

# TCEQ Interoffice Memorandum

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TO: Office of the Chief Clerk  
Texas Commission on Environmental Quality

THRU: Chris Kozlowski, Team Leader  
Water Rights Permitting Team

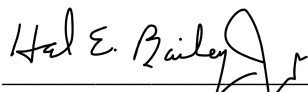
FROM: Hal E. Bailey, Jr., Project Manager  
Water Rights Permitting Team

DATE: November 19, 2025

SUBJECT: Horizon Rockhill Heights, LLC  
WRPERM 14129  
CN606158939, RN112222864  
Application No. 14129 for a Water Use Permit  
Texas Water Code §§ 11.121, 11.042, Requiring Published and Mailed  
Notice  
Unnamed Tributary of Little Elm Creek, Trinity River Basin  
Collin County

The application and fees were received on May 29, 2025. Additional information was received on September 15, October 21, and November 7, 2025. The application was declared administratively complete and accepted for filing with the Office of the Chief Clerk on November 19, 2025. Mailed and published notice to water right holders of record in the Trinity River Basin is required pursuant to Title 30 TAC §§ 295.152(a) and 259.153(b). Notice to OPIC and TPWD is required pursuant to 30 TAC § 295.161(c). Notice to the North Texas Groundwater Conservation District is also required pursuant to 30 TAC § 295.153(b)(3).

All fees have been paid and the application is sufficient for filing.



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Hal E. Bailey, Jr., Project Manager  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section

**OCC Mailed Notice Required**    ☒ **YES**    ☐ **NO**



Brooke T. Paup, *Chairwoman*  
Catarina R. Gonzales, *Commissioner*  
Tonya R. Miller, *Commissioner*  
Kelly Keel, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

November 19, 2025

Ms. Kelsey L. Campbell, P.E.  
Kimley-Horn  
6160 Warren Parkway, Suite 210  
Frisco, TX 75034-9741

**VIA E-MAIL**

RE: Horizon Rockhill Heights, LLC  
WRPERM 14129  
CN606158939, RN112222864  
Application No. 14129 for a Water Use Permit  
Texas Water Code §§ 11.121, 11.042, Requiring Published and Mailed Notice  
Unnamed Tributary of Little Elm Creek, Trinity River Basin  
Collin County

Dear Ms. Campbell:

This acknowledges receipt, on September 15, October 21, and November 7, 2025, of additional information.

The application was declared administratively complete and filed with the Office of the Chief Clerk on November 19, 2025. Staff will continue processing the application for consideration by the Executive Director.

Please be advised that additional information may be requested during the technical review phase of the application process.

If you have any questions concerning the application, please contact me via email at [hal.bailey@tceq.texas.gov](mailto:hal.bailey@tceq.texas.gov) or by telephone at (512) 239-4615.

Sincerely,

A handwritten signature in black ink that reads "Hal E. Bailey, Jr." with a stylized flourish at the end.

Hal E. Bailey, Jr., Project Manager  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section



## Hal Bailey

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**From:** Alderman, Nadia (Whitehouse) <[REDACTED]>  
**Sent:** Friday, November 7, 2025 9:48 AM  
**To:** Hal Bailey; Campbell, Kelsey (McGuire)  
**Cc:** Chris Kozlowski; Humberto Galvan; Trent Gay  
**Subject:** RE: Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI) # 2  
**Attachments:** 2\_Discharge and Diversion Map\_01.pdf

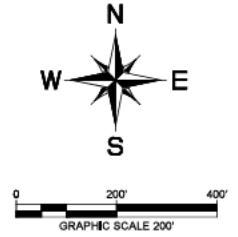
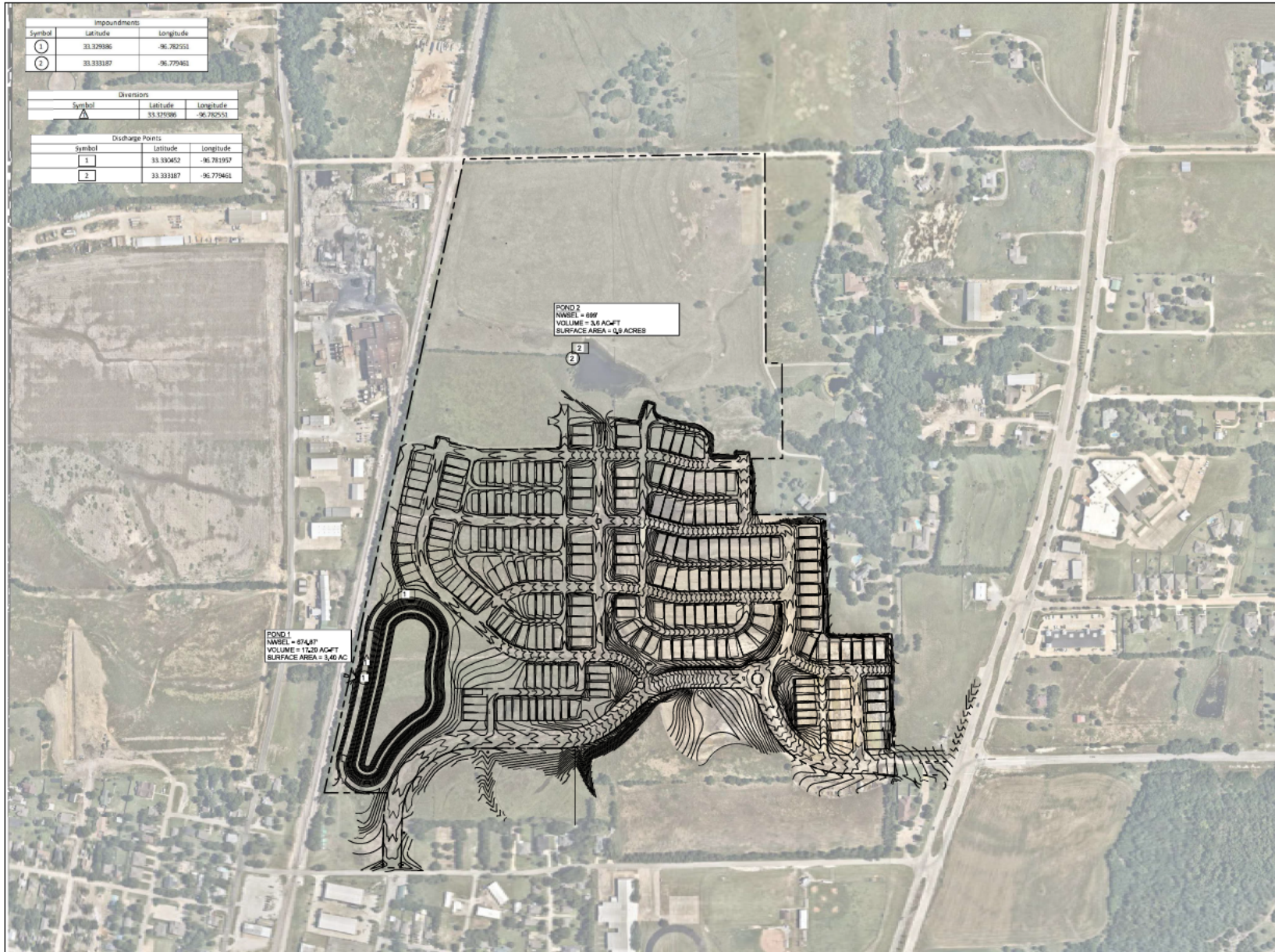
Trent,

Please see attached for the updated Discharge and Diversion Map based on our call today.

Thanks!

**Nadia Alderman (Whitehouse), PE (TX), CFM**  
**Kimley-Horn** | 6160 Warren Parkway, Suite 210, Frisco TX 75034  
Direct: 469 473 2995 | | Main: 972 335 3580






# DISCHARGE AND DIVERSION EXHIBIT

Celina, Texas  
October 2025

**Kimley»Horn**  
 6160 Warren Parkway  
 Suite 210  
 Frisco, Texas 75034  
 972-338-2600  
 State of Texas Registration No. F-028



**Texas Commission on Environmental Quality**  
**TELEPHONE MEMO TO THE FILE**

Call to: Ms. Nadia Alderman, PE	Call from: Trent Gay
Date: 11/7/2025	Project No: Horizon Rockhill Heights, LLC WRPERM 14129
<i>Information for File follows:</i>  We discussed the map submitted October 21, 2025, with the RFI2 response. She confirmed the map mislabeled discharge point 2 as diversion point 2, and that she would resubmit a revised map.	
	



## Hal Bailey

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**From:** Alderman, Nadia (Whitehouse) [REDACTED] >  
**Sent:** Tuesday, October 21, 2025 5:43 PM  
**To:** Hal Bailey; Campbell, Kelsey (McGuire)  
**Cc:** Chris Kozlowski; Humberto Galvan  
**Subject:** RE: Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI) # 2  
**Attachments:** 1\_Worksheet 4.0 and 4.1.pdf; 2\_Discharge and Diversion Map.pdf

Good evening Hal,

Please see attached for the updated Worksheet 4.1.

The plan is to have the groundwater well located next to Pond 1 draw water to replace the water lost due to evaporation in Pond 2 as well. Therefore, only 1 copy of Worksheet 4.0 is included, but two separate copies of Worksheet 4.1. As this added another discharge point, I have included an updated discharge and diversion map as well.

Thank you so much and let me know if you and the team have any questions!

**Nadia Alderman (Whitehouse), PE (TX), CFM**  
**Kimley-Horn** | 6160 Warren Parkway, Suite 210, Frisco TX 75034  
Direct: 469 473 2995 | | Main: 972 335 3580

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**From:** Hal Bailey <Hal.Bailey@tceq.texas.gov>  
**Sent:** Thursday, October 16, 2025 11:00 AM  
**To:** Campbell, Kelsey (McGuire) [REDACTED]  
**Cc:** Alderman, Nadia (Whitehouse) <[REDACTED]>; Chris Kozlowski <chris.kozlowski@tceq.texas.gov>; Humberto Galvan <Humberto.Galvan@tceq.texas.gov>  
**Subject:** Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI) #2

Good morning Ms. Campbell,

Please find the attached RFI #2 for water use permit application no. 14129. Response due date is 11/17/2025.

If you have any questions, please feel free to contact me.

Thank you,

Hal E. Bailey, Jr.  
Natural Resources Specialist IV  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section  
Phone: 512-239-4615



# WORKSHEET 4.0

## DISCHARGE INFORMATION

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26. *Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC, Chapter 26 or any other applicable law.***

- a. The purpose of use for the water being discharged will be TO REPLACE WATER LOST TO EVAPORATION AND IRRIGATION.
- b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses 29.24 ac-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.
- c. Is the source of the discharged water return flows? **Y / N** N If yes, provide the following information:
1. The TPDES Permit Number(s). \_\_\_\_\_ (attach a copy of the **current** TPDES permit(s))
  2. Applicant is the owner/holder of each TPDES permit listed above? **Y / N** \_\_\_\_\_

*PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.*

3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").
4. The percentage of return flows from groundwater\_\_\_\_\_, surface water\_\_\_\_\_?
5. If any percentage is surface water, provide the base water right number(s)\_\_\_\_\_.
- d. Is the source of the water being discharged groundwater? **Y** / **N**<sup>Y</sup> If yes, provide the following information:
  1. Source aquifer(s) from which water will be pumped: Woodbine Aquifer
  2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See **SEE ATTACHED GROUNDWATER AVAILABILITY EVALUATION** <http://www.twdb.texas.gov/groundwater/data/gwdbrrpt.asp>. Additionally, provide well numbers or identifiers\_\_\_\_\_.
  3. Indicate how the groundwater will be conveyed to the stream or reservoir.

