hrs/day**

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

INFLUENT

Flow:

Average:	5	MGD
Peak:	15	MGD

Site Elevation: 550 ft MSEL

Composition:

	Design Values	
Assumed Values		
Peak Biological Oxygen Demand 5-day (BOD_5):	350	mg/l
Total Suspended Solids (TSS):	300	mg/l
Ammonia (NH_3-N):	26	mg/l
Chemical Oxygen Demand (COD):	700	mg/l
Alkalinity	200	mg/l
Total Dissolved Solids (TDS):	550	mg/l
Total Nitrogen (N):	50	mg/l
Phosphorus (P):	9	mg/l

Temperatures:

Winter Temp (Min.):	15	°C
Summer Temp (Max.):	30	°C

EFFLUENT

Composition:

Biological Oxygen Demand 5-day (BOD_5):	10	mg/l
Total Suspended Solids (TSS):	15	mg/l
Ammonia (NH_3-N):	3	mg/l
Dissolved Oxygen:	5	mg/l

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

CHARACTERISTICS & COEFFICIENTS

MLSS =	3000	mg/l at normal operating level
Volatile Suspended Solids =	70	% of Total Suspended Solids
Minimum DO during aeration =	2.0	mg/l

Kinetic Coefficients for heterotrophic bacteria

Y=	0.40	g VSS / g bCOD
k_d =	0.12	g VSS / g VSS*d
k_d =	1.04	unitless
$k_{d,14°C}$ =	0.099	g / g*d
f_d =	0.15	unitless

Kinetic Coefficients for nitrification

Y_n =	0.12	g VSS / g NH4-N
K_o =	0.50	g / m^3
Kn =	0.74	g NH4-N / m^3
Kn =	1.053	unitless
$K_{n,14°C}$ =	0.572	g / m^3
k_{dn} =	0.080	g VSS / g VSS*d
k_{dn} =	1.040	unitless
$k_{dn,14°C}$ =	0.066	g / g*d
μ_{mn} =	0.75	g VSS / g VSS*d
μ_n =	1.07	unitless
$\mu_{m,14°C}$ =	0.535	g / g*d

a: Metcalf & Eddy, Wastewater Engineering Treatment & Reuse, 4th Ed., Tables 8-10 & 8-11, Pgs 704-705

LOADING

BOD5 Loading:

BOD5 Removed = $\frac{8.34 x Q(BOD_5\,\text{inf} - BOD_5 eff)}{10^6}$

BOD5 Removed = 14,178 lbs/day

TSS Loading:

TSS Removed = $\frac{8.34\ xQx\ (TSS\ \text{inf}\ -\ TSSeff\ )}{10^6}$

TSS Removed = 11,885 lbs/day

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

FINE SCREEN

Bar Spacing:	0.25	in
Average Flow Rate:	5.0	MGD
Approximate Volume of Screenings:	13	cf/MG
Anticipated Volume of Screenings:	65	cf per day

COARSE SCREEN (BYPASS/OVERFLOW BAR SCREEN)

INFLUENT FLOW RATE:

Average Influent Flow Rate:	5.00	MGD	=	3472 gpm	=	7.736	cfs
Peak Influent Flow Rate:	15.00	MGD	=	10417 gpm	=	23.209	cfs

CHANNEL GEOMETRY:

Channel Width:	5.0	ft
Design Channel Flow Depth:	1.2	ft
Max. Channel Depth:	2.8	ft

BAR RACK GEOMETRY:

Bar Size:	0.375	in
Clear Space Between Bars:	0.500	in
Incline Angle:	60	degrees
No. of Bars in Rack:	68	
Clear Space:	2.875	sf per ft of channel depth

HEADLOSS THROUGH BAR SCREEN:

Channel Area (Avg):	5.8	sf
Channel Area (Max):	13.8	sf
Approach Velocity (Avg):	1.33	fps (using design channel depth)
Approach Velocity (Peak):	1.69	fps (using max. channel depth)
Bar Screen Area (Avg):	3.35	sf
Bar Screen Area (Max):	7.91	sf
Velocity Through Bars (Avg):	2.31	fps (using design channel depth)
Velocity Through Bars (Max):	2.94	fps (using max. channel depth)

$$HeadLoss = \frac{V^2 - v^2}{0.7 \times 2 \times g}$$

V= Velocity of flow through openings in rack
v= Approach velocity
g= Acceleration of gravity, 32.2

Assuming No Clogging:

Head Loss (Design):	0.0790	ft
Head Loss (Max):	0.128	ft

Assuming Clogging:

Clogging Factor:	0.500	
Head Loss (Design):	0.316	ft
Head Loss (Max):	0.512	ft

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

INITIAL SBR BASIN DESIGN

Number of Basins =	4	
Number of Cycles per Day =	4	per Basin
Total Cycle Time =	6.00	hrs / cycle
Volume per Cycle =	312,500	gal / cycle
Side Water Depth (SWD) =	28.0	ft.

Fill

Time to Fill = 24 hrs/day / Total No. of Cycles per day

Time to Fill (T_f) = 1.50 hrs / cycle

Average Flow Rate = Volume per Cycle / Time to Fill

Average Flow Rate = 3,472.2 gpm

React

Minimum Required Aeration Volume:

Maximum Organic Loading: 25 lbs BOD5/day/1000 cf

(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)

BOD_5 Loading: 14,178 lbs/day

Minimum Required Aeration Volume (V_a): 567,120.0 cf

Initial Assumption:

Aerated Portion of Fill:	0%	
Aerated Portion of React:	100%	
React Portion of Total Cycle:	59%	
React Cycle Time (T_r):	3.54	hrs
Aerated React Cycle Time (T_{ra}):	3.54	hrs

Minimum Total Volume Required (V_t) = V_a / T_a

V_t = 961,220 cf = 7,190,409 gal

Minimum Total Volume Required per Basin =	240,305.1	cf =	1,797,602.2	gal		
Minimum Surface Area Required per Basin =	8,582.3	sf				
Proposed Basin Size =	94.0	ft x	160.0	ft x,	28.0	ft SWD
Round Basin Size =	104.5	ft diameter.				
Proposed Volume per Basin =	421,120.0	cf				

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

Settle

Maximum Overflow Rate @ 2-Hr Peak Flow =	1200	gal/day/sf	(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)
Min. Surface Area Required (Proposed Surface Area per basin) =	15,040.0	sf	
Maximum Overflow Rate =	12,533.3	gpm	
Volume per Cycle =	312,500	gal	
Minimum Settle Time (T_S) =	24.93	min	
Use Ts =	25.00	min = 0.42 hrs	

Decant

Assumed Flow Rate of Decanter =	6,950.0	gpm	
Decanters per Basin =	2		
Total Decant Flow Rate per Basin =	13,900.0	gpm	
Volume per Decant =	312,500	gal	
Decant Time (T_d) =	22.48	min =	0.37 hrs

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

SBR DESIGN

Number of Basins =	4				
Number of Cycles per Day =	4				
Volume per Cycle =	312,500	gal			
Side Water Depth (SWD) =	28.0	ft			
Minimum Total Volume Needed =	961,220	cf			
Minimum Volume per Basin =	240,305.1	cf			
Minimum Surface Area Required per Basin =	15,040.0	sf			
Proposed Basin Size =	94.0	ft x	160.0 ft	x	28.0 ft SWD
Proposed Surface Area =	138.4	ft diameter			
Volume Proposed Per basin	421,120	cf			
Volume Proposed Total	1,684,480	cf			
Total Cycle Time =	6.00	hrs			
Max. Fill Time (Tf):	1.50	hrs (at design flow)			
Anoxic Fill Time (T f,an):	*1.50*	*hrs*			
Aerated Fill Time (T f,aer):	*0.00*	*hrs*			
React Time (Tr):	3.54	hrs			
Settle Time (Ts):	0.42	hrs			
Decant Time (Td):	0.37	hrs			
Idle Time (Ti):	0.17	hrs			

Hydraulic Retention Time

$$\tau = V / Q$$

Hydraulic Retention Time = 2.52 days

F/M

$$F/M = \frac{Q \times BOD_{5,inf}}{MLSS \times V}$$

F/M = 0.046 gBOD/gMLSS-d

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

Wastewater Characteristics

bCOD = 1.6(BOD) =	560	mg/l (Biodegradable COD)
nbCOD = COD - bCOD =	140	mg/l (non-biodegradable COD)

iTSS = TSS - VSS

TSS =	300	mg/l
VSS =	210	mg/l
ITSS =	90	mg/l

$$\frac{bpCOD}{pCOD} = \frac{(bCOD/BOD)(BOD - sBOD)}{COD - sCOD}$$

sBOD: soluble BOD
sCOD: soluble COD
bpCOD: Biodegradable particulate COD
pCOD: Particulate COD