Groundwater will be pumped to recharge the pond through a proposed well, anticipated to be discharged with an air gap.
  4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required. **Permit is attached.**
- di. Is the source of the water being discharged a surface water supply contract? **Y** / **N**<sup>N</sup> If yes, provide the signed contract(s).
- lii. Identify any other source of the water\_\_\_\_\_



## WORKSHEET 4.1

### DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps).

**Instructions, Page 27.**

**For water discharged at this location provide:**

- a. The amount of water that will be discharged at this point is 105.65 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
- b. Water will be discharged at this point at a maximum rate of 0.17 cfs or 77 gpm.
- c. Name of Watercourse as shown on Official USGS maps: Unnamed Tributary to Little Elm Creek
- d. Zip Code 75009
- e. Location of point: In the Collin County School Land Survey Original Survey No. 15, Abstract No. 170, Collin County, Texas.
- f. Point is at:  
Latitude 33.330452 °N, Longitude 96.781957 °W.  
***\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places***
- g. Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD

**Map submitted must clearly identify each discharge point. See instructions Page. 15.**



## WORKSHEET 4.1

### DISCHARGE POINT INFORMATION

Discharge Point #2

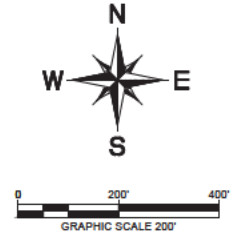
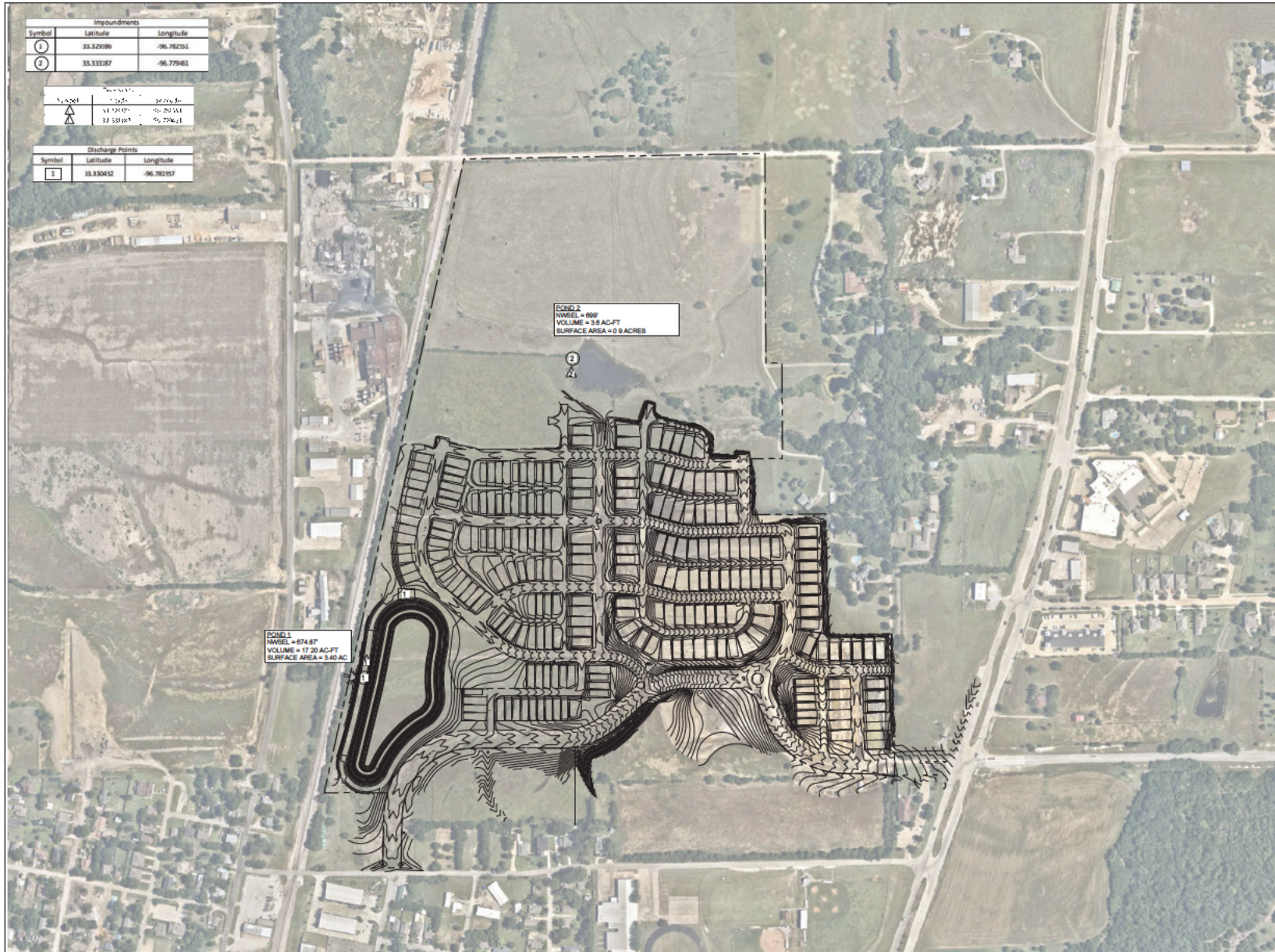
This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps).  
**Instructions, Page 27.**

**For water discharged at this location provide:**

- a. The amount of water that will be discharged at this point is 6.12 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
- b. Water will be discharged at this point at a maximum rate of \_\_\_\_\_ cfs or 6 gpm.
- c. Name of Watercourse as shown on Official USGS maps: Unnamed Tributary to Little Elm Creek
- d. Zip Code 75009
- e. Location of point: In the Collin County School Land Survey Original Survey No. 15, Abstract No. 170, Collin County, Texas.
- f. Point is at:  
Latitude 33.333187 °N, Longitude -96.779461 °W.  
***\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places***
- g. Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD

**Map submitted must clearly identify each discharge point. See instructions Page. 15.**





# DISCHARGE AND DIVERSION EXHIBIT

Celina, Texas  
 October 2025

**Kimley»Horn**

6100 Wrenn Parkway  
 Suite 210  
 Frisco, Texas 75034  
 972-336-3500  
 State of Texas Registration No. F-428



## Hal Bailey

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**From:** Hal Bailey  
**Sent:** Thursday, October 16, 2025 11:00 AM  
**To:** Campbell, Kelsey (McGuire)  
**Cc:** Alderman, Nadia (Whitehouse); Chris Kozlowski; Humberto Galvan  
**Subject:** Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI) #2  
**Attachments:** Horizon\_Rockhill\_Heights\_LLC\_14129\_RFI\_#2\_Sent\_10.16.2025.pdf

Good morning Ms. Campbell,

Please find the attached RFI #2 for water use permit application no. 14129. Response due date is 11/17/2025.

If you have any questions, please feel free to contact me.

Thank you,

Hal E. Bailey, Jr.  
Natural Resources Specialist IV  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section  
Phone: 512-239-4615



Brooke T. Paup, *Chairwoman*  
Catarina R. Gonzales, *Commissioner*  
Tonya R. Miller, *Commissioner*  
Kelly Keel, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

October 16 2025

Ms. Kelsey L. Campbell, P.E.  
Kimley-Horn  
6160 Warren Parkway, Suite 210  
Frisco, TX 75034-9741

VIA E-MAIL

RE: Horizon Rockhill Heights, LLC  
WRPERM 14129  
CN606158939, RN112222864  
Application No. 14129 for a Water Use Permit  
Texas Water Code § 11.121, Requiring Published and Mailed Notice  
Unnamed Tributary of Little Elm Creek, Trinity River Basin  
Collin County

Dear Ms. Campbell:

This acknowledges receipt, on September 15, 2025, of additional information.

Staff acknowledges receipt of Worksheet 4.1 *Discharge Point Information* for the discharge point for Pond 1 in the application submitted on May 29, 2025. However, Applicant has not submitted a Worksheet 4.1 for the discharge point where water will be discharged into Pond 2.

Before the application can be declared administratively complete, provide a completed Worksheet 4.1 *Discharge Point Information* (copy attached) for the location where groundwater will be discharged into Pond 2.

Please provide the requested information by November 17, 2025, or the application may be returned pursuant to Title 30 Texas Administrative Code § 281.18.

Staff notes that additional information may be required prior to completion of technical review.

If you have any questions concerning this matter, please contact me via email at [hal.bailey@tceq.texas.gov](mailto:hal.bailey@tceq.texas.gov) or by telephone at (512) 239-4615.

Sincerely,

A handwritten signature in black ink that reads "Hal E. Bailey, Jr." with a stylized flourish at the end.

Hal E. Bailey, Jr., Project Manager  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section

Attachment



## WORKSHEET 4.1

### DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps).  
**Instructions, Page 27.**

**For water discharged at this location provide:**

- a. The amount of water that will be discharged at this point is \_\_\_\_\_ acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
- b. Water will be discharged at this point at a maximum rate of \_\_\_\_\_ cfs or \_\_\_\_\_ gpm.
- c. Name of Watercourse as shown on Official USGS maps: \_\_\_\_\_
- d. Zip Code \_\_\_\_\_
- e. Location of point: In the \_\_\_\_\_ Original Survey No. \_\_\_\_\_, Abstract No. \_\_\_\_\_, \_\_\_\_\_ County, Texas.
- f. Point is at:  
Latitude \_\_\_\_\_ °N, Longitude \_\_\_\_\_ °W.  
***\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places***
- g. Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): \_\_\_\_\_

**Map submitted must clearly identify each discharge point. See instructions Page. 15.**



## Hal Bailey

---

**From:** Alderman, Nadia (Whitehouse) [REDACTED] >  
**Sent:** Monday, September 15, 2025 1:51 PM  
**To:** Hal Bailey; Campbell, Kelsey (McGuire)  
**Cc:** Humberto Galvan; Chris Kozlowski  
**Subject:** RE: Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI)  
**Attachments:** RFI # 1 WRPERM 14129.pdf

Good afternoon Hal,

Please see attached for the comment response letter and additional material that was requested. Please let me know if you have any questions!

Thanks,

**Nadia Alderman (Whitehouse), PE (TX), CFM**  
**Kimley-Horn** | 6160 Warren Parkway, Suite 210, Frisco TX 75034  
Direct: 469 473 2995 | | Main: 972 335 3580

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**From:** Hal Bailey <Hal.Bailey@tceq.texas.gov>  
**Sent:** Friday, September 5, 2025 1:15 PM  
**To:** Campbell, Kelsey (McGuire) [REDACTED]  
**Cc:** Humberto Galvan <Humberto.Galvan@tceq.texas.gov>; Chris Kozlowski <chris.kozlowski@tceq.texas.gov>; Alderman, Nadia (Whitehouse) [REDACTED]  
**Subject:** Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI)

Good afternoon Ms. Campbell,

Please find the attached RFI for water use permit application no. 14129. Response due date is 10/06/2025.

If you have any questions, please feel free to contact me.

Thank you,

Hal E. Bailey, Jr.  
Natural Resources Specialist IV  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section  
Phone: 512-239-4615





September 19<sup>th</sup>, 2025

Texas Commission on Environmental Quality  
Water Availability Division, MC-160  
12100 Park 35 Circle  
Austin, TX 78753

**RE:**     ***Response Letter to Comments (Dated September 5, 2025)***  
          ***WRPERM 14129***  
          ***Unnamed Tributary of Little Elm Creek, Trinity River Basin***  
          ***Collin County***

Dear Mr. Bailey:

This letter is in response to comments we received from you on September 5<sup>th</sup>, 2025 via e-mail. Our responses to the comments are below:

**Comment 1:** Confirm that the application is requesting authorization to maintain two reservoirs with groundwater from the Woodbine Aquifer.

**Response:** Correct, this application is requesting authorization to maintain two reservoirs with groundwater from the Woodbine Aquifer.

**Comment 2:** Confirm the location and capacity of each reservoir requested:

Reservoir Name	Latitude (N)	Longitude (W)	Capacity (ac-ft)
Pond 1	33.329386	96.782551	17.20
Pond 2	33.333187	96.779461	3.69

**Response:** Location and Capacity of each reservoir is correct.

**Comment 3:** Confirm that the application is requesting authorization to use the bed and banks of an unnamed tributary to Little Elm Creek (Pond 1), tributary of Little Elm Creek, Trinity River Basin to convey groundwater for subsequent diversion and use for agricultural and recreational purposes.

**Response:** Correct, this application is requesting authorization to use the bed and banks of an unnamed tributary to Little Elm Creek (Pond 1), tributary of Little Elm Creek, Trinity River Basin to convey groundwater for subsequent diversion and use for agricultural and recreational purposes.

**Comment 4:** Provide a completed ***Worksheet 4.0 Discharge Information*** and ***Worksheet 4.1 Discharge Point Information*** for Pond 2 Discharges.

**Response:** One (1) groundwater well will be built to replace water lost by evaporation for both Ponds 1 and 2. This well will be located next to Pond 1 and will be connected via a pipe system to replace the water due to evaporation.



**Comment 5:** Provide an updated USGS 7.5-minute topographic map (or equivalent) with the location of all reservoirs, diversion points and discharge points clearly marked.

**Response:** A USGS 7.5 minute topographic map with marked locations for reservoirs, diversion points and discharge points has been included with this submittal.

**Comment 6:** Provide the well number(s) or well identifiers(s), location of the well, and well data sheets for the groundwater quality data provided in Worksheet 5.0 (3)(b)(ii).

**Response:** The well identifiers; locations and data sheets used to determine water quality have been included as an attachment to this letter.

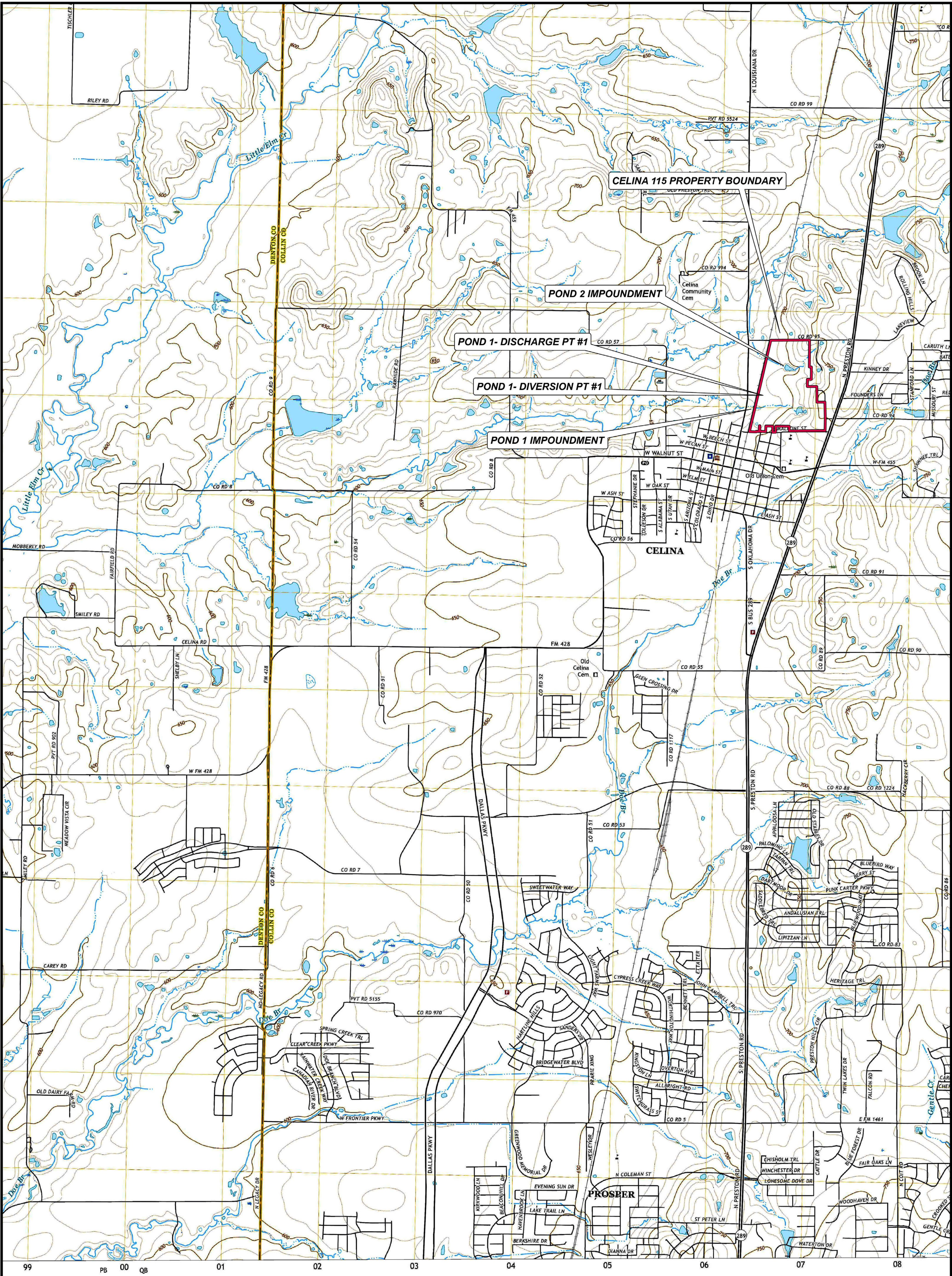
If you have any questions, please contact me at [REDACTED] or (972) 335-3580.

Sincerely,

A handwritten signature in blue ink that reads "K. Campbell". The signature is fluid and cursive, with the first letter of each name being capitalized and prominent.

Kelsey L. Campbell, P.E.







## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Kwb Field No. H-21 State Well No. 18-28-702  
 Owner's Well No. \_\_\_\_\_ County GRAYSON

1. Location: 1/4, 1/4 Sec. \_\_\_\_\_, Block \_\_\_\_\_ Survey \_\_\_\_\_

2. Owner: CITY OF HOWE Address: \_\_\_\_\_

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: J. L. MYERS' SONS Address: \_\_\_\_\_

3. Elevation of LS is 838 ft. above msl, determined by T&PO

4. Drilled: 4-10 19 54; Dug, Cable Tool, Rotary

5. Depth: Rept. 1069 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. Johnston Type TURB

No. Stages \_\_\_\_\_, Bore Dia. \_\_\_\_\_ in., Setting 550 ft. 5-64

Column Dia. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel ELEC. Make & Model \_\_\_\_\_ HP. 25

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date 5- Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 380 ft. rept 4 19 54 above myers airline which is \_\_\_\_\_ ft. above surface.

(P.L.) 455 ft. rept 5 19 64 above " airline which is \_\_\_\_\_ ft. above surface.

ft. rept 19 above which is \_\_\_\_\_ ft. above surface.

ft. rept 19 above which is \_\_\_\_\_ ft. above surface.

ft. rept 19 above which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock Public Supply Ind., Irr., Waterflooding, Observation, Not Used, \_\_\_\_\_

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 8-20-58 Laboratory USGS

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: P. L. NORDSTROM Date 4-15 19 76

Source of Data B-6013 J. L. MYERS CO. ABS

16. Remarks: \_\_\_\_\_


CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.		Setting, ft.	
Diam. (in.)	Type	from	to
6	steel	0	902
4 1/2	liner	798	1069

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
4	SS W.O.P. screen	908	938
4	"	953	1003
4	"	1033	1054



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. \_\_\_\_\_ Lab No. \_\_\_\_\_

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

Analysis copied from  
Texas Department of  
Health Files

County

091 GRAYSON

State Well No.

18-28-702

Well No.

Date Collected

05-24-56

Owner CITY OF HOWE

Send copy to owner Sample No. \_\_\_\_\_ By CSP

Address \_\_\_\_\_

Well Location \_\_\_\_\_

Date Drilled 1954 Depth 1069 ft. WBF \_\_\_\_\_

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth \_\_\_\_\_ ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup><sub>est.</sub> Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

Laboratory No. \_\_\_\_\_

**KEY PUNCHED**

Date Received 5-28-56

Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica . . . 00955 . . .		
Calcium . . . 00910 . . .	2	
Magnesium . . . 00920 . . .	1	
Sodium . . . 00929 . . .	368	

Total

<input type="checkbox"/> Potassium . . . 00937 . . .			
<input checked="" type="checkbox"/> Manganese . . . 01055 . . .	20	05	%Na _____
<input type="checkbox"/> Boron . . . 01022 . . .			SAR _____
<input checked="" type="checkbox"/> Total Iron . . . 01045 . . .	0	02	RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 00095 \_\_\_\_\_

Diluted Conductance (micromhos/cm<sup>3</sup>):

X

= \_\_\_\_\_

☐ " items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.

	MG/L	ME/L
Carbonate . . . 00445 . . .	24	
Bicarbonate . . . 00440 . . .	695	
Sulfate . . . 00945 . . .	115	
Chloride . . . 00940 . . .	46	
Fluoride . . . 00951 . . .	1.4	
Nitrate . . . 71850 . . .	2.00	
pH . . . 00403 . . .	8.4	
Total		

<sup>1</sup> Dissolved Solids (residue at 180°C) . . . 70300 . . .	870
Phenolphthalein Alkalinity as CaCO <sub>3</sub> . . . 00415 . . .	20
Total Alkalinity as CaCO <sub>3</sub> . . . 00410 . . .	610
Total Hardness as CaCO <sub>3</sub> . . . 00900 . . .	5
<sup>2</sup> Nitrogen Cycle	
Ammonia - N . . . . . 00610 . . .	
Nitrite - N . . . . . 00615 . . .	
Nitrate - N . . . . . 00620 . . .	
Organic Nitrogen . . . . . 00605 . . .	

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 43rd Street  
Austin, Texas 78786

U. S. G. S.

# TWDB USE ONLY

Program No. \_\_\_\_\_

Proj. No. \_\_\_\_\_

## CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division

Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County KT GRAYSON  
State Well No. 18-28-702  
H-21 Well No. \_\_\_\_\_  
Date Collected 08-20-58  
By \_\_\_\_\_

Location \_\_\_\_\_

Source (type of well) Elec. Turb. Owner CITY OF HOWE

Date Drilled 54 Depth 1069 ft. WBF Woodbine

Producing intervals 908-1054 Water level 371 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup><sub>est.</sub> Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection WELL Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use P.S. Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

### KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<div>13</div>	
Calcium	<div>1.2</div>	
Magnesium	<div>0.7</div>	
Sodium	<div>367</div>	
Total		
<input checked="" type="checkbox"/> Potassium	<div>1.5</div>	
<input type="checkbox"/> Manganese	<div>.</div>	%Na <u>99</u>
<input checked="" type="checkbox"/> Boron	<div>.2</div>	SAR <u>65</u>
<input checked="" type="checkbox"/> Total Iron	<div>.05</div>	RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 1450

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X

☐ " " items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron requires separate sample.

TWDBS-SI-27

	MG/L	ME/L
Carbonate		
Bicarbonate	<div>751</div>	
Sulfate	<div>118</div>	
Chloride	<div>33</div>	
Fluoride	<div>1.4</div>	
Nitrate	<div>3.0</div>	
pH	<div>8.6</div>	Total
<sup>1</sup> Dissolved Solids (sum in MG/L)		<div>909</div>
Phenolphthalein Alkalinity as C aCO <sub>3</sub>		
Total Alkalinity as C aCO <sub>3</sub>		
Total Hardness as C aCO <sub>3</sub>		<div>6</div>
<sup>2</sup> Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Program No. \_\_\_\_\_ Lab No. 

--	--

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County

0	9	1
---	---	---

 Grayson

State Well No.

1	8	2	8	7	0	2
---	---	---	---	---	---	---

Well No.

Date Collected

0	8	2	0	7	0
---	---	---	---	---	---

Location \_\_\_\_\_ Sample No. 

--

 By \_\_\_\_\_

Source (type of well) \_\_\_\_\_ Owner \_\_\_\_\_

Date Drilled \_\_\_\_\_ Depth 1069 ft. WBF R6W

--	--	--	--

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth 

--	--	--	--

 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 

--	--	--

 °F 

--	--	--

 °C

Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

#### CHEMICAL ANALYSIS

#### KEY PUNCHED

Laboratory No. \_\_\_\_\_

Date Received \_\_\_\_\_

Date Reported \_\_\_\_\_

	MG/L	ME/L																																
Silica . . . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>																	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>																
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☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) . . . . . 

--	--	--	--	--	--	--	--

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X \_\_\_\_\_

☐ " Items will be analyzed if checked.

☒ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

☒ Nitrogen cycle requires separate sample.

☒ Total Iron requires separate sample.

	MG/L	ME/L																																
Carbonate . . . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>																	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>																
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☒ Dissolved Solids (sum in MG/L) . . . . . 

--	--	--	--	--	--	--	--

Phenolphthalein Alkalinity as CaCO<sub>3</sub> . . . . . 

--	--	--	--	--	--	--	--

Total Alkalinity as CaCO<sub>3</sub> . . . . . 

--	--	--	--	--	--	--	--

Total Hardness as CaCO<sub>3</sub> . . . . . 

--	--	--	--	--	--	--	--

☒ Nitrogen Cycle

Ammonia - N . . . . . 

--	--	--	--	--	--	--	--

Nitrite - N . . . . . 

--	--	--	--	--	--	--	--

Nitrate - N . . . . . 

--	--	--	--	--	--	--	--

Organic Nitrogen . . . . . 

--	--	--	--	--	--	--	--

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Woodbine

Field No. 6-19

State Well No. 18-34-601

Owner's Well No. \_\_\_\_\_

County GRAYSON

1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_ Survey \_\_\_\_\_

2. Owner: Albert Schaff Address: Rt. 1, Gunter

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: Bass Address: \_\_\_\_\_

3. Elevation of 43 is 670 ft. above sea, determined by Topo

4. Drilled: 1928; Dug, Cable Tool, Rotary, \_\_\_\_\_

5. Depth: Rept. 387 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed \_\_\_\_\_

7. Pump: Mfr. \_\_\_\_\_ Type \_\_\_\_\_

No. Stages \_\_\_\_\_, Bowls Diam. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft. WM

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel \_\_\_\_\_ Make & Model \_\_\_\_\_ HP \_\_\_\_\_

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 73.7 ft. rept. 10-4-57 above Top wooden WPC which is 1.5 ft. above surface.  
76.97 ft. rept. 8-26-70 below (do) which is 1.5 ft. below surface.  
74.23 ft. rept. 11-25-75 below (do) which is 1.5 ft. below surface.  
\_\_\_\_\_ ft. rept. 19 below which is \_\_\_\_\_ ft. below surface.