Assume: sCOD =	33%	of COD =	231	mg/l
Assume: sBOD =	33%	of BOD =	116	mg/l

bpCOD/pCOD = 0.80

$$nbVSS = \left[1 - \left(\frac{bpCOD}{pCOD}\right)\right] BOD$$

nbVSS = 70.0 mg/l (non-biodegradable VSS)

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

Sludge Retention Time

$$(P_{X,TSS})SRT = \frac{QY(S_o - S)SRT}{[1+(k_d)SRT](0.85)} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1+(k_{dn})SRT](0.85)} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1+(k_d)SRT](0.85)} + Q(TSS_o - VSS_o)SRT$$

$$(P_{X,TSS})SRT = (V)(X_{MLSS})$$

XMLSS = 3000 g/m^3
V = 421,120.0 cf/basin = 11,924.78 m^3 / basin
Q (per Basin) = 1.25 MGD = 4,731.76 m^3 / day

(PX,TSS)SRT = 35,774,338 g

Assume So = So -S
So = bCOD = 560 g/m^3

Assume Nox = 80% of TKN = 40.0 g/m^3

SRT = 29.16 days

MLVSS

$$(P_{X,VSS})SRT = \frac{QY(S_o - S)SRT}{[1+(k_d)SRT]} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1+(k_{dn})SRT]} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1+(k_d)SRT]}$$

$$(P_{X,VSS})SRT = V_T(X_{MLVSS})$$

(Px,vss)SRT = 21,300,780 g

MLVSS = 1786 mg/l

Sludge Yield

$$P_{X,TSS} = \frac{(V)(MLSS)}{SRT}$$

PX,TSS = 10,818

$$Q_{Sludge} = \frac{P_{X,TSS}}{8.34 \times PercentSolids}$$

Assume Percent Solids = 1.5 %

Qsludge = 86,472 gal/day

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

NITRIFICATION / DENITRIFICATION

Nitrification

$$K_n \ln\frac{N_o}{N_t} + (N_o - N_t) = X_n\left(\frac{\mu_{mn}}{Y_n}\right)\left(\frac{DO}{k_o + DO}\right)t$$

N_t = NH4-N concentration at time t (mg/L)
X_n = Nitrifying bacteria concentration (mg/L)
DO = Dissolved Oxygen concentration= 2.0 mg/L

$$NO_x = TKN_o - N_e - 0.12P_{x,bio}/Q$$

NOx = Nitrogen oxidized (mg/L)
TKN_o = Influent TKN (mg/L)
N_e = Effluent NH4-N (mg/L)
$P_{x,bio}$ = Nitrogen in cell tissue

$$P_{x,bio} = \frac{QY(S_o - S)}{1+(k_d)SRT} + \frac{QY_n(NO_x)}{1+(k_{dn})SRT} + \frac{(f_d)(k_d)QY(S_o - S)SRT}{1+(k_d)SRT}$$

Q =	1,250,000	gpd/basin =	4,731.8	m^3/day/basin
So - S =	560	g/m^3 (from SRT calculation)		
Nox =	40.0	g/m^3 (from SRT calculation)		
SRT =	29.16270082	days		
Px,bio =	399,188	g/day =	399.2	kg/day
NOx =	36.9	g/m^3		

NOx added per cycle = Fill Volume x NOx = 43,623 g per fill cycle
NH4-N remaining before Fill Cycle = Settle Volume x N_e = 32,225.56 g
Total Oxidizable N at beginning of Cycle = 75,848 g

N_o = Total Oxidizable N at beginning of Cycle / Total Basin Volume = 6.36 g/m^3

$$X_n = \frac{Q(Y_n)(NO_x)SRT}{[1+(k_d)SRT]V}$$

X_n = 17.55 g/m^3

Time Needed: 0.06057 days = 1.454 hours
Aeration Time Proposed: 3.54 hours
Adequate Aeration time available for Nitrification

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

Denitrification

NO_x Added per Cycle:	43,623	g/fill cycle		
Vt:	11,924.8	m^3		
NO_3-N:	3.66	g/m^3 at end of aeration with tank full		
Vs:	10,741.8	m^3		
NO_3-N:	39,295	g after decant		

$$x_b = \frac{QY(S_o - S)SRT}{(1+(k_d)SRT)Vt}$$

xb= 668.7 g/m^3

Biomass in System:	7,974	kg		
BOD Feed Rate:	1,656	kg/day		
F/Mb:	0.208	g/g*day		
SDNRb:	0.07	g/g*day at 20°C		
From Metcalf & Eddy, Fig. 8-23, Pg 755, for rbCOD/bCOD of 0.10				
$SDNR_{14}$:	0.062	g/g*day		

NO_x = (SDNRb)(xb)(Vt) = NO_3-N removal capacity

NO_x:	490,949	g/day		
Fill Time:	1.5	hrs		
NOr at	1.5	hrs =	30,684	g
NO3-N Available:	39,295	g		

NO3-N removed during Fill: 78.1%

Alkalinity

Alkanity Required for Nitrification:	263	mg/l		
Alkanity Recovered in Denitrification:	103	mg/l		
Net Alkanity Required:	160	mg/l		
Residual Alkalinity Needed to maintain pH:	80	mg/l		
Total Alkalinity Required in Influent:	240	mg/l		
Alkalinity Available in Influent:	200	mg/l		
Alkalinity Addition Needed:	**40**	**mg/l**		
Added as $CaCO_3$:	**766.5**	**kg/day =**	**1689.81**	**lbs/day**

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

SBR OXYGEN REQUIERMENTS

Actual Oxygen Transfer Rate (AOTR)

TCEQ Criteria:	2.20	lbs O_2 / lb BOD removed
BOD_5 Removed =	14,178.000	lbs/day
AOTR =	31,192	lbs O_2 / day

Standard Oxygen Transfer Rate (SOTR)

$$SOTR = AOTR\left[\frac{C_{s,20}}{\alpha F(\beta C_{sd} - C)}\right]\left(1.024^{20-T}\right)$$

T = 30 °C

$$C_{s,20} = 9.07 \times \left(1 + \frac{0.4 \times D}{34}\right)$$

D = 28 ft (depth, SWD)
$C_{s,20}$ = 12.06 mg/l (DO saturation at standard conditions)

$$C_{sd} = Cst \times \left(Fe + \frac{0.4 \times D}{34}\right)$$

Cst =	8.24	mg/l (DO saturation at liquid temp & sea level)
Fe =	0.97	Elevation Factor
Csd =	10.71	mg/l (DO saturation at design conditions)
α =	0.85	coefficient/correction factor
β =	0.95	Salinity-surface tension correction factor
F =	1.00	Fouling factor
C =	2.0	mg/l (operating Oxygen concentration)
SOTR =	42,714	lbs O_2 / day

Design SOTR

Aeration time/cycle =	3.54	hrs/cycle
Cycles/day/basin =	4	
Total Aeration time =	14	hrs/day/basin
No. of Basins =	4	
Design SOTR for Aeration =	754	lbs O2/hr/basin

Minimum Design Air Flow

Density of Air at Temp. of	30	°C =	0.07270626 lbs/cf
Amount of Oxygen =	0.01685	lbs/cf	
Minimum Design Air Flow =	2,131	SCFM (per basin being aerated)	

Green Valley Special Utility District - Santa Clara Creek No. 1
Wastewater Treatment Design Calculations
Final Phase

AEROBIC DIGESTER

Average Sludge Yield from SBR:	86,472	gal/day		
TCEQ Minimum Sludge Retention Time:	15	days		
SRT from SBR Treatment Basins:	29.1627	days		
Minimum SRT needed in Aerobic Digester:	0	days		
Minimum Proposed Aerobic Digester Volume:	750,000	gallons =	100,261	cubic feet
Minimum Digester Sludge Retention Time:	8.7	days		
Total Sludge Retention Time:	37.8	days		

Oxygen Requirements

Criteria:	30.0	scfm per 1000 cf of volume
Minimum Design Air Flow =	3008	scfm

SBR EFFLUENT EQUALIZATION

Minimum Working Volume Equal to:	2.5	Cycles
Volume per Cycle:	312,500	gallons
Minimum Working Volume:	**781,250**	**gallons**

UV DISINFECTION

Average Flow:	5.0	MGD =	3473	gpm
Peak Flow:	15.0	MGD =	10417	gpm
No. of Lamps per Module:	40			
Lamp Length:	62	in		
Recommended Flow per Lamp:	18.0	gpm		
Minimum No.of Lamps Needed:	579	lamps		
No. of Modules Needed:	**14.5**	**modules, use:**	**16**	**modules**

USDA UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL DEVELOPMENT
3251 North Highway 123 Bypass
Seguin, TX 78155-6115

Voice: (830) 372-1043
Fax: (830) 372-0020
TDD: (254) 742-9712

DEC 18 2002

Mr. Richard R. DeMunbrun, President
Green Valley Special Utility District
P.O. Box 99
Marion, TX 78124-0099

Dear Mr. DeMunbrun:

This letter establishes conditions which must be understood and agreed to before further consideration may be given to this application. These conditions must be met before loan closing or start of construction. State and Local Office staff of USDA Rural Development will administer the loan and/or grant on behalf of the Rural Utilities Service (RUS). Any changes in project cost, source of funds, scope of services, or any other significant change in the project or applicant must be reported to and approved by USDA Rural Development by written amendment to this letter. If significant changes are made without obtaining such approval, USDA Rural Development may discontinue processing the application.