12. Use: Dom., (Stock) Public Supply, Ind., Irr., Waterflooding, Observation, (Not Used)

13. Quality: (Remarks on taste, odor, color, etc.) 11-7-73 TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis 10-4-57 Laboratory Curtis

Temp. \_\_\_\_\_ °F, Date sampled for analysis 7-20-71 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis 11-12-71 Laboratory "

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, \_\_\_\_\_

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: Cunningham PPH Date 8 19 70

Source of Data U.S.G.S., Bull 6013

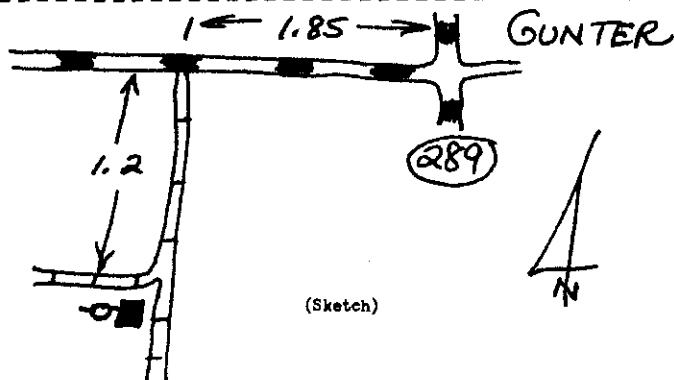
16. Remarks: \_\_\_\_\_

rept. mineralized water from 200-250 ft.

CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.			
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>6</u>			
<u>5</u>			

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to

Obs Well



(Sketch)

obs.

18-34-601



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer WOODBINE *OK*

Field No. \_\_\_\_\_

State Well No. 18-34-601

Owner's Well No. \_\_\_\_\_

County GRAYSON1. Location: 1/4, 1/4 Sec. \_\_\_\_\_, Block \_\_\_\_\_ Survey \_\_\_\_\_2. Owner: ALBERT SCHARFFAddress: RT. 1, GUNTER, TEXAS

Tenant: \_\_\_\_\_

Address: 75058Driller: BassAddress: deceased3. Elevation of LAND SURFACE is 670 ft. above sea, determined by Topo Map4. Drilled: 1928; Dug, Cable Tool, Rotary, \_\_\_\_\_5. Depth: Rept. 387 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. \_\_\_\_\_

Type ext. (wooden)No. Stages \_\_\_\_\_, Bore Dia. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft. NoneColumn Dia. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft. 1788. Motor: Fuel WIND Make & Model \_\_\_\_\_ HP. \_\_\_\_\_

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 73.7 ft. 10-4-57 above top wooden WPC which is 1.5 ft. above surface.  
71.97 ft. 8-26-70 above " " which is 1.5 ft. above surface.  
72.39 ft. 7-20-71 above " " which is 1.5 ft. above surface.  
 \_\_\_\_\_ ft. 19 above " " which is \_\_\_\_\_ ft. above surface.

12. Use: Dom. ☒ Public Supply, Ind., Irr., Waterflooding, ☒ Observation, ☐ Not Used.

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 7-20-71 Laboratory Health Dept.Temp. \_\_\_\_\_ °F, Date sampled for analysis 11-12-71 Laboratory " "Temp. \_\_\_\_\_ °F, Date sampled for analysis 10-4-57 Laboratory Curtis Lab

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, \_\_\_\_\_

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: D. Cunningham Date Aug. 1970Source of Data U.S.G.S. well schedule & field work

16. Remarks: \_\_\_\_\_

Q-19 in bulletin 6013  
Reported mineralized water from 300 to 400 ft  
on rural WS

CASTING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
6			
5			

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to

CLG N. Side 1.00  
+1.50  
M.P. TOP WOODEN  
WPC W. SIDE  
REMOVE RAG  
SWM 2-24-71

(Sketch)

Hist.

KT 18-34-601



# TEXAS DEPARTMENT OF WATER RESOURCES-WATER LEVEL MEASUREMENTS (IN FT.)

AS OF 05-01-84

OLD WELL NUMBER

COORDINATES 33-26-05N  
096-46-52W

☒ Normal  
☐ Publ.  
☐ USGS

YR. REC. BEGINS

LAST CHEMICAL ANALYSIS

57

11-73

STATE WELL NUMBER KT-18-34-601						LAND SURFACE DATUM ELEVATION 670.00						
DEPTH OF WELL 387						COMPLETION INTERVAL -						
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LSD	CHANGE IN LEVEL SINCE THE LAST MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	MP	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
10	04	57	72.20			73.70	+1.50	02	1		3	
08	26	70	70.47	+1.73		71.97	+1.50	01	1		3	
02	24	71	70.58	-0.11		72.08	+1.50	01	1		3	
11	12	71	71.09	-0.51		72.59	+1.50	01	1		3	
11	20	72	71.38	-0.29		72.88	+1.50	01	1		3	
11	07	73	71.59	-0.21		73.09	+1.50	01	1		3	
11	11	74	71.79	-0.20		73.29	+1.50	01	1		3	
11	25	75	72.73	-0.94		74.23	+1.50	01	1		3	
11	24	76	74.10	-1.37		75.60	+1.50	01	1		3	
11	14	77	73.88	+0.22		75.38	+1.50	01	1		8	
10	06	78	74.62	-0.74		76.12	+1.50	01	1		8	
05	02	80					+1.50	01		42	8	
10	09	80	75.67			77.17	+1.50	01	1		8	
03	18	82	78.09	-2.42		79.59	+1.50	01	1		8	
03	17	83	79.92	-1.83		81.42	+1.50	01	1		8	
03	22	84	80.83	-0.91		82.33	+1.50	01	1		8	
03	14	85	82.73	-1.90		84.23	+1.50	01	1		8	
3	5	86	84.85	-2.12		86.35	1.50	1	1		8	
1	13	87	86.53	-1.68		87.53	1.00	1	1		8	
1	26	88	89.61	-3.08		90.61	1.00	1	1		8	
3	1	89	87.00	+2.61		88.00		1	1		8	

AQUIFER 200 - WOODBINE FORMATION

WATERSHED 08 - TRINITY RIVER BASIN

COUNTY 091 - GRAYSON

Hist.  
CURRENT 18-34-601







Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDGE-GW ONLY	
Program No.	429
Proj. No.	

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County	KT GRAYSON
State Well No.	1834601
Well No.	
Date Collected	11-07-73
By	C. CORNELIS

Location \_\_\_\_\_

Source (type of well) WINDMILL Owner ALBERT SCHAR RT.1 GUNTER, TX 75056

Date Drilled 1928 Depth 387 ft. WBF WOODBINE

Producing intervals \_\_\_\_\_ Water level 72 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 059 °F \_\_\_\_\_ °C

Point of collection TAP AT WELL Appearance ☐ clear ☒ turbid ☐ colored ☐ other

Use STOCK Remarks WATER DARK (BLACK SAND?)

(FOR LABORATORY USE ONLY)

259139

CHEMICAL ANALYSIS NOV 16 1973 KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported DEC 13 1973

	MG/L	ME/L
Silica	<div><div></div><div></div><div></div><div>5</div></div>	
Calcium	<div><div></div><div></div><div>9</div><div></div></div>	<div><div></div><div>0</div><div></div><div>43</div></div>
Magnesium	<div><div></div><div></div><div>4</div><div></div></div>	<div><div></div><div>0</div><div></div><div>31</div></div>
Sodium	<div><div>1</div><div>0</div><div>0</div><div>0</div></div>	<div><div>4</div><div>3</div><div></div><div>60</div></div>
Total		<div><div>4</div><div>4</div><div></div><div>34</div></div>

<input type="checkbox"/> Potassium	<div><div></div><div></div><div></div><div></div></div>	
<input type="checkbox"/> Manganese	<div><div></div><div></div><div></div><div></div></div>	%Na _____
<input type="checkbox"/> Boron	<div><div></div><div></div><div></div><div></div></div>	SAR _____
<input checked="" type="checkbox"/> Total Iron	<div><div></div><div></div><div></div><div></div></div>	RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 3860

Diluted Conductance (micromhos/cm<sup>3</sup>) 31 x 165

5115

☐ " " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

	MG/L	ME/L
Carbonate		<div><div></div><div></div><div></div><div>0</div></div>
Bicarbonate	<div><div></div><div>2</div><div>80</div><div></div></div>	
Sulfate	<div><div></div><div>5</div><div>70</div><div></div></div>	<div><div></div><div>9</div><div></div><div>34</div></div>
Chloride	<div><div></div><div>1</div><div>300</div><div></div></div>	<div><div></div><div>2</div><div>6</div><div>98</div></div>
Fluoride	<div><div></div><div>2</div><div>85</div><div></div></div>	<div><div></div><div>8</div><div></div><div>04</div></div>
Nitrate	<div><div></div><div>2</div><div>5</div><div></div></div>	<div><div></div><div>0</div><div></div><div>13</div></div>
pH	<div><div></div><div>1</div><div>1</div><div>0</div></div>	<div><div></div><div>0</div><div></div><div>17</div></div>
Total	<div><div></div><div>8</div><div></div><div>3</div></div>	<div><div></div><div>4</div><div>4</div><div>66</div></div>

1/ Dissolved Solids (sum in MG/L) 2900

Phenolphthalein Alkalinity as CaCO<sub>3</sub> 0

Total Alkalinity as CaCO<sub>3</sub> (9.34) 467

Total Hardness as CaCO<sub>3</sub> (0.74) 37

2/ Nitrogen Cycle

Ammonia - N

Nitrite - N

Nitrate - N

Organic Nitrogen



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDBE-GW ONLY	
Program No.	<u>429</u>
Proj. No.	

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County	<u>KT</u> <u>GRAYSON</u>
State Well No.	<u>18-34-601</u>
Well No.	
Date Collected	<u>11-12-71</u>
By	<u>D.E. Corley For: A.W. Wyatt</u>

Location \_\_\_\_\_

Source (type of well) WINDMILL Owner ALBERT SCHARFF, Rt. 1 Gunter, TX 75058

Date Drilled 1928 Depth 387 ft. WBF WOODBINE

Producing intervals \_\_\_\_\_ Water level 71.09 ft.

Sampled after pumping SEVERAL MIN. hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup><sub>est.</sub> Temperature      °F      °C

Point of collection FANGET ON COLUMN PIPE Appearance ☐ clear ☐ turbid ☒ colored ☐ other

Use Stock Remarks COPY TO OWNER (THIS IS AN OBSERVATION WELL.)

(FOR LABORATORY USE ONLY)

Laboratory No. 210143

CHEMICAL ANALYSIS  
Date Received NOV 18 1971

KEY PUNCHED  
Date Reported NOV 30 1971

	MG/L	ME/L
Silica	<u>07</u>	
Calcium	<u>17</u>	<u>0.54</u>
Magnesium	<u>7</u>	<u>0.55</u>
Sodium	<u>1050</u>	<u>45.54</u>
Total		<u>46.63</u>
<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		%Na _____
<input type="checkbox"/> Boron		SAR _____
<input checked="" type="checkbox"/> Total Iron		RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 1020

Diluted Conductance (micromhos/cm<sup>3</sup>) 51 x 106

☐ " " items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron requires separate sample.

TWDBE-GW-50 (Rev. 7-1-71)

	MG/L	ME/L
Carbonate	<u>270</u>	<u>0</u>
Bicarbonate	<u>550</u>	<u>8.98</u>
Sulfate	<u>1440</u>	<u>30.96</u>
Chloride	<u>288</u>	<u>8.10</u>
Fluoride	<u>2.4</u>	<u>0.13</u>
Nitrate	<u>20.4</u>	
pH	<u>8.3</u>	Total <u>47.27</u>
<sup>1</sup> Dissolved Solids (sum in MG/L)		<u>3070</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		<u>0</u>
Total Alkalinity as CaCO <sub>3</sub>	<u>(8.98)</u>	<u>4.49</u>
Total Hardness as CaCO <sub>3</sub>	<u>(109)</u>	<u>55</u>
<sup>2</sup> Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Program No. 7429

Proj. No. \_\_\_\_\_

## CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin 5, Texas

Send report to:

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County GRAYSONState Well No. 18 - 34 - 601

Well No. \_\_\_\_\_

Date Collected 7-20-71By CUNNINGHAM FOR: WYATT

Location \_\_\_\_\_

Source (type of well) drilled Owner ALBERT SCHAREF, RT.1, GUNTER, TEX. 75058Date Drilled 1928 Depth 387 ft. WBF WoodbineProducing intervals \_\_\_\_\_ Water level 70.89 ft.Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup> <sub>est.</sub> Temperature \_\_\_\_\_ °F \_\_\_\_\_ °CPoint of collection FAUCET ON STAND PIPE Appearance COLOR  
clear - turbid - coloredUse STOCK Remarks listed as G-19 in bulletin 6013.

FOR LABORATORY USE ONLY

## CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. 300041Date Received AUG 2 1971Date Reported AUG 17 1971

	MG/L	ME/L
Silica	<u>9</u>	
Calcium	<u>11</u>	<u>0.53</u>
Magnesium	<u>6</u>	<u>0.47</u>
Sodium	<u>1040</u>	<u>45.22</u>
Total		<u>46.22</u>

☐ Potassium \_\_\_\_\_  
☐ Manganese \_\_\_\_\_ %Mn \_\_\_\_\_  
☐ Boron \_\_\_\_\_ SAR \_\_\_\_\_  
☐ Total Iron \_\_\_\_\_ REC \_\_\_\_\_  
☐ \_\_\_\_\_ (other) \_\_\_\_\_

Specific Conductance (micromhos/cm<sup>3</sup>) 3930  
Diluted Conductance (micromhos/cm<sup>3</sup>) 51 x 105

"□" items will be analyzed if checked. 5355

Total Iron requires separate sample.

	MG/L	ME/L
Carbonate		<u>0</u>
Bicarbonate	<u>361</u>	<u>8.62</u>
Sulfate	<u>1460</u>	<u>30.39</u>
Chloride	<u>275</u>	<u>7.74</u>
Fluoride	<u>2.4</u>	<u>0.13</u>
Nitrate	<u>50.4</u>	
pH	<u>7.8</u>	Total <u>46.88</u>

1/Dissolved Solids (sum) 3060

Phenolphthalein Alkalinity as C aCO<sub>3</sub> 0  
Total Alkalinity as C aCO<sub>3</sub> (8.62) 431  
Total Hardness as C aCO<sub>3</sub> (1100) 50

Analyst \_\_\_\_\_

Checked by \_\_\_\_\_

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer KwbField No. H-28 #3State Well No. 18-35-402Owner's Well No. Home for AgedCounty GRAYSON1. Location: 1/4, 1/4 Sec., Block Survey1/2 mile E of Gunter off Hwy. 2892. Owner: GUNTER WATER WORKS Address:

Tenant: Address:

Driller: J. L. MYERS' SONS Address:3. Elevation of 450 is 792 ft. above msl, determined by TOPO4. Drilled: 19 MAR 1956; Dug, Cable Tool, (Rotary)5. Depth: Rept. 730 ft. Meas. 730 ft.

6. Completion: Open Hole, Straight Wall, (Underreamed) Gravel Packed

7. Pump: Migr. Pomona Type TURBNo. Stages 3, Bowls Diam. 3 in., Setting 320 ft.Column Diam. 3 in., Length Tailpipe none ft.8. Motor: Fuel ELEC Make & Model HP. 109. Yield: Flow gpm, Pump gpm, Meas., Rept., Est.10. Performance Test: Date 3-56 Length of Test 10 hr Made by MyersStatic Level 206 ft. Pumping Level 216 ft. Drawdown 10 ft.Production 52 gpm Specific Capacity 52 gpm/ft.11. Water Level: 206 ft. Rept. 3-19 19 56 above (off 1 hr.)(RL) 241.88 ft. Rept. 3-24 19 58 above USGSft. Rept. 19 aboveft. Rept. 19 belowft. Rept. 19 aboveft. Rept. 19 below12. Use: Dom., Stock, (Public Supply) Ind., Irr., Waterflooding, Observation, (Not Used), abandoned

13. Quality: (Remarks on taste, odor, color, etc.)

Temp. — °F, Date sampled for analysis 8-21-58 Laboratory TSDHTemp. — °F, Date sampled for analysis — Laboratory —Temp. — °F, Date sampled for analysis — Laboratory —

14. Other data available as circled: (Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, (Pumping Test,)

15. Record by: R. L. KAROSTROM Date 4-15 19 76Source of Data obs, city, driller, 8-6013

16. Remarks:

USGS 3-24-58 T=12,500 gpd/ftP=26 gpd/A<sup>2</sup>


CASING & BLANK PIPE			
Cemented From <u>0</u> ft. to <u>655</u> ft.			
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>7</u>	<u>steel</u>	<u>0</u>	<u>655</u>
<u>4 1/2</u>	<u>Liner</u>	<u>591</u>	<u>730</u>

which is — ft. above surface.

which is — ft. above surface.

which is — ft. above surface.

which is — ft. above surface.

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>4 1/2</u>	<u>screen</u>	<u>655</u>	<u>730</u>

see-401

(Sketch)



DENTON: BOX 5105, N. T. STATION  
PHONE 382-4196  
DEWITT MYERS

Grayson Co.

DALLAS 5306 HARRY HINES BLVD.  
PHONE LAKESIDE 6-5238  
R. F. MYERS

WELLS AND PUMPS REPAIRED

**J. L. MYERS SONS**  
WATER WELL CONTRACTORS  
DENTON OFFICE AND YARD  
1909 HIGHLAND STREET  
DENTON, TEXAS

RECEIVED  
MAR 15 1961  
TUNING & SPECIALTY

STATE BOARD OF WATER ENGINEERS  
AUSTIN, TEXAS

DRILLER'S LOG

Well Owner: Gunter Water Works  
Well Location: Gunter, Texas at Home for aged. 1/2 mile E. of Gunter  
off Hwy. 289  
Well Drilled By: J. L. Myers Sons Denton & Dallas, Texas  
Well Completed: March 19, 1956 Driller: John Allen

Depth of Strata	Thickness	Formation
0-8	8	Surface Soil
8-26	18	Clay
26-304	278	Shale
304-350	46	Sand
350-452	102	Shale
452-464	12	Sand
464-469	5	Rock
469-474	5	Sand
474-652	178	Shale
652-730	78	Sand

Casing Record:

0-655 655' Of 7" O.D. Casing

Liner Record:

591-655 64' Of 4 1/2" Blank Liner  
655-730 75' Of 4-1/2" Screen

Pump Record:

Installed Owner's 3" Pomona Pump  
320' Of 3" X 1" Column & Shaft

Bailed to 206'

8/51  
AT 18-35-402



TEXAS WATER DEVELOPMENT BOARD  
WELL SCHEDULE

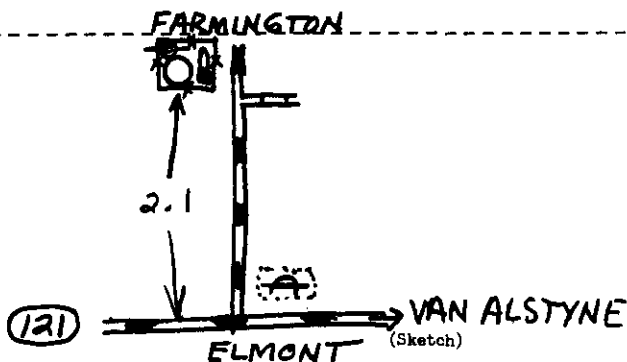
Aquifer Woodbine Field No. \_\_\_\_\_ State Well No. 18-35601  
Owner's Well No. \_\_\_\_\_ County GRAYSON

1. Location: 1/4, 1/4 Sec., Block Survey \_\_\_\_\_  
2 mi. N. FM 121 and 5 mi. W of Van Alstyne
2. Owner: ELMONT - FARMINGTON W.S.C. Address: \_\_\_\_\_  
Tenant: \_\_\_\_\_ Address: \_\_\_\_\_  
Driller: J.L. MYERS SONS Address: \_\_\_\_\_
3. Elevation of LS is 780 ft. above sea, determined by TOPG
4. Drilled: 1 19 66; Dug, Cable Tool, Rotary
5. Depth: Rept. 1023 ft. Meas. \_\_\_\_\_ ft.
6. Completion: Open Hole, Straight Wall, Underreamed Gravel Packed
7. Pump: Mfr. Red JACKET Type Subm  
No. Stages \_\_\_\_\_, Bwls Diam. \_\_\_\_\_ in., Setting 557 ft.  
Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.
8. Motor: Fuel elect Make & Model Franklin HP. 15
9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_
10. Performance Test: Date 5-23-66 Length of Test \_\_\_\_\_ Made by Myers  
Static Level 354 ft. Pumping Level 404 ft. Drawdown 50 ft.  
Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.
11. Water Level: 354 ft. rept. 5-23-1966 above airline  
\_\_\_\_\_ ft. rept. 19 below \_\_\_\_\_  
\_\_\_\_\_ ft. rept. 19 above \_\_\_\_\_  
\_\_\_\_\_ ft. rept. 19 below \_\_\_\_\_  
\_\_\_\_\_ ft. rept. 19 above \_\_\_\_\_  
\_\_\_\_\_ ft. rept. 19 below \_\_\_\_\_
12. Use: Dom., Stock, Public Supply Ind., Irr., Waterflooding, Observation, Not Used, \_\_\_\_\_
13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_  
Temp. \_\_\_\_\_ °F, Date sampled for analysis 1-67 Laboratory TSDH  
Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_  
Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_
14. Other data available as circled: Driller's Log Radioactivity Log, Electric Log, \_\_\_\_\_  
Formation Samples, Pumping Test, \_\_\_\_\_
15. Record by: P.L. NORDSTROM Date 4-15-1976  
Source of Data ELB, driller
16. Remarks: \_\_\_\_\_


CASINO & BLANK PIPE			
Cemented From <u>0</u> ft. to <u>824</u> ft.			
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>10 3/4</u>	<u>Steel</u>	<u>0</u>	<u>18</u>
<u>7</u>	<u>"</u>	<u>+2.3</u>	<u>824</u>
<u>3 1/2</u>	<u>Liner</u>	<u>722</u>	<u>881</u>
<u>2 7/8</u>	<u>"</u>	<u>881</u>	<u>1023</u>

which is \_\_\_\_\_ ft. above surface.  
which is \_\_\_\_\_ ft. below surface.  
which is \_\_\_\_\_ ft. above surface.  
which is \_\_\_\_\_ ft. below surface.

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>3 1/2</u>	<u>SS W.O.P.</u>	<u>824</u>	<u>856</u>
	<u>screen</u>		





**REQUEST FOR CHEMICAL ANALYSIS OF WATER**  
**TEXAS STATE DEPARTMENT OF HEALTH LABORATORIES**  
 1100 WEST 4TH STREET AUSTIN, TEXAS 78756

*File  
 Reg II  
 Grayson & H.P.  
 7-6-67*

★ **IMPORTANT - READ CAREFULLY:**

All requests must be signed by the person requesting the analysis. Chemical analyses are limited to samples of water from public supplies the examination of which is requested by a proper official. If the supply being sampled is of public interest and not presently serving the public, an explanation of the reason for requesting the analysis should be furnished under "Remarks" or by attaching a separate explanatory sheet. Please complete the form with typewriter (black ribbon) or print plainly using soft pencil or black ink. A ball point pen should not be used.

Send report to: ELMONT - FARMINGTON W.S.C.

LUTHER CAVENDER  
Now. VAN ALSTYNE, TEX.

LOCATION VAN ALSTYNE, TEX.

COUNTY GRAYSON

DATE COLLECTED 1-19-67

**OWNERSHIP OF SUPPLY:**

GRAYSON COUNTY HEALTH DEPT SHERMAN, TEX.  
ELMONT FARMINGTON WATER SUPPLY CORP.