This letter does not constitute loan and/or grant approval, nor does it ensure that funds are or will be available for the project. The docket may be completed on the basis of a loan not to exceed $584,000.

The interest rate will be the lower of the rate in effect at the time of loan approval or the time of loan closing. A written request should submitted to USDA Rural Development staff at least 15 calendar days before loan closing, if the Special Utility District does not want the interest rate changed to the rate at loan closing. The loan and/or grant will be considered approved on the date a signed copy of Form RD 1940-1, "Request for Obligation of Funds," is mailed to the Special Utility District.

The loan will be scheduled for repayment over a period of 40 years. A cash reserve fund will be required in an amount equal to one annual installment. This amount will be reached by making monthly deposits, which will accumulate at the rate of one-tenth of the total annual installment each year. The reserve fund is to assure that payments will be made on time and for emergency situations that may arise. This fund will be established in a separate interest bearing account(s) at a federally insured financial institution.

Following are the conditions that must be understood, agreed to, and met:

1. USE OF FACILITY

A local ordinance must be adopted which requires mandatory use of the facilities. The applicant must agree in writing to enforce such ordinance. No free service or use of the facility will be permitted.

2. REPAYMENT SCHEDULE

A. Green Valley Special Utility District will provide its own funds to pay interest during construction.

Principal payments will be deferred one year after loan closing. Payments on this loan will be paid directly to USDA Rural Development. The use of a paying agent is not required.

B. Form SF-5510, "Authorization Agreement for PreAuthorized Payments," must be executed for this loan, as well as all existing loans. A copy of this (these) agreement(s) should be forwarded to the State Office.

3. CONTRIBUTION AND USER VERIFICATION

A. Any required contribution shall be considered as the first funds expended.

B. This Letter of Conditions is based upon 6,217 water users that will use the facilities when service becomes initially available. The number of users will be verified by a USDA Rural Development official using RUS Bulletin-TX 1780-40, "Certification of Users by Rural Development Manager."

4. MULTIPLE ADVANCES

A. In accordance with RUS Instruction 1780, Section 1780.45 (b) (1), multiple advances may be used.

B. RUS Bulletin 1780-10 will be used to inform private lenders of RUS's commitment.

C. The loan docket is to contain a copy of your interim financing arrangements. If you are unable to obtain interim financing, you should furnish a statement to this effect. If you have any questions, I will discuss this with you.

D. The Debt Collection Improvement Act (DCIA) of 1996 requires that, effective January 1999, all Federal payments must be made by Electronic Funds Transfer/Automated Clearing House (EFT/ACH). A benefit of receiving payments by EFT/ACH is that funds are directly deposited to the Green Valley Special Utility District's account at a financial institution and are available on the date of payment.

E. The Green Valley Special Utility District will complete Form SF-3881, "Electronic Funds Transfer Payment Enrollment Form," for each account where funds will be electronically received. The completed form(s) must be received by USDA Rural Development at least thirty (30) days prior to loan closing

F. Cash advances should coincide with cash needs.

5. SECURITY REQUIREMENTS

A. Revenue Bonds in the amount of $584,000 will be delivered to USDA Rural Development, made payable to the United States of America.

B. The principal repayment schedule should be in the amount best adapted to making principal retirement and interest payments which closely approximate equal installments of combined interest and principal.

C. The Bond Ordinance must contain the following:

1. A clause to the effect that, in the event any Bond is mutilated, destroyed, lost or stolen, any security or indemnity as may be required by the Issuer and Registrar from the registered owner applying for the replacement Bond shall not be required from the United States of America as long as it is holder of the Bonds.

2. The attached "Loan Program Requirements and Documents to Control" revised 6/10/02 as prepared by the Office of General Counsel, must be included without change.

3. Refer to the attached unnumbered letter "Minimum Requirements for Bond Counsel Opinions Rural Utilities Service & Community Facilities Programs" dated October 17, 2002.

D. Written consent to incur additional debt must be obtained from the Green Valley Special Utility District's present creditor prior to USDA Rural Development obligating funds for this project.

E. Attached is Form RD 1910-11, "Applicant Certification - Federal Collection Policies For Consumer or Commercial Debts." This form must be executed prior to loan closing.

6. ORGANIZATION

A. A complete list of elected officials, type of organization (whether city, township, water control and improvement district, authority, or special purpose), and the authority under which the Green Valley Special Utility District is organized, should be furnished to USDA Rural Development

B. RUS Bulletin 1780-27, "Loan Resolution (Public Bodies)" must be adopted.

7. BUSINESS OPERATIONS

A. The Green Valley Special Utility District's authorized official must approve the Operating Budget prior to funding approval.

B. The facilities will be operated by the governing body in accordance with State laws, Bond Ordinance or Resolution, and the Bonds serving as security for the loan. During the first full year of operation, the Green Valley Special Utility District will furnish to USDA Rural Development quarterly or monthly if the need arises, a summary of its operations. Form RD 442-2, "Statement of Budget, Income and Equity," will be provided for this purpose. Audits are to be performed in accordance with generally accepted government auditing standards (GAGAS). In addition, the audits are to be performed in accordance with various Office of Management and Budget (OMB) circulars. Annual reports and audits are to be furnished as set forth in RUS Instruction 1780, Section 1780-47.

A supplemental report is required annually containing:

a. Total gallons of water purchased and/or produced
b. Total gallons of water sold
c. Total number of customers
d. Percentage of water loss
e. List of current governing body names, addresses, and telephone numbers

C. All water shall be metered by meters furnished and installed by the Green Valley Special Utility District for the sole use of the member or customer.

D. The loan is subject to the provisions of the Federal Civil Rights and Equal Opportunity laws. The Green Valley Special Utility District must agree to comply with these requirements by executing Forms RD 400-4, "Assurance Agreement," and RD 400-1, "Equal Opportunity Agreement."

E. As part of the docket, the Green Valley Special Utility District will present for USDA Rural Development review and approval a management plan, a facility maintenance plan, and a proposal for the maintenance of accounts and records and obtaining audit reports. Such plans should include written agreements for management, maintenance, accounting and auditor services.

F. The Green Valley Special Utility District must adopt utility rates that will generate sufficient revenue to pay debt service, reserve, operation and maintenance, and any necessary depreciation reserve. The rates must be approved by USDA Rural Development before loan closing or beginning of construction.

G. The loan is subject to the provisions of Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794). It provides, in part, as follows:

> "No handicapped individual in the United States shall, solely by reason of their handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

H. Form AD-1047, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Cover Transactions," must be executed to certify that the Green Valley Special Utility District is not debarred or suspended from Government assistance.

I. For any contract in excess of $25,000, Form AD-1048, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," must be executed by any person or entity the Green Valley Special Utility District does business with as a result of this Government assistance certifying that they are not debarred or suspended from Government assistance.

8. GRADUATION - REFINANCING RUS DEBT

If, at any time in the future, the Green Valley Special Utility District is able to refinance the amount of the indebtedness owed the Government by obtaining a loan for such purpose from a responsible cooperative or private credit source at reasonable rates and terms for similar purposes and periods of time, the Green Valley Special Utility District will be required to apply for and accept such a loan in sufficient amount to refinance its RUS indebtedness.

9. INSURANCE AND BONDING

A. The buildings and removable parts of the facility will be covered by insurance covering the usual hazards in the area in an amount approved by USDA Rural Development prior to the final inspection. Public Liability and Property Damage

Insurance will be required according to recommendations of the consulting engineer and attorney. Workmen's Compensation Insurance will be carried as required by State law. Copies of all insurance policies will be obtained prior to loan closing and made part of the loan docket.

B. Fidelity or employee dishonesty bonding coverage will be provided to USDA Rural Development for all persons who have access to funds. Coverage may be provided either for all individual positions or persons, or through "blanket" coverage providing protection for all appropriate employees and/or officials. The amount of the coverage required will be no less than the total annual debt service requirement for all RUS loans. Form RD 440-24, "Position Fidelity Schedule Bond," may be used. A copy of the policy will be furnished to USDA Rural Development at loan closing or prior to beginning construction, whichever occurs first.

10. CONSTRUCTION - ENVIRONMENTAL MITIGATION MEASURES

A. All construction will be on contract documents as outlined in RUS Instruction 1780, Subpart C. The consulting engineer, attorney, and USDA Rural Development will assist with this requirement.

B. The consulting engineer will prepare construction contract documents and specifications using RUS Instruction 1780, Subpart C, and State supplements.

C. After the final plans and specifications have been approved in writing by the Texas Commission on Environmental Quality (TCEQ), formerly known as TNRCC, and the USDA Rural Development engineer, and closing instructions have been issued by the Office of General Counsel, construction bids may be received. USDA Rural Development must be represented at all bid openings and negotiations.

D. Bids should not be received on any contract unless the contract can be awarded within sixty days.

E. When bids have been received and it is determined that construction can be completed within the funds available, the successful bidder(s) must be advised that loan funds cannot be made available until all requirements of the closing instructions have been met. The contract will be awarded to the lowest responsive and responsible bidder unless approved by the USDA Rural Development State Office.

F. Executed contracts and bonds are to be approved in writing by USDA Rural Development before any construction is started.

G. In accordance with RUS Instruction 1780, Section 1780.76 (h), any changes in construction, addition and/or deletion will be made only on written change order, Form RD 1924-7, "Contract Change Order." Approval by the authorized Green Valley Special Utility District official(s), contractor, USDA Rural Development

engineer, or USDA Rural Development official is required before any work is done. If any facility design or proposed construction activities deviate from those contained in the approved environmental documents, the Green Valley Special Utility District may be required to undertake additional environmental review activities.

H. An authorized representative of the Green Valley Special Utility District will monitor and provide a report to USDA Rural Development on actual performance during construction. Full time inspection is required for all construction. A resume of qualifications of the resident inspector must be submitted for USDA Rural Development's acceptance. Daily inspection reports will be prepared in accordance with RUS Instruction 1780, Section 1780.76 (d). All estimates for payments to contractors may be made on Form RD 1924-18, "Partial Payment Estimate," prepared and certified by the consulting engineer, certified by the contractor, and approved by the appropriate Green Valley Special Utility District official(s) and USDA Rural Development.

I. The contracts must contain a clause which states "if cultural materials are encountered during construction, work will cease in the immediate area and the Texas State Historic Preservation Officer (SHPO) and USDA Rural Development State Environmental Coordinator (SEC) will be contacted. Work will not resume in the affected area until authorized by the SHPO and SEC."

J. The Green Valley Special Utility District must enact a binding resolution or covenant to prohibit service to structures proposed to be built in floodplains.

Such covenant or resolution must be in place prior to USDA Rural Development's approval of final plans and specifications. Along with a copy of the resolution or covenant, satisfactory evidence must be submitted to RUS that the covenant or resolution is fully enforceable and has been adopted in a manner consistent with all applicable State and local requirements.

K. The Green Valley Special Utility District and the consulting engineer shall insure that all requirements of the U.S. Army Corps of Engineers (USACE) "Nationwide Permit 12" are complied with during the construction of the proposed waterline and appurtenances. This shall include the TCEQ Nationwide Permit Water Quality Certification Conditions. The construction plans, specifications and contract documents shall include all applicable provisions of "Nationwide Permit 12"and TNRCC permit conditions. Upon completion of the proposed improvements, the Green Valley Special Utility District must sign and submit the required certification to USDA Rural Development and USACE that the work, including any required mitigation, was completed in compliance with the "Nationwide Permit 12."

L. To mitigate potential development in wetlands, the Green Valley Special Utility District must enact a binding resolution or covenant in order to prohibit service to areas where wetlands exist without verification that the proper USACE, Section 404

permits have been obtained. Such covenant or resolution must be in place prior to USDA Rural Development's approval of final plans and specifications. Along with a copy of the resolution or covenant, the Green Valley Special Utility District must provide evidence satisfactory to USDA Rural Development that the covenant or resolution is fully enforceable and has been adopted in a manner consistent with all applicable State and local requirements.

11. RESTRICTION ON LOBBYING

A. Federal law requires that each recipient who requests or receives a Federal contract, grant, loan, or a Federal commitment to guarantee a loan disclose the expenditure of any funds for lobbying activities. RD Instruction 1940-Q, Exhibit A-1, "Certification for Contracts, Grants, and Loans" must be executed prior to loan and/or grant approval if the loan request exceeds $150,000 and/or the grant request exceeds $100,000.

B. Any person who requests or receives a contract, subcontract, or subgrant (consulting engineers, construction contractors, etc.) in excess of $100,000 must complete RD Instruction 1940-Q, Exhibit A-1 "Certification for Contracts, Grants, and Loans".

C. Standard Form (SF) LLL, "Disclosure of Lobbying Activities," will be completed by any recipient requesting or receiving a USDA Rural Development contract where the grant exceeds $100,000, or loan exceeds $150,000, and has made or has agreed to make any payment using funds other than appropriated funds to influence or attempt to influence a decision in connection with this specific award.

12. PUBLIC INFORMATION REQUIREMENTS

The general public must be informed regarding the development of this project. A public meeting must be held prior to loan approval to give the citizenry an opportunity to become acquainted with the project and to comment on such items as economic and environmental impact, service area, and alternatives to the project. At least ten (10) days prior to the meeting, the Green Valley Special Utility District will be required to publish a notice of the meeting in a newspaper of general circulation in the service area, to post a public notice at the applicant's principal office, and to notify USDA Rural Development. A copy of the published notice and minutes of the public meeting must be provided to USDA Rural Development.

Closing instructions issued by the Office of General Counsel must be complied with.

Attached please find three additional copies of this letter and attachments. One copy should be furnished to the consulting engineer, to the attorney, and to the bond counsel. I want to meet with the governing board, the consulting engineer, attorney, and bond counsel so that we may discuss the contents of this letter.

Please complete and return the attached Form RD 1942-46, "Letter of Intent To Meet Conditions," if the Green Valley Special Utility District desires that further consideration be given to this funding request.

If the conditions set forth in this letter are not met within 90 days from the date hereof, USDA Rural Development reserves the right to discontinue the processing of this application.

Sincerely,

FOR RICHARD G. GRAMS
Rural Development Manager
USDA Rural Development, Seguin, Texas

Attachments

REQUIRED PROVISION --- REV. 6-10-02

SECTION ____.

LOAN PROGRAM REQUIREMENTS AND DOCUMENTS TO CONTROL

Section ____. Definitions.

For the purposes of this Section, the following acronyms and terms shall be defined as follows:

(a) *RUS*: The Rural Utilities Service, an agency of the United States of America within the United States Department of Agriculture, and any successor agency thereof.

(b) *FmHA*: The Farmers Home Administration, a former agency of the United States of America within the United States Department of Agriculture and its successor agency, the RUS.

(c) *Loan*: The loan in the amount of $_____ from the [Purchaser] to the [Town][City][County][Borrower], which has been authorized under 7 U.S.C. § 1926, and which is represented by the [Purchaser's] purchase of the [Certificates][bonds].

(d) *Agency rules*: The statutes, rules, regulations and policies of the former FmHA or of the RUS, in effect on the date hereof, which pertain to or which are applicable to the loan and such future statutes, rules, regulations and policies which are not inconsistent with the express provisions hereof.

(e) *Loan document provisions*: The terms, conditions, requirements and provisions of the loan instruments and loan documents, including but not limited to, loan resolutions, security agreements, assurance agreements, certifications, and equal opportunity agreements, which were signed by the _____[borrower] for the benefit of the United States of America and/or of the RUS, and for the purpose of obtaining the loan.