**IF FROM WELL**

Depth 1029'  
 Age NEW  
 Well No. 1

**POINT OF COLLECTION**

Raw Supply X  
 Plant Discharge \_\_\_\_\_  
 Distribution \_\_\_\_\_  
 Other \_\_\_\_\_

**PHYSICAL APPEARANCE**

Clear X  
 Turbid \_\_\_\_\_  
 Colored \_\_\_\_\_  
 Odor \_\_\_\_\_

**IF SURFACE SUPPLY**

Name of source \_\_\_\_\_

cc: File  
Region II  
Denison, Sherman-Grayson County  
Health Dept.  
Elmont-Farmington Water Supply  
Corporation

**REMARKS:**

W.E. FAUST ET - SANITARIAN  
Virgil C. Moody

Signature of Public Official, Water Utility Official, or authorized representative requesting the analysis

Virgil C. Moody  
 (Signature)

1500 UNIVERSITY  
 (Address of Official)

**FOR LABORATORY USE ONLY**

**CHEMICAL ANALYSIS REPORT**

(Values reported are for minerals in solution)

Laboratory No. 84079W

Date Received JAN 24 1967

Date Reported 1-17-67

	Milligrams per Liter		Milligrams per Liter		Milligrams per Liter
Calcium	<u>1</u>	Carbonate	<u>29</u>	Dissolved solids	<u>1120</u>
Magnesium	<u>319</u>	Bicarbonate	<u>670</u>	Phenolphthalein	
Sodium	<u>319</u>	Sulphate	<u>74</u>	Alkalinity as CaCO <sub>3</sub>	<u>24</u>
Manganese	<u>&lt;0.05</u>	Chloride	<u>29</u>	Total Alkalinity as CaCO <sub>3</sub>	<u>600</u>
Iron	<u>0.04</u>	Fluoride	<u>1.7</u>	Total Hardness as CaCO <sub>3</sub>	<u>7</u>
		Nitrate	<u>&lt;0.4</u>		

pH 8.8

Diluted Conductance Micromhos/cm 1456

**RECOMMENDED LIMITS FOR DRINKING WATER IN MILLIGRAMS PER LITER.**

IRON	0.3	FLUORIDE	0.6-1.0
MANGANESE	0.05	NITRATE	45
SULPHATE	250	TOTAL SOLIDS	500
CHLORIDE	250		



# TWDB Water Quality Field Data Sheet

Newly Invented Wel. 1 NC

State Well Number: 18-35-601  
 County: Grayson  
 County Code: 181  
 Aquifer Code: 212 WDBA  
 Aquifer Id: 29

Name: Elmont-Farmington WSC  
 Address: P.O. Box 961  
Van Alstyne, TX, 75495  
 Phone Number: 903-815-5979  
 Attention: Jim Christian

Sample ID Number: CC1  
 Date: 10/12/04  
 Sampler(s): D.R. Jones

Well Name or #: 1

CIRCLE EACH SAMPLE FRACTION COLLECTED:

1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)	40 ml (unfiltered)	1 L (unfiltered)
Anions / Total Alk.	Cations	Nitrate	Atrazine	Alpha & Beta
Ice	Nitric (HNO3)	Ice + H2SO4	Ice and in dark	Nitric (HNO3)

Proper Cation and Nitrate preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0

## Calibration Verification Readings

pH 7 = 7.02  
 4 or 10 = 10.05  
 SLP = 59.2 7.38 =           
 Conductivity 500 = 494  
 1000 = 994  
 2000 = 1982  
 5000 = 4.920

Time In: 09:20

Time Out: 10:05

W. L. depth from LSD (ft.): 09:20

W.L. remark:          M.P. =         

Pumping Since: 09:24

Sampling Point: FAW

Well Use: PS

## FIELD G.P.S. readings

Lift: Subm

Latitude: 33° 27' 11.9"

Power: Elec

Longitude: 096° 38' 28.7"

Casing Type: Steel

Casing Size:         

Sample Time: 09:45

Filter pressure: hand pump (line)

## Field Alkalinity Titration:

8.81 Start pH 4.46 End pH  
50.0 mL Sample Size  
2.0 mL Acid added for Phenol (> 8.3)  
30.2 mL Acid added for Total (to pH 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 40 mg/L

Total Alkalinity (39086): 604 mg/L

Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 793

Hardness (as CaCO3): 7

Balanced: yes

## Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	<u>09:31</u>	<u>09:36</u>	<u>09:41</u>			
pH:	<u>8.71</u>	<u>8.88</u>	<u>8.90</u>			
Celsius Temp. (00010)	<u>23.5</u>	<u>23.5</u>	<u>23.6</u>			
Conductivity (uS/cm):	<u>1346</u>	<u>1350</u>	<u>1351</u>			

Notes:         

Data Entered By Sampler Into Database:

yes / no



# Final Analysis Report

LCRA Environmental Laboratory Services

Date: 08-Nov-04

<b>CLIENT:</b>	Texas Water Development Board	<b>Client Sample ID:</b>	18-35-601
<b>Lab Order:</b>	0410308	<b>File No:</b>	33712
<b>Project:</b>	TWDB FY05	<b>Collection Date:</b>	10/12/2004 9:45:00 AM
<b>Lab ID:</b>	0410308-001	<b>Matrix:</b>	GROUNDWATER

Analyses	Storet	Result	Qual	PQL	Units	DF	Batch ID	Date Analyzed
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		<b>Analyst: TH</b>				
Calcium		1.59		0.204	mg/L	1	29967	10/27/2004 9:19:00 PM
Magnesium		0.593		0.204	mg/L	1	29967	10/27/2004 9:19:00 PM
Potassium		1.04		0.204	mg/L	1	29967	10/27/2004 9:19:00 PM
Sodium		316		0.714	mg/L	1	29967	10/27/2004 9:19:00 PM
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		<b>Analyst: TH</b>				
Boron		1470		51	µg/L	1	29977	10/27/2004 9:19:00 PM
Iron		ND		51	µg/L	1	29977	10/27/2004 9:19:00 PM
Strontium		159		20	µg/L	1	29977	10/27/2004 9:19:00 PM
<b>ICPMS DISSOLVED METALS</b>		<b>E200.8</b>		<b>Analyst: SW</b>				
Aluminum		ND		4.08	µg/L	1	30100	11/3/2004
Antimony		ND		1.02	µg/L	1	29974	10/27/2004
Arsenic		ND		2.04	µg/L	1	30100	11/3/2004
Barium		4.78		1.02	µg/L	1	29974	10/27/2004
Beryllium		ND		1.02	µg/L	1	30043	11/1/2004
Cadmium		ND		1.02	µg/L	1	29974	10/27/2004
Chromium		ND		1.02	µg/L	1	30100	11/3/2004
Cobalt		ND		1.02	µg/L	1	30100	11/3/2004
Copper		3.88		1.02	µg/L	1	30100	11/3/2004
Lead		ND		1.02	µg/L	1	29930	10/26/2004
Lithium		16.6		2.04	µg/L	1	30043	11/1/2004
Manganese		2.84		1.02	µg/L	1	30100	11/3/2004
Molybdenum		ND		1.02	µg/L	1	29974	10/27/2004
Selenium		ND		4.08	µg/L	1	30100	11/3/2004
Thallium		ND		1.02	µg/L	1	29930	10/26/2004
Vanadium		ND		1.02	µg/L	1	30100	11/3/2004
Zinc		7.15		4.08	µg/L	1	30100	11/3/2004
<b>CATION/ANION BALANCES</b>		<b>CALCULATION</b>		<b>Analyst: AMJ</b>				
Cation/Anion Balance		Balanced		0	Date	1	30057	11/2/2004
<b>ANIONS BY ION CHROMATOGRAPHY, DISSOLVE</b>		<b>E300</b>		<b>Analyst: WR</b>				
Bromide Dissolved		0.12		0.10	mg/L	5	29751	10/18/2004 11:20:00 PM
Chloride Dissolved		23.7		5.00	mg/L	5	29751	10/18/2004 11:20:00 PM
Fluoride Dissolved		1.54		0.05	mg/L	5	29751	10/18/2004 11:20:00 PM
Sulfate Dissolved		82.8		5.00	mg/L	5	29751	10/18/2004 11:20:00 PM
<b>ALKALINITY</b>		<b>M2320 B</b>		<b>Analyst: WR</b>				
Alkalinity, Phenolphthalein		30		0	mg/L CaCO3	1	29839	10/21/2004
Alkalinity, Total (As CaCO3)		589		2	mg/L CaCO3	1	29839	10/21/2004

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		



**LCRA Environmental Laboratory Services**

Date: 08-Nov-04

<b>CLIENT:</b>	Texas Water Development Board	<b>Client Sample ID:</b>	18-35-601
<b>Lab Order:</b>	0410308	<b>File No:</b>	33712
<b>Project:</b>	TWDB FY05	<b>Collection Date:</b>	10/12/2004 9:45:00 AM
<b>Lab ID:</b>	0410308-001	<b>Matrix:</b>	GROUNDWATER

Analyses	Storet	Result	Qual	PQL	Units	DF	Batch ID	Date Analyzed
<b>NITRATE AND NITRITE</b>								Analyst: <b>LW</b>
Nitrogen, Nitrate & Nitrite		ND		0.02	mg/L	1	30008	10/29/2004
<b>SILICA</b>								Analyst: <b>LW</b>
Silica, Dissolved (as SiO2)		12.1		0.50	mg/L	1	29952	10/28/2004

<b>Qualifiers:</b>	<b>*</b>	Value exceeds Maximum Contaminant Level	<b>B</b>	Analyte detected in the associated Method Blank
	<b>E</b>	Value above quantitation range	<b>H</b>	Holding times for preparation or analysis exceeded
	<b>J</b>	Analyte detected below quantitation limits	<b>ND</b>	Not Detected at the Reporting Limit
	<b>S</b>	Spike Recovery outside accepted recovery limits		



FY06

## TWDB Water Quality Field Data Sheet

SWN: 18-35-601  
 County: GRAYSON  
 County Code: 181  
 Aquifer Code: 212 WDBH  
 Aquifer Id: 29

Name: Elmout-Farmington WSC  
 Address: P.O. Box 9610  
Van Alstyne Tx. 75495  
 Phone Number: 903-815-5979  
 Attention: SIM CHRISTIAN  
 Well Name or #: 1

Newly Invented Well NO  
 ID Number: 2245  
 Date: 6/7/06  
 Sampler(s): D.W.

CIRCLE EACH SAMPLE FRACTION COLLECTED:

①	②	③	④	5	6	7	8	9	10
500ml filtered	250 ml filtered	500ml filtered	40ml unfiltered	1 L unfiltered	1 L unfiltered				
Anions/T. Alk.	Cation	Nitrate	Atrazine	Triflur	C14				
Ice	(HNO3)	Ice + H2SO4	Ice & in dark	None	NaOH (*)				

All acidified samples pH &lt; 2.0. (\*) If natural pH &lt; 7, then add NaOH until pH is &gt; 7. If natural pH is ≥ 7, no NaOH required.

Time In: 10:12Time Out: 11:09Water Level: —W.L. remark: 41M.P. = —Pumping time: POASampling Point: Installed FAWWell Use: P

FIELD G.P.S. readings

Lift: SLatitude: 33° 27' 13"Power: ELongitude: 96° 38' 42"Casing Type: —Casing Size: —Sample Time: 10:52Filter pressure: hand pump / (line) / spring

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Notes:

Time	10:30	10:35	10:40	10:45					
pH	8.84	8.84	8.84	8.84					
Celsius Temp.	24.8	24.8	24.8	24.8					
Conductivity	1376	1366	1366	1366					

## Calibration Verification Readings

pH 7 = 7.03  
 4 or 10 = 10.08  
 SLP = 94.8 7.38 = —  
 Conductivity 500 = 504  
 1000 = 1008  
 2000 = 1970  
 5000 = 4970

## Field Alkalinity Titration:

8.86 Start pH 4.50 End pH —  
50.0 mL Sample Size  
1.5 mL Acid added for Phenol (> 8.3)  
30.1 mL Acid added for Total (to pH 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 30 mg/LTotal Alkalinity (39086): 602 mg/L

## Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 793Hardness (as CaCO3): SBalanced: Bcorn field next to well

Data Entered By Sampler Into Database:

(yes) / no



# LABORATORY ANALYTICAL REPORT

Client: Texas Water Development Board  
Project: TWDB  
Lab ID: C06060464-002  
Client Sample ID: 1835601 (2245)

Report Date: 06/22/06  
Collection Date: 06/07/06 10:52  
Date Received: 06/08/06  
Matrix: Aqueous

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
MAJOR IONS							
Alkalinity, Phenolphthalein as CaCO3	50	mg/L		1		A2320 B	06/19/06 08:18 / th
Alkalinity, Total as CaCO3	568	mg/L		1		A2320 B	06/19/06 08:18 / th
Bromide	ND	mg/L		0.50		E300.0	06/17/06 00:12 / eli-b
Calcium	1.3	mg/L		0.5		E200.7	06/14/06 16:26 / ts
Chloride	26	mg/L		1		A4500-Cl B	06/12/06 16:05 / jl
Fluoride	1.0	mg/L		0.1		A4500-F C	06/20/06 15:58 / th
Magnesium	ND	mg/L		0.5		E200.7	06/14/06 16:26 / ts
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	06/12/06 10:54 / jal
Potassium	1.3	mg/L		0.5		E200.7	06/14/06 16:26 / ts
Silica	10.7	mg/L		0.1		E200.7	06/14/06 16:26 / ts
Sodium	324	mg/L		0.5		E200.7	06/14/06 16:26 / ts
Sulfate	87	mg/L	D	1		A4500-SO4 E	06/20/06 09:38 / bm
METALS - DISSOLVED							
Aluminum	1	ug/L		1		E200.8	06/09/06 21:44 / sml
Antimony	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Arsenic	1	ug/L		1		E200.8	06/09/06 21:44 / sml
Barium	5	ug/L		1		E200.8	06/09/06 21:44 / sml
Beryllium	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Boron	1430	ug/L		100		E200.7	06/14/06 16:26 / ts
Cadmium	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Chromium	2	ug/L		1		E200.8	06/09/06 21:44 / sml
Cobalt	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Copper	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Iron	ND	ug/L		30		E200.7	06/14/06 16:26 / ts
Lead	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Lithium	14	ug/L		1		E200.8	06/15/06 12:44 / bws
Manganese	3	ug/L		1		E200.8	06/09/06 21:44 / sml
Molybdenum	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Selenium	6	ug/L		1		E200.8	06/09/06 21:44 / sml
Strontium	93	ug/L		1		E200.8	06/09/06 21:44 / sml
Thallium	ND	ug/L		1		E200.8	06/09/06 21:44 / sml
Vanadium	2	ug/L		1		E200.8	06/09/06 21:44 / sml
Zinc	4	ug/L		1		E200.8	06/09/06 21:44 / sml
DATA QUALITY							
A/C Balance (±5)	0.992	%				Calculation	06/21/06 11:54 / cp
Anions	13.9	meq/L				Calculation	06/21/06 11:54 / cp
Cations	14.2	meq/L				Calculation	06/21/06 11:54 / cp

Report: RL - Analyte reporting limit.  
Definitions: QCL - Quality control limit.  
D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



WQ FY 2010

## TWDB Water Quality Field Data Sheet

Newly Invented Well N

SWN: K8-35-601  
 County: Grayson  
 County Code: 181  
 Aquifer Code: 212WDBN  
 Aquifer Id: 29

Name: Elmont-Farmington WSC  
 Address: PO Box 961  
Van Alstyne, TX 75495

ID Number: 162  
 Date: 7/14/10  
 Sampler(s): AF

Attention: \_\_\_\_\_

Well Name or #: 1 - Farmington Rd. + Hodgins Rd.