Section ____. Provision for Debt [use for a city or county borrower and where the debt is secured in whole or in part by taxes]

To the extent that the loan document provisions and/or the agency rules create a "debt" of the _____[borrower] (within the meaning of § 7 of Article 11 of the Texas Constitution), the governing body of _____ [borrower] shall compute and ascertain the rate and amount of ad valorem tax, based upon the latest approved tax rolls of said [town][city][county], with full allowances being made for tax delinquencies and costs of collection, which will be sufficient to raise and produce the money required to pay any sums which may be or become due during any such year on account of said "debt", in no instance to be less than two (2%) per cent of such obligation, together with all interest thereon. Said rate and amount of ad valorem tax is hereby ordered to be levied and is hereby levied against all taxable property in said [town][city][county] for each year which any liability exists by reason of the "debt" incurred, and said ad valorem tax shall be assessed and collected each such year until all of the "debt" incurred shall have been

discharged.

[*Alternative debt provision* - Bond counsel may propose their own standard "debt" provision to be reviewed and approved by the agency. This provision, once approved by RUS, will then be used in all future ordinances or orders drafted by that bond counsel.]

Section _____. Compliance with Agency Rules

(a) To the extent permitted by State law and if such law is not otherwise preempted by federal statute, regulation or rule, the _____[borrower] shall comply with all agency rules and loan document provisions.

(b) Notwithstanding any other term, condition, requirement or provision contained in this [Ordinance] [Order], the agency rules and loan document provisions shall, to the extent permitted by State law and if such law is not otherwise preempted by federal statute, regulation or rule, control to the extent of any conflict between the [Ordinance] [Order] and such agency rules or such loan document provisions.

Section _____. Interest Accrual.

Notwithstanding any other term, condition, requirement or provision contained in this [Ordinance] [Order], interest on a [Certificate] [bond] shall continue to accrue and be payable to the United States of America so long as the [Certificate] [bond] remains unpaid and outstanding. Interest will not cease to accrue for any reason (including the establishment of a redemption date or prepayment date) until the date when payment in full has been received at the agency office designated to receive payments. For the purpose of determining "the date when payment in full has been received at the agency office designated to receive payments," such date shall be:

1. when payment is made by hand delivery, the date when such payment has been physically delivered into the possession of such agency at the address given to the Issuer;

2. when payment is made by first class mail, the third day following Issuer's mailing of the payment, postage prepaid, using the U.S. Postal Service and Issuer's receipt of written proof of the mailing from the U.S. Postal Service identifying the date of mailing;

3. when payment is made by overnight delivery, the first day following Issuer's sending of the payment, using the U.S. Postal Service or another delivery service, such as Federal Express, and Issuer's receipt of written proof of sending from the delivery service identifying the date of sending;

4. when payment is made by electronic transfer of funds, the date that the electronic transfer of funds for the payment is completed; or

5. when payment is made by preauthorized electronic debit or draft, the date that the electronic debit or draft for the payment is paid.

Section _____. Redemption or Prepayment.

Notwithstanding any other term, condition, requirement or provision contained in this [Ordinance] [Order], redemption or prepayment of a [Certificate] [bond] may occur without presentation or presentment of the [Certificate] [bond].

Section _____. Limitation on Application of this Section.

(a) The provisions of this section shall be operative only for so long as any of the [Certificates] [bonds] issued under this [Ordinance] [Order] are owned or held by: (1) the United States of America; or (2) any agency thereof.

(b) The provisions of this section shall not be used to or shall not be construed so as to allow the [Ordinance] [Order] to violate any applicable provision of Texas law to the extent that such law is not otherwise preempted by applicable federal statute, regulation or rule.

SECTION ____.

CHAPTER 9, BUSINESS AND COMMERCE CODE REQUIREMENTS

Chapter 1208, Government Code, applies to the issuance of the [bonds/notes/certificates of obligation] and the pledge of the [taxes/revenues/combination thereof] granted by the Issuer under Section ____ of this [resolution/ordinance/order], and such pledge is therefore valid, effective, and perfected. If Texas law is amended at any time while the [bonds/notes/certificates of obligation] are outstanding and unpaid such that the pledge of the [taxes/revenues/combination thereof] granted by the Issuer under Section ____ of this [resolution/ordinance/order] is to be subject to the filing requirements of Chapter 9, Business & Commerce Code, then in order to preserve to the registered owners of the [bonds/notes/certificates of obligation] the perfection of the security interest in said pledge, the Issuer agrees to take such measures as it determines are reasonable and necessary under Texas law to comply with the applicable provisions of Chapter 9, Business & Commerce Code and enable a filing to perfect the security interest in said pledge to occur.

List of Approved "Debt" Provisions

1. Mark Mendel, Kemp, Smith, Duncan & Hammond, P.C., El Paso, Texas --

> To provide for the payment of any other legally incurred obligations of the [Town][City][County] with respect to the United States under the Agency rules or Loan Document Provisions, there is hereby levied for the current year and each succeeding year thereafter while the [Certificates] [Bonds] or interest thereon or any such other legally incurred obligations remain outstanding and unpaid, a tax on the taxable property in the [Town][City][County] that is sufficient to pay such other legally incurred obligations, within the limits prescribed by law, full allowance being made for delinquencies and costs of collection. The tax, if any, levied by this Section [9.3(c)] shall be assessed and collected each year and retained by the [Town][City][County] for application to the payment of such other legally incurred obligations, and such tax shall not be diverted to any other purpose.

[NOTE: The words appearing within brackets may vary or change from one ordinance or order to another depending upon the type of borrower and the terms used in the ordinance or order.]

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER: 028726 STC-DR

JOANN F. MURPHEY, ET AL -TO- GREEN VALLEY SPECIAL UTILITY DISTRICT

CORRECTION
WARRANTY DEED

DATE: December 19, 2014

GRANTOR: JOANN F. MURPHEY, joined pro forma by her husband, JERRY MURPHEY; and JAMES W. TURK A/K/A JAMES TURK, Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and joining pro forma as her husband

GRANTOR'S MAILING ADDRESS: 606 Springvale, San Antonio, Texas 78227 (Bexar County)

GRANTEE: GREEN VALLEY SPECIAL UTILITY DISTRICT

GRANTEE'S MAILING ADDRESS: P. O. Box 99, Marion, Texas 78124-0099 (Guadalupe County)

CONSIDERATION: Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged

PROPERTY (including any improvements): All that certain tract or parcel of land containing 19.311 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, and being more fully described by metes and bounds in Exhibit "A" attached.

The Property is conveyed in its present condition, with any defects, and without warranties except warranties of title and warranties in the contract between the parties, if any.

RESERVATIONS FROM CONVEYANCE: For Grantor and Grantor's heirs, successors, and assigns forever, a reservation of an undivided 50% of all oil, gas and other minerals owned by Grantor in and under and that may be produced from the Property.

Grantor waives the right of ingress and egress to and from the surface of the Property relating to the portion of the mineral estate owned by Grantor.

Nothing herein, however, restricts or prohibits the pooling or unitization of the portion of the mineral estate owned by Grantor with land other than the Property; or the exploration or production of the oil, gas, and other minerals by means of wells that are drilled or mines that open on land other than the Property but enter or bottom under the Property, provided that these operations in no manner interfere with the surface or subsurface support of any improvements constructed or to be constructed on the Property.

EXCEPTIONS TO CONVEYANCE AND WARRANTY: Validly existing easements, and rights-of-way, of record or not; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests, that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; any discrepancies, conflicts, or shortages in area or boundary lines; any encroachments or overlapping of improvements; and taxes for 2014, the payment of which Grantee assumes.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

When the context requires, singular nouns and pronouns include the plural.

This Correction Warranty Deed is made in place of and to correct a Warranty Deed from Joann F. Murphey, joined pro forma by her husband, Jerry Murphey, and Claudette June Turk, joined pro forma by her husband, James Turk, to Green Valley Special Utility District, dated December 19, 2014, and recorded in Document Number 2014023215 of the Official Public Records of Guadalupe County, Texas. By mistake that Warranty Deed inadvertently conveyed the property as 65.00 acres of land in Guadalupe Torres Survey, A-313, Guadalupe County, Texas, when in truth and fact the property being conveyed is a 19.311 acre tract and a 45.689 acre tract, Guadalupe Torres Survey, A-313, Guadalupe County, Texas, and each tract was to be conveyed by a separate deed to the Grantee. This Correction Warranty Deed, conveying the 19.311 acre tract, is made by Grantors and accepted by Grantee to correct that mistake, is effective on December 19, 2014, the date of the original Warranty Deed, and in all other respects confirms the former Warranty Deed. Another correction deed is being executed concurrently to convey the 45.689 acre tract from Grantor to Grantee.

Joann F. Murphey
JOANN F. MURPHEY

Jerry Murphey
JERRY MURPHEY

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JOANN F. MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Notary Public, State of Texas
Notary Name: Roberto Ortega

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JERRY MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Notary Public, State of Texas
Notary Name: Roberto Ortega

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK, Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK

THE STATE OF TEXAS

COUNTY OF DALLAS

This instrument was acknowledged before me on the 10 day of NOVEMBER, 2015, by JAMES W. TURK A/K/A JAMES TURK, individually and as Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased.

L. Henry Atterman
Notary Public, State of Texas
Notary Name: L. Henry Atterman

L. HENRY ALTERMAN
Notary Public, State of Texas
My Commission Expires
October 21, 2019

ACCEPTANCE BY GRANTEE:

GREEN VALLEY SPECIAL UTILITY DISTRICT

By: _____
PAT ALLEN,
General Manager

TRACY S. RAPPMUND
Notary Public, State of Texas
My Commission Expires
March 17, 2016

THE STATE OF TEXAS

COUNTY OF GUADALUPE

This instrument was acknowledged before me on the 17th day of November 2015, by PAT ALLEN, General Manager of GREEN VALLEY SPECIAL UTILITY DISTRICT, on behalf of GREEN VALLEY SPECIAL UTILITY DISTRICT.

_____
Notary Public, State of Texas
Notary Name: Tracy S. Rappmund

River City Engineering
1011 W. County Line Road * NEW BRAUNFELS, TX. 78130
PHONE (830) 625-0337 FAX (830) 625-0858
dlamberts@rcetx.com
Firm Registration #10193949

All that certain tract or parcel of land containing 19.311 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, being the same land as that certain called 20 acre parcel described in Volume 2821, Page 423 of the Official Records of Guadalupe County, Texas, further being a portion of that certain 65.000 acre parcel of land described in Document No. 2014023215 of said Official Records; Said 19.311 acre parcel being more particularly described by metes and bounds as follows:

BEGINNING at a ½ inch rebar found on the southwesterly right-of-way line of Linne Road for the most easterly corner and POINT OF BEGINNING of this parcel, same being the most easterly corner of said 65.000 acre parcel and the most northerly corner of that certain called 59.95 acre parcel described in Volume 3003, Page 362 of said Official Records;

THENCE departing said right-of-way line and with the common line of this parcel with a portion of said 59.95 acre parcel, South 59 deg 40' 23" West, a distance of 1503.91 feet (called South 61 deg 41' 13" West, 1503.91 feet) to a created point for the most southerly corner of this parcel, same being the most easterly corner of that certain called 20 acre parcel described in Volume 3051, Page 561 of said Official Records;

THENCE with the common line of this parcel with said 20 acre parcel described in Volume 3051, Page 561, North 30 deg 07' 53" West, a distance of 575.96 feet to a ½ inch rebar found for the most westerly corner of this parcel, same being the most northerly corner of said 20 acre parcel and being located on the southeasterly line of that certain called 116 acre tract of land described in Volume 2821, Page 426 of said Official Records;

THENCE with the common line of said 20 acre parcel with said 116 acre tract, North 59 deg 32' 28" East, a distance of 1377.68 feet to a created point on the aforementioned right-of-way of Linne Road for the most northerly corner of this parcel, same being the most easterly corner of said 116 acre tract;

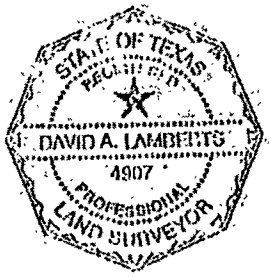
THENCE with said right-of-way line, the following three (3) courses:

1). South 48 deg 51' 21" East, a distance of 206.14 feet (called South 49 deg 00' East) to a concrete monument found;

2). South 40 deg 59' 25" East, a distance of 320.00 feet (called South 41 deg 56' East, 320.0 feet) to a ½ inch rebar set (capped "RPLS 4907");

EXHIBIT "A"

3). South 29 deg 57' 11" East, a distance of 69.21 feet (called South 30 deg 00' East, 70.4 feet) to the POINT OF BEGINNING and containing 19.311 acres of land with all bearings called for herein based of the Texas Coordinate System as established from the North American Datum 0f 1983 (CORS96) for the South Central Zone.



David A. Lamberts - R.P.L.S. No. 4907
J.O. No. 6096-104-2 (DRAWING PREPARED)

2015023858
FILED AND RECORDED
OFFICIAL PUBLIC RECORDS
11/20/2015 3:41:24 PM
PAGES: 7
TERESA KIEL, COUNTY CLERK
GUADALUPE COUNTY, TEXAS

→ STC

EXHIBIT "A"

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER. 028726 STC-DR

JOANN F. MURPHEY, ET AL -TO- GREEN VALLEY SPECIAL UTILITY DISTRICT

CORRECTION
WARRANTY DEED

DATE: December 19, 2014

GRANTOR: JOANN F. MURPHEY, joined pro forma by her husband, JERRY MURPHEY; and JAMES W. TURK A/K/A JAMES TURK, Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and joining pro forma as her husband

GRANTOR'S MAILING ADDRESS: 606 Springvale, San Antonio, Texas 78227 (Bexar County)

GRANTEE: GREEN VALLEY SPECIAL UTILITY DISTRICT

GRANTEE'S MAILING ADDRESS: P. O. Box 99, Marion, Texas 78124-0099 (Guadalupe County)

CONSIDERATION: Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged

PROPERTY (including any improvements): All that certain tract or parcel of land containing 45.689 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, and being more fully described by metes and bounds in Exhibit "A" attached.

The Property is conveyed in its present condition, with any defects, and without warranties except warranties of title and warranties in the contract between the parties, if any.

RESERVATIONS FROM CONVEYANCE: For Grantor and Grantor's heirs, successors, and assigns forever, a reservation of an undivided 50% of all oil, gas and other minerals owned by Grantor in and under and that may be produced from the Property.

Grantor waives the right of ingress and egress to and from the surface of the Property relating to the portion of the mineral estate owned by Grantor.

Nothing herein, however, restricts or prohibits the pooling or unitization of the portion of the mineral estate owned by Grantor with land other than the Property; or the exploration or production of the oil, gas, and other minerals by means of wells that are drilled or mines that open on land other than the Property but enter or bottom under the Property, provided that these operations in no manner interfere with the surface or subsurface support of any improvements constructed or to be constructed on the Property.

EXCEPTIONS TO CONVEYANCE AND WARRANTY: Validly existing easements, and rights-of-way, of record or not; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests; that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; any discrepancies, conflicts, or shortages in area or boundary lines; any encroachments or overlapping of improvements; and taxes for 2014, the payment of which Grantee assumes.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

When the context requires, singular nouns and pronouns include the plural.

This Correction Warranty Deed is made in place of and to correct a Warranty Deed from Joann F. Murphey, joined pro forma by her husband, Jerry Murphey, and Claudette June Turk, joined pro forma by her husband, James Turk, to Green Valley Special Utility District, dated December 19, 2014, and recorded in Document Number 2014023215 of the Official Public Records of Guadalupe County, Texas. By mistake that Warranty Deed inadvertently conveyed the property as 65.00 acres of land in Guadalupe Torres Survey, A-313, Guadalupe County, Texas, when in truth and fact the property being conveyed is a 19.311 acre tract and a 45.689 acre tract, Guadalupe Torres Survey, A-313, Guadalupe County, Texas, and each tract was to be conveyed by a separate deed to the Grantee. This Correction Warranty Deed, conveying the 45.689 acre tract, is made by Grantors and accepted by Grantee to correct that mistake, is effective on December 19, 2014, the date of the original Warranty Deed, and in all other respects confirms the former Warranty Deed. Another correction deed is being executed concurrently to convey the 19.311 acre tract from Grantor to Grantee.

JOANN F. MURPHEY

JERRY MURPHEY

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JOANN F. MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Notary Public, State of Texas
Name: Roberto Ortega

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JERRY MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Notary Public, State of Texas
Name: Roberto Ortega

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK, Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK

THE STATE OF TEXAS

COUNTY OF DALLAS

This instrument was acknowledged before me on the 10 day of November, 2015; by JAMES W. TURK A/K/A JAMES TURK, individually and as Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased.