1	2	3	4	5	6	7	8	9	10	11
40 ml unfiltered Atrazine	500 ml filtered Cation	500 ml filtered Anions/T. Alk.	250 ml filtered Nitrate	1L filtered Gross Alpha	2L filtered Radium (226/228)					
ICE	HNO3 by lab	ICE	ICE + H2SO4	HNO3 by lab	HNO3 by lab					

All acidified samples pH &lt; 2.0. (C14/C13 samples only: If natural pH &lt; 7, then add NaOH until pH is &gt; 7. If natural pH is ≥ 7, no NaOH required.)

Time In: 1455Time Out: 1540

Water Level: \_\_\_\_\_

W.L. remark: \_\_\_\_\_ M.P. = \_\_\_\_\_

Pumping time: POASampling Point: Discharge @ wellWell Use: P

## FIELD G.P.S. readings

Lift: S

Latitude: \_\_\_\_\_ ° . "

Power: E

Longitude: \_\_\_\_\_ ° . "

Casing Type: \_\_\_\_\_

Casing Size: \_\_\_\_\_ "

Sample Time: 1515Filter pressure: hand pump / line / spring

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	<u>1505</u>	<u>1510</u>	<u>1515</u>						
pH	<u>8.75</u>	<u>8.82</u>	<u>8.83</u>						
Celsius Temp.	<u>28.0</u>	<u>25.6</u>	<u>25.7</u>						
Conductivity	<u>1533</u>	<u>1619</u>	<u>1645</u>						

## Calibration Verification Readings

pH 7 = 7.00  
 4 or 10 = 10.07  
 SLP = 91.7  
 Conductivity 500 = \_\_\_\_\_  
 1000 = 1000  
 2000 = \_\_\_\_\_  
 5000 = \_\_\_\_\_

## Field Alk. Titration (0.0200 N) H2SO4

8.80 Start pH 4.52 End pH  
50 mL Sample Size  
 mL Acid Phenol (> 8.3)  
29.65 mL Acid Total (to pH 4.5)  
 mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): \_\_\_\_\_ mg/L

Total Alkalinity (39086): 593 mg/LColorimeter DO (00300): 11 mg/LField Data entered into GWDB: yes / no

Balanced: \_\_\_\_\_

Notes: \_\_\_\_\_



# LCRA Environmental Laboratory Services

Date: 05-Aug-10

CLIENT: Texas Water Development Board  
Lab Order: 1007639  
Project: TWDB FY2010  
Lab ID: 1007639-014

Client Sample ID: 18-35-601  
Collection Date: 7/14/2010 3:15:00 PM  
Matrix: GROUNDWATER  
Tag No: 162

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Calcium	1.21	0.20		mg/L	1	7/27/2010 2:29:23 PM
Magnesium	0.38	0.20		mg/L	1	7/27/2010 2:29:23 PM
Potassium	1.28	0.20		mg/L	1	7/27/2010 2:29:23 PM
Sodium	328	0.51		mg/L	1	7/27/2010 2:29:23 PM
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Boron	1480	51		µg/L	1	7/27/2010 2:29:23 PM
Iron	< 51	51		µg/L	1	7/27/2010 2:29:23 PM
Strontium	88	20		µg/L	1	7/27/2010 2:29:23 PM
<b>ICPMS METALS, DISSOLVED</b>						
		<b>E200.8</b>				Analyst: <b>SW</b>
Aluminum	< 4.1	4.1		µg/L	1	7/27/2010 6:53:36 PM
Antimony	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Arsenic	< 2.0	2.0		µg/L	1	7/27/2010 6:53:36 PM
Barium	5.3	1.0		µg/L	1	7/27/2010 6:53:36 PM
Beryllium	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Cadmium	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Chromium	1.2	1.0		µg/L	1	7/27/2010 6:53:36 PM
Cobalt	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Copper	1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Lead	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Lithium	18.1	2.0	A	µg/L	1	7/28/2010 1:57:27 PM
Manganese	3.2	1.0		µg/L	1	7/27/2010 6:53:36 PM
Molybdenum	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Selenium	< 4.1	4.1		µg/L	1	7/27/2010 6:53:36 PM
Silver	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Thallium	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Uranium	< 1.0	1.0	A	µg/L	1	7/27/2010 6:53:36 PM
Vanadium	< 1.0	1.0		µg/L	1	7/27/2010 6:53:36 PM
Zinc	4.6	4.1		µg/L	1	7/27/2010 6:53:36 PM
<b>MERCURY, TOTAL</b>						
		<b>SW7470A</b>				Analyst: <b>AE</b>
Mercury	< 0.200	0.200		µg/L	1	7/22/2010 1:34:00 PM
<b>DISSOLVED ANIONS BY ION CHROMATOGRAPH</b>						
		<b>E300.0</b>				Analyst: <b>WR</b>
Bromide Dissolved	< 0.20	0.20		mg/L	10	7/20/2010 11:23:00 PM
Chloride Dissolved	19.8	10.0		mg/L	10	7/20/2010 11:23:00 PM
Fluoride Dissolved	1.28	0.10		mg/L	10	7/20/2010 11:23:00 PM
Sulfate Dissolved	76.2	10.0		mg/L	10	7/20/2010 11:23:00 PM
<b>ALKALINITY</b>						
		<b>SM2320 B</b>				Analyst: <b>JB</b>
Alkalinity, Phenolphthalein	45	2	A	mg/L CaCO <sub>3</sub>	1	7/27/2010

## Qualifiers:

A Not Available for Accreditation  
E Value Above Quantitation Range  
N Not Accredited  
X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank  
H Holding Time Exceeded  
S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



**LCRA Environmental Laboratory Services**

Date: 05-Aug-10

**CLIENT:** Texas Water Development Board  
**Lab Order:** 1007639  
**Project:** TWDB FY2010  
**Lab ID:** 1007639-014

**Client Sample ID:** 18-35-601  
**Collection Date:** 7/14/2010 3:15:00 PM  
**Matrix:** GROUNDWATER  
**Tag No:** 162

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ALKALINITY</b>						Analyst: <b>JB</b>
Alkalinity, Total (As CaCO <sub>3</sub> )	588	2		mg/L CaCO <sub>3</sub>	1	7/27/2010
<b>CATION/ANION BALANCE</b>						Analyst: <b>AMJ</b>
Cation/Anion Balance	-1.46	5.0		%	1	8/4/2010
<b>NITRATE AND NITRITE</b>						Analyst: <b>KK</b>
Nitrogen, Nitrate & Nitrite	< 0.020	0.020		mg/L	1	7/21/2010
<b>DISSOLVED PHOSPHATE AS P IN WATER</b>						Analyst: <b>CM</b>
Phosphorus, Dissolved (As P)	0.286	0.020		mg/L	1	7/20/2010
<b>SILICA</b>						Analyst: <b>KK</b>
Silica, Dissolved (as SiO <sub>2</sub> )	11.3	2.50		mg/L	5	7/23/2010

**Qualifiers:**

A Not Available for Accreditation  
E Value Above Quantitation Range  
N Not Accredited  
X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank  
H Holding Time Exceeded  
S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



WQ FY 2015

## TWDB Water Quality Field Data Sheet

Newly Invented Well N

SWN: 1835601  
 County: Grayson  
 County Code: 181  
 Aquifer Code: 212WDBN  
 Aquifer Id: 29

Name: Elmont-Farmington WSC  
 Address: PO Box 961  
Van Alstyne, TX 75495  
 Attention: \_\_\_\_\_

ID Number: 13  
 Date: 5/29/15  
 Sampler(s): AF

Well Name or #: 1

1	2	3	4	5	6	7	8	9	10
40 ml unfiltered	250 ml filtered	500 ml filtered	250 ml filtered	128 oz cubitainer filtered					
Atrazine	Nitrate	Anions/T. Alk.	Cation	UNAT Radium					
				Gross Alpha (226/228)					
ICE	ICE + H2SO4	ICE	HNO3	HNO3 by lab					

Calibration Verification Readings	
pH	SLOPE = _____
	7 = _____
	4 or 10 = _____
Conductivity	500 = _____
	1000 = _____
	2000 = _____
	5000 = _____

Time In: 9:55Time Out: 10:40

Water Level: \_\_\_\_\_

M.P. = \_\_\_\_\_ W.L. remark: \_\_\_\_\_

Pumping time: 30 minsSampling Point: Discharge @ wellWell Use: P

## FIELD G.P.S. readings

Lift: S

Latitude: \_\_\_\_\_

Power: E

Longitude: \_\_\_\_\_

Casing Type: \_\_\_\_\_

Casing Size: \_\_\_\_\_

Sample Time: 10:10Filter pressure: hand pump / line / spring sampler

Field Alkalinity Titration	
<u>8.70</u>	Start pH
<u>4.46</u>	End pH
<u>50</u>	mL Sample Size
	mL Acid Phenol ( > 8.3)
<u>29.55</u>	mL Acid Total (to pH 4.5)
mL acid added x 20 = Alkalinity	

Phenol Alkalinity (82244): \_\_\_\_\_ mg/L

Total Alkalinity (39086): 591 mg/L

Notes: \_\_\_\_\_

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	<u>10:00</u>	<u>10:05</u>	<u>10:10</u>						
pH	<u>8.82</u>	<u>8.70</u>	<u>8.69</u>						
Celsius Temp.	<u>23.6</u>	<u>23.9</u>	<u>23.9</u>						
Conductivity	<u>1401</u>	<u>13917</u>	<u>13916</u>						





LCRA Environmental Laboratory Services  
3505 Montopolis Drive  
Austin, TX 78744  
Phone: (512)356-6022  
Fax: (512)356-6021

## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: **Q1520025013**  
Sample ID: **18-35-601**  
Project ID: **TWDB CAN**

Date Received: 6/2/2015 10:16 Matrix: Aqueous  
Date Collected: 5/29/2015 10:10 Sample Type: SAMPLE

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>INORGANICS</b>										
<b>Analysis Desc: E200.7 Metals, Trace Elements</b>		<b>Preparation Method: E200.7 Prep</b>								
		<b>Analytical Method: E200.7 Metals, Trace Elements</b>								
Boron Dissolved	1410 ug/L	20.0	50.0		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Calcium Dissolved	1.23 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Strontium Dissolved	82.6 ug/L	4.00	10.0		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Iron Dissolved	<50.0 ug/L	20.0	50.0		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Magnesium Dissolved	0.383 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Potassium Dissolved	1.10 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 14:26		MV
Sodium Dissolved	345 mg/L	0.200	0.500		1	06/10/15 13:36	MM	06/15/15 14:26		MV
<b>Analysis Desc: E200.8, ICP-MS</b>		<b>Preparation Method: E200.8, ICP-MS Prep</b>								
		<b>Analytical Method: E200.8, ICP-MS</b>								
Aluminum Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Antimony Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Arsenic Dissolved	<2.00 ug/L	0.700	2.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Barium Dissolved	4.67 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Beryllium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Cadmium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Chromium Dissolved	3.79 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Cobalt Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Copper Dissolved	3.06 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Lithium Dissolved	14.3 ug/L	0.700	2.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW N
Lead Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Manganese Dissolved	3.72 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Molybdenum Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Selenium Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Silver Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Thallium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	08/11/15 14:13		SLW
Uranium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW N
Vanadium Dissolved	1.07 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW
Zinc Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 14:13		SLW

Report ID: 157091 - 1772532

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Phone: (512)356-6022  
Fax: (512)356-6021

## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: **Q1520025013**  
Sample ID: **18-35-601**  
Project ID: **TWDB CAN**