L. HENRY ALTERMAN
Notary Public, State of Texas
My Commission Expires
October 21, 2019

L. Henry Alterman
Notary Public, State of Texas
Notary Name: L. Henry Alterman

ACCEPTANCE BY GRANTEE:

GREEN VALLEY SPECIAL UTILITY DISTRICT

By: _____
PAT ALLEN,
General Manager

TRACY S. RAPPMUND
Notary Public, State of Texas
My Commission Expires
March 17, 2016

THE STATE OF TEXAS

COUNTY OF GUADALUPE

This instrument was acknowledged before me on the 17th day of November, 2015, by PAT ALLEN, General Manager of GREEN VALLEY SPECIAL UTILITY DISTRICT, on behalf of GREEN VALLEY SPECIAL UTILITY DISTRICT.

Tracy S. Rappmund
Notary Public, State of Texas
Notary Name: Tracy S. Rappmund

River City Engineering
1011 W. County Line Road * NEW BRAUNFELS, TX. 78130
PHONE (830) 625-0337 FAX (830) 625-0858
dlamberts@rcetx.com
Firm Registration #10193949

All that certain tract or parcel of land containing 45.689 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, being all of that certain called 20 acre parcel described in Volume 3051, Page 561 and a portion of that certain called 116 acre tract described in Volume 2821, Page 426, all of the Official Records of Guadalupe County, Texas, further being out of that certain 65.000 acre parcel of land described in Document No. 2014023215 of said Official Records; Said 45.689 acre parcel being more particularly described by metes and bounds as follows:

BEGINNING at a created point on the southwesterly right-of-way line of Linne Road for the most easterly corner and POINT OF BEGINNING of this parcel, same being the most easterly corner of said 116 acre tract and the most northerly corner of that certain called 20 acre parcel described in Volume 2821, Page 423 of said Official Records;

THENCE departing said right-of-way line and with the common line of said 116 acre tract with said 20 acre parcel described in Volume 2821, Page 423, South 59 deg 32' 28" West, a distance of 1377.68 feet to a 1/2 inch rebar found for the most westerly corner of said 20 acre parcel, same being the most northerly corner of said 20 acre parcel described in Volume 3051, Page 561 and an interior corner of this parcel;

THENCE with the common line of said 20 acre parcel described in Volume 2821, Page 423 with said 20 acre parcel described in Volume 3051, Page 561, South 30 deg 07' 53" East, a distance of 575.96 feet to a created point for the most southerly corner of said 20 acre parcel described in Volume 2821, Page 423, same being the most easterly corner of said 20 acre parcel described in Volume 3051, page 561 and being located in the northwesterly line of that certain called 59.95 acre parcel described in Volume 3003, page 362 of said Official Records;

THENCE with the common line of this parcel with said 59.95 acre parcel, South 59 deg 40' 23" West, a distance of 810.13 feet to a ½ inch rebar found for angle, said being the most northerly corner of that certain called 12.166 acre parcel described in Volume 1035, Page 601 of said Official Records;

THENCE with the common line of this parcel with said 12.166 acre parcel, South 59 deg 37' 01" West, a distance of 690.11 feet (called South 60 deg 38' 19" West) to a ½ inch rebar found for the most southerly corner of this parcel, same being the most southerly corner of said 20 acre parcel and the most easterly corner of that certain called 72.204 acre parcel described in Volume 1347, Page 601 of said Official Records;

EXHIBIT "A"

THENCE with the common line of said 20 acre parcel with said 72.204 acre parcel, North 30 deg 25' 55" West, a distance of 569.05 feet (called North 30 deg 00" West, 579 feet) to a ½ inch rebar found for an exterior corner of this parcel, same being the most westerly corner of said 20 acre parcel, the most northerly corner of said 72.204 acre parcel and lying in the southeasterly line of the aforementioned 116 acre tract;

THENCE with the common line of said 20 acre parcel with said 116 acre tract, North 59 deg 20' 58" East, a distance of 670.68 feet to a ½ inch rebar set (capped "RPLS 4907") for an interior corner of this parcel;

THENCE severing said 116 acre tract, North 30 deg 25' 55" West, a distance of 575.36 feet to a ½ inch rebar set (capped "RPLS 4907") on the common line of said 116 acre tract with that certain called 22.7 acre parcel described in Volume 387, Page 121 of the Deed Records of Guadalupe County, Texas for the most westerly corner of this parcel;

THENCE with the common line of said 116 acre tract with said 22.7 acre parcel, North 59 deg 22' 16" East, a distance of 1816.08 feet (called North 59 deg 39' East) to a ½ inch rebar set (capped "RPLS 4907") on the aforementioned right-of-way of Linne Road for the most northerly corner of this parcel, same being the most northerly corner of said 116 acre tract and the most easterly corner of said 22.7 acre parcel;

THENCE with said right-of-way line, the following six (6) courses:

1). South 68 deg 25' 55" East, a distance of 118.68 feet (called South 68 deg 31' East, 118.0 feet) to a concrete monument found;

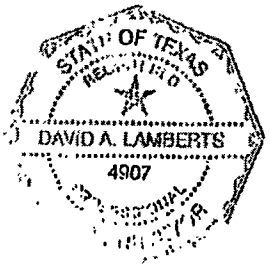
2). South 23 deg 37' 03" East, a distance of 153.65 feet (called South 23 deg 31' East, 155.0 feet) to a concrete monument found;

3). South 44 deg 15' 15" East, a distance of 133.94 feet (called South 44 deg 06' East, 134.5 feet) to a concrete monument found;

4). North 78 deg 44' 56" East, a distance of 203.51 feet (called North 78 deg 30' East, 204.0 feet) to a concrete monument found;

5). North 89 deg 46' 53" East, a distance of 100.44 feet (called North 90 deg 00' East, 100.0 feet) to a concrete monument found;

6). South 48 deg 51' 21" East, a distance of 89.73 feet (called South 49 deg 00' East) to the POINT OF BEGINNING and containing 45.689 acres of land with all bearings called for herein based of the Texas Coordinate System as established from the North American Datum 0f 1983 (CORS96) for the South Central Zone.



David A. Lamberts R.P.L.S. No. 4907
J.O. No. 6096-104-3 (DRAWING PREPARED)
EXHIBIT "A"

This page has been added by the Guadalupe County Clerk's office to comply with the statutory requirement that the recording information shall be placed at the foot of the record.

-> Seguin Title

2015023857
FILED AND RECORDED
OFFICIAL PUBLIC RECORDS
11/20/2015 3:41:23 PM
PAGES: 8
TERESA KIEL, COUNTY CLERK
GUADALUPE COUNTY, TEXAS

Teresa Kiel

Exhibit D

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER. 028726 STC-DR

JOANN F. MURPHEY, ET AL -TO- GREEN VALLEY SPECIAL UTILITY DISTRICT

CORRECTION
WARRANTY DEED

DATE: December 19, 2014

GRANTOR: JOANN F. MURPHEY, joined pro forma by her husband, JERRY MURPHEY; and JAMES W. TURK A/K/A JAMES TURK, Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and joining pro forma as her husband

GRANTOR'S MAILING ADDRESS: 606 Springvale, San Antonio, Texas 78227 (Bexar County)

GRANTEE: GREEN VALLEY SPECIAL UTILITY DISTRICT

GRANTEE'S MAILING ADDRESS: P. O. Box 99, Marion, Texas 78124-0099 (Guadalupe County)

CONSIDERATION: Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged

PROPERTY (including any improvements): All that certain tract or parcel of land containing 45.689 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, and being more fully described by metes and bounds in Exhibit "A" attached.

The Property is conveyed in its present condition, with any defects, and without warranties except warranties of title and warranties in the contract between the parties, if any.

RESERVATIONS FROM CONVEYANCE: For Grantor and Grantor's heirs, successors, and assigns forever, a reservation of an undivided 50% of all oil, gas and other minerals owned by Grantor in and under and that may be produced from the Property.

Grantor waives the right of ingress and egress to and from the surface of the Property relating to the portion of the mineral estate owned by Grantor.

Nothing herein, however, restricts or prohibits the pooling or unitization of the portion of the mineral estate owned by Grantor with land other than the Property; or the exploration or production of the oil, gas, and other minerals by means of wells that are drilled or mines that open on land other than the Property but enter or bottom under the Property, provided that these operations in no manner interfere with the surface or subsurface support of any improvements constructed or to be constructed on the Property.

EXCEPTIONS TO CONVEYANCE AND WARRANTY: Validly existing easements, and rights-of-way, of record or not; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests, that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; any discrepancies, conflicts, or shortages in area or boundary lines; any encroachments or overlapping of improvements; and taxes for 2014, the payment of which Grantee assumes.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

When the context requires, singular nouns and pronouns include the plural.

This Correction Warranty Deed is made in place of and to correct a Warranty Deed from Joann F. Murphey, joined pro forma by her husband, Jerry Murphey, and Claudette June Turk, joined pro forma by her husband, James Turk, to Green Valley Special Utility District, dated December 19, 2014, and recorded in Document Number 20140023215 of the Official Public Records of Guadalupe County, Texas. By mistake that Warranty Deed inadvertently conveyed the property as 65.00 acres of land in Guadalupe Torres Survey, A-313, Guadalupe County, Texas, when in truth and fact the property being conveyed is a 19.311 acre tract and a 45.689 acre tract, Guadalupe Torres Survey, A-313, Guadalupe County, Texas, and each tract was to be conveyed by a separate deed to the Grantee. This Correction Warranty Deed, conveying the 45.689 acre tract, is made by Grantors and accepted by Grantee to correct that mistake, is effective on December 19, 2014, the date of the original Warranty Deed, and in all other respects confirms the former Warranty Deed. Another correction deed is being executed concurrently to convey the 19.311 acre tract from Grantor to Grantee.

JOANN F. MURPHEY

JERRY MURPHEY

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JOANN F. MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Roberto Ortega
Notary Public, State of Texas
Name: Roberto Ortega

THE STATE OF TEXAS

COUNTY OF Bexar

This instrument was acknowledged before me on the 10 day of November, 2015, by JERRY MURPHEY.

ROBERTO ORTEGA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 5/22/2018

Roberto Ortega
Notary Public, State of Texas
Name: Roberto Ortega

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK,
Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased, and

James W. Turk
A/K/A James Turk
JAMES W. TURK A/K/A JAMES TURK

THE STATE OF TEXAS

COUNTY OF DALLAS

This instrument was acknowledged before me on the 10 day of November, 2015, by JAMES W. TURK A/K/A JAMES TURK, individually and as Independent Executor of the Estate of Claudette B. Turk (a/k/a Claudette Blumberg Turk and Claudette June Turk), Deceased.

L. HENRY ALTERMAN
Notary Public, State of Texas
My Commission Expires
October 21, 2019

L. Henry Alterman
Notary Public, State of Texas
Notary Name: L. Henry Alterman

ACCEPTANCE BY GRANTEE:

GREEN VALLEY SPECIAL UTILITY DISTRICT

By: _____
PAT ALLEN,
General Manager

TRACY S. RAPPMUND
Notary Public, State of Texas
My Commission Expires
March 17, 2016

THE STATE OF TEXAS

COUNTY OF GUADALUPE

This instrument was acknowledged before me on the 17th day of November, 2015, by PAT ALLEN, General Manager of GREEN VALLEY SPECIAL UTILITY DISTRICT, on behalf of GREEN VALLEY SPECIAL UTILITY DISTRICT.

Tracy S. Rappmund
Notary Public, State of Texas
Notary Name: Tracy S. Rappmund

River City Engineering
1011 W. County Line Road * NEW BRAUNFELS, TX. 78130
PHONE (830) 625-0337 FAX (830) 625-0858
dlamberts@rcetx.com
Firm Registration #10193949

All that certain tract or parcel of land containing 45.689 acres of land out of the Guadalupe Torres Survey, Abstract No. 313, Guadalupe County, Texas, being all of that certain called 20 acre parcel described in Volume 3051, Page 561 and a portion of that certain called 116 acre tract described in Volume 2821, Page 426, all of the Official Records of Guadalupe County, Texas, further being out of that certain 65.000 acre parcel of land described in Document No. 2014023215 of said Official Records; Said 45.689 acre parcel being more particularly described by metes and bounds as follows:

BEGINNING at a created point on the southwesterly right-of-way line of Linne Road for the most easterly corner and POINT OF BEGINNING of this parcel, same being the most easterly corner of said 116 acre tract and the most northerly corner of that certain called 20 acre parcel described in Volume 2821, Page 423 of said Official Records;

THENCE departing said right-of-way line and with the common line of said 116 acre tract with said 20 acre parcel described in Volume 2821, Page 423, South 59 deg 32' 28" West, a distance of 1377.68 feet to a 1/2 inch rebar found for the most westerly corner of said 20 acre parcel, same being the most northerly corner of said 20 acre parcel described in Volume 3051, Page 561 and an interior corner of this parcel;

THENCE with the common line of said 20 acre parcel described in Volume 2821, Page 423 with said 20 acre parcel described in Volume 3051, Page 561, South 30 deg 07' 53" East, a distance of 575.96 feet to a created point for the most southerly corner of said 20 acre parcel described in Volume 2821, Page 423, same being the most easterly corner of said 20 acre parcel described in Volume 3051, page 561 and being located in the northwesterly line of that certain called 59.95 acre parcel described in Volume 3003, page 362 of said Official Records;

THENCE with the common line of this parcel with said 59.95 acre parcel, South 59 deg 40' 23" West, a distance of 810.13 feet to a ½ inch rebar found for angle, said being the most northerly corner of that certain called 12.166 acre parcel described in Volume 1035, Page 601 of said Official Records;

THENCE with the common line of this parcel with said 12.166 acre parcel, South 59 deg 37' 01" West, a distance of 690.11 feet (called South 60 deg 38' 19" West) to a ½ inch rebar found for the most southerly corner of this parcel, same being the most southerly corner of said 20 acre parcel and the most easterly corner of that certain called 72.204 acre parcel described in Volume 1347, Page 601 of said Official Records;

EXHIBIT "A"

THENCE with the common line of said 20 acre parcel with said 72.204 acre parcel, North 30 deg 25' 55" West, a distance of 569.05 feet (called North 30 deg 00" West, 579 feet) to a ½ inch rebar found for an exterior corner of this parcel, same being the most westerly corner of said 20 acre parcel, the most northerly corner of said 72.204 acre parcel and lying in the southeasterly line of the aforementioned 116 acre tract;

THENCE with the common line of said 20 acre parcel with said 116 acre tract, North 59 deg 20' 58" East, a distance of 670.68 feet to a ½ inch rebar set (capped "RPLS 4907") for an interior corner of this parcel;

THENCE severing said 116 acre tract, North 30 deg 25' 55" West, a distance of 575.36 feet to a ½ inch rebar set (capped "RPLS 4907") on the common line of said 116 acre tract with that certain called 22.7 acre parcel described in Volume 387, Page 121 of the Deed Records of Guadalupe County, Texas for the most westerly corner of this parcel;

THENCE with the common line of said 116 acre tract with said 22.7 acre parcel, North 59 deg 22' 16" East, a distance of 1816.08 feet (called North 59 deg 39' East) to a ½ inch rebar set (capped "RPLS 4907") on the aforementioned right-of-way of Linne Road for the most northerly corner of this parcel, same being the most northerly corner of said 116 acre tract and the most easterly corner of said 22.7 acre parcel;

THENCE with said right-of-way line, the following six (6) courses:

1). South 68 deg 25' 55" East, a distance of 118.68 feet (called South 68 deg 31' East, 118.0 feet) to a concrete monument found;

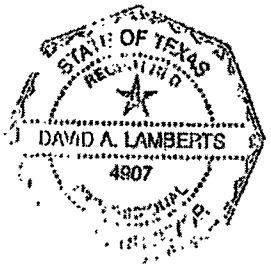
2). South 23 deg 37' 03" East, a distance of 153.65 feet (called South 23 deg 31' East, 155.0 feet) to a concrete monument found;

3). South 44 deg 15' 15" East, a distance of 133.94 feet (called South 44 deg 06' East, 134.5 feet) to a concrete monument found;

4). North 78 deg 44' 56" East, a distance of 203.51 feet (called North 78 deg 30' East, 204.0 feet) to a concrete monument found;

5). North 89 deg 46' 53" East, a distance of 100.44 feet (called North 90 deg 00' East, 100.0 feet) to a concrete monument found;

6). South 48 deg 51' 21" East, a distance of 89.73 feet (called South 49 deg 00' East) to the POINT OF BEGINNING and containing 45.689 acres of land with all bearings called for herein based of the Texas Coordinate System as established from the North American Datum 0f 1983 (CORS96) for the South Central Zone.



David A. Lamberts R.P.L.S. No. 4907
J.O. No. 6096-104-3 (DRAWING PREPARED)
EXHIBIT "A"