Date Received: 6/2/2015 10:16 Matrix: Aqueous  
Date Collected: 5/29/2015 10:10 Sample Type: SAMPLE

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>Analysis Desc: E300.0, Anions</b>		<b>Preparation Method: E300.0, Anions</b>								
		<b>Analytical Method: E300.0, Anions</b>								
Chloride Dissolved	23.3 mg/L	2.00	5.00	5		06/16/15 22:38	ML	06/16/15 22:38	ML	
Bromide Dissolved	0.116 mg/L	0.0400	0.100	5		06/16/15 22:38	ML	06/16/15 22:38	ML	
Fluoride Dissolved	1.49 mg/L	0.0200	0.0500	5		06/16/15 22:38	ML	06/16/15 22:38	ML	
Sulfate Dissolved	86.7 mg/L	2.00	5.00	5		06/16/15 22:38	ML	06/16/15 22:38	ML	
<b>TOTAL PHOSPHATE AS P</b>										
<b>Analysis Desc: E365.4 Phosphorus, Total</b>		<b>Preparation Method: E365.4 / E351.2 Water Prep</b>								
		<b>Analytical Method: E365.4 Phosphorus, Total</b>								
Phosphorus, Dissolved (As P)	0.294 mg/L	0.00800	0.0200	1		06/15/15 09:22	MM	06/16/15	CM	
<b>ALKALINITY</b>										
<b>Analysis Desc: SM2320B, Alkalinity</b>		<b>Preparation Method: SM2320B, Alkalinity</b>								
		<b>Analytical Method: SM2320B, Alkalinity</b>								
Phenolphthalein Alkalinity	32.7 mg/L	20.0	20.0	1		06/11/15	WR	06/11/15	WR	N
Hydroxide Alkalinity	<20.0 mg/L	20.0	20.0	1		06/11/15	WR	06/11/15	WR	N
Bicarbonate Alkalinity	526 mg/L	20.0	20.0	1		06/11/15	WR	06/11/15	WR	N
Carbonate Alkalinity	65.4 mg/L	20.0	20.0	1		06/11/15	WR	06/11/15	WR	N
Total Alkalinity	591 mg/L	20.0	20.0	1		06/11/15	WR	06/11/15	WR	
<b>NITRATE AND NITRITE</b>										
<b>Analysis Desc: SM4500-NO3-H, Nitrate/Nitrite</b>		<b>Preparation Method: SM4500-NO3-H, Nitrate/Nitrite</b>								
		<b>Analytical Method: SM4500-NO3-H, Nitrate/Nitrite</b>								
Nitrate/Nitrite	<0.0200 mg/L	0.00800	0.0200	1		06/15/15 10:47	ML	06/15/15 10:47	ML	
<b>SILICA</b>										
<b>Analysis Desc: SM4500-SiO2-C, Silica</b>		<b>Preparation Method: SM4500-SiO2-C, Silica</b>								
		<b>Analytical Method: SM4500-SiO2-C, Silica</b>								
Silica, Dissolved	11.6 mg/L	0.200	0.500	1		06/10/15	CM	06/10/15	CM	
<b>HEAVY METALS</b>										
<b>Analysis Desc: E245.1 Mercury Water</b>		<b>Preparation Method: E245.1 Mercury Water</b>								
		<b>Analytical Method: E245.1 Mercury Water</b>								
Mercury Dissolved	<0.200 ug/L	0.0700	0.200	1		06/05/15	FM	06/08/15 13:53	FM	

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## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: **Q1520025013**

Date Received: 6/2/2015 10:16 Matrix: Aqueous

Sample ID: **18-35-601**

Date Collected: 5/29/2015 10:10 Sample Type: SAMPLE

Project ID: **TWDB CAN**

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>INORGANICS</b>										
Analysis Desc: SM1030B Cation/Anion Balance			Preparation Method: SM1030B Cation/Anion Balance							
			Analytical Method: SM1030B Cation/Anion Balance							
Cation/Anion Balance	-2.610 %				1	06/17/15 13:12	CW	06/17/15 13:12	CW	



TEXAS WATER DEVELOPMENT BOARD  
WELL SCHEDULE

State Well Number - 18 36 302 Previous Well Number - County - Grayson 181  
River Basin - Trinity River - 08 Zone - 1 Latitude - 33 28 56 Longitude - 96 32 10 Source of Coords - 1

Owners Well No. \_\_\_\_\_ Location \_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, Section \_\_\_\_\_, Block \_\_\_\_\_, Survey \_\_\_\_\_

Owner - South Grayson WSC  
Well #10

Driller - J.L. Meyers Co.

Address P.O. Box 2, Van Alstyne, TX Tenant/Oper. \_\_\_\_\_

Date Drilled - 10/ /2000 Depth - 1,450 ft. Source of Depth - D Altitude - 800 ft. Source of Alt. - M

Aquifer - 212WDBN WOODBINE SAND

Well Type - W User - 807350

WELL Const. Casing  
CONSTRUCTION Method - HYDRAULIC ROTARY Material - STEEL  
Completion - GRAVEL PACK W/SCREEN Material - STEEL  
Casing or Blank Pipe (C)  
Well Screen or Slotted Zone (S)  
Open Hole (O)  
Cemented from \_\_\_\_\_ to \_\_\_\_\_

LIFT DATA - Pump Mfr. \_\_\_\_\_ Type - SUBMERSIBLE PUMP No. Stages \_\_\_\_\_  
Diam. Setting(feet)  
(in.) From To

Bowls Diam. - \_\_\_\_\_ in. Setting - \_\_\_\_\_ ft. Column Diam. - \_\_\_\_\_ in.

Motor Mfr. - \_\_\_\_\_ Fuel or Power - ELECTRIC MOTOR Horsepower - \_\_\_\_\_

YIELD Flow- \_\_\_\_\_ GPM Pump- \_\_\_\_\_ GPM Meas., Rept., Est- \_\_\_\_\_ Date- \_\_\_\_\_

PERFORMANCE TEST Date- \_\_\_\_\_ Length of Test- \_\_\_\_\_ Production- \_\_\_\_\_ GPM

Static Level- \_\_\_\_\_ ft. Pumping Level- \_\_\_\_\_ ft. Drawdown- \_\_\_\_\_ ft. Sp.Cap.- \_\_\_\_\_ GPM/ft

QUALITY (Remarks- \_\_\_\_\_)

WATER USE Primary- PUBLIC SUPPLY Secondary- \_\_\_\_\_ Tertiary- \_\_\_\_\_

OTHER DATA AVAILABLE Water Levels- M Quality- Y Logs- D Other Data- AC

WATER LEVELS Date- 10/24/2000 Measurement- -690.00

Date- / / Measurement-

Recorded By J. Derton Date Record Collected or Updated- 09/24/2002

Reporting Agency - TEXAS WATER DEVELOPMENT BOARD

REMARKS -

Owner's #10 well. Measured yield  
175 GPM with 169 feet drawdown  
after pumping 36 hours in 2000.  
Specific capacity 1.04 GPM/ft.  
Underreamed 14" and gravel packed  
from 1205 to 1450 feet. Cemented  
from 0 to 1205 feet. Pump set at  
908 feet. North well of 2.

Aquifer - 212WDBN  
Well No. - 18 36 302



Attention Owner:  
Confidentiality Privilege Notice  
on reverse side of owner's copy.

**Texas Department of License and Regulation**  
Water Well Driller/Pump Installer Program  
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616  
Toll free (800)803-9202  
Email address: [water.well@license.state.tx.us](mailto:water.well@license.state.tx.us)

This form must be completed  
and filed with the department  
and owner within 60 days  
upon completion of the well.

*North well*

**WELL REPORT**

**A. WELL IDENTIFICATION AND LOCATION DATA**

**1) OWNER**

Name <b>WELL #10 So. Grayson WSC</b>	Address <b>P. O. Box 2</b>	City <b>Van Alstyne</b>	State <b>TX</b>	Zip <b>79495</b>
---	-------------------------------	----------------------------	--------------------	---------------------

**2) WELL LOCATION**

County <b>Grayson</b>	Physical Address <b>Haun Road</b>	City <b>Howe</b>	State <b>TX</b>	Zip <b>75459</b>
--------------------------	--------------------------------------	---------------------	--------------------	---------------------

**3) Type of Work**

☒ New Well ☐ Deepening  
☐ Reconditioning

Lat. \_\_\_\_\_

Long. \_\_\_\_\_

Grid # **18-36-3**

**4) Proposed Use (check)**

☐ Monitor ☐ Environmental Soil Boring ☐ Domestic  
☐ Industrial ☐ Irrigation ☐ Injection ☒ Public Supply ☐ De-watering ☐ Testwell  
If Public Supply well, were plans submitted to the TNRCC? ☒ Yes ☐ No

5) **N↑**

**6) Drilling Date**

Started **9 / /00**

Completed **10 / /00**

**Diameter of Hole**

Dia.(in)	From (ft)	To (ft)
<b>12 1/4</b>	<b>0</b>	<b>1205</b>
<b>14</b>	<b>1205</b>	<b>1450</b>

**7) Drilling Method (check)**

☐ Air Rotary ☒ Mud Rotary ☐ Driven  
☐ Air Hammer ☐ Cable Tool ☐ Bored  
☐ Jetted  
☐ Other \_\_\_\_\_

**From (ft) To (ft) Description and color of formation material**

**See attached**

**8) Borehole Completion** ☐ Open Hole ☐ Straight Wall

☒ Under-reamed ☒ Gravel Packed ☐ Other  
If Gravel Packed give the interval from **1205** ft. to **1456** ft.

**Casing, Blank Pipe, and Well Screen Data**

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft)		Cage Casing Screen
			From	To	
<b>8</b>	<b>N</b>	<b>Steel</b>	<b>+2</b>	<b>1205</b>	
<b>4</b>	<b>N</b>	<b>Steel</b>	<b>1106</b>	<b>1216</b>	
<b>4</b>	<b>N</b>	<b>Screen</b>	<b>1216</b>	<b>1446</b>	

(Use reverse side of Well Owner's copy. If necessary.)

**13) Plugged**

☐ Well plugged within 48 hours

Casing left in well: \_\_\_\_\_ Cement/Bentonite placed in well: \_\_\_\_\_

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

**14) Typepump**

☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_

Depth to pump bowls, cylinder, jet etc., \_\_\_\_\_ ft.

**15) Water Test**

Typetest ☒ Pump ☐ Bailer ☐ Jetted ☐ Estimated

Yield: **175** gpm with **169** ft. drawdown after **36** hrs.

**16) Water Quality**

Did you knowingly penetrate and strata which contain undesirable constituents.

☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER

Type of water \_\_\_\_\_ Depth of Strata \_\_\_\_\_

Was a chemical analysis made ☒ Yes ☐ No

**9) Cementing Data**

Cementing from **0** ft. to **1205** ft. # of sacks used **300**  
\_\_\_\_\_ ft. to \_\_\_\_\_ ft. # of sacks used \_\_\_\_\_

Method Used **Pump down**

Cementing By **Jet Star**

Distance to septic system field or other concentrated contamination \_\_\_\_\_ ft.

Method of verification of above distance \_\_\_\_\_

**10) Surface Completion**

☒ Specified Surface Slab Installed  
☐ Specified Surface Sleeve Installed  
☐ Pitless Adapter Used  
☐ Approved Alternative Procedure Used

**11) Water Level**

Static level **690** ft. below Date **10 / 24 / 00**

Artesian Flow \_\_\_\_\_ gpm. Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**12) Packers**

Type \_\_\_\_\_ Depth \_\_\_\_\_

**n/a**

Company or individual's Name (type or print)

**J. L. Myers Company**

Address **8325 Forney Road**

City **Dallas**

State **TX**

Zip **75227**

Signature \_\_\_\_\_

Date

**12 / 14 / 00**

Signature \_\_\_\_\_

Apprentice

Date



# DRILLER'S LOG

OWNER : SOUTH GRAYSON WATER SUPPLY CORPORATION  
P. O. BOX 2  
VAN ALSTYNE, TX 75495

WELL NO. 10

LOCATION : HAUN ROAD, ½ MILE EAST OF RED ROAD  
HOWE, GRAYSON COUNTY, TEXAS

DATE : SEPTEMBER 2000

DRILLER : C. A. WILLIAMS

DEPTH OF STRATA		EACH STRATUM	DESCRIPTION
From	To	Feet	
0	2	2	Soil
2	446	444	Chalk rock w/shale strks
446	534	88	Shale w/chalk & sand strks
534	950	416	Shale
950	1120	170	Sandy shale
1120	1210	90	Shale
1210	1460	250	Sand w/shale & sandy shale

J. L. MYERS COMPANY  
8325 FORNEY ROAD  
DALLAS, TX 75227

FILED	SEP.
EMP #	DEC 18 2000
COMMENT	DESC CC

18-26-2



MATERIAL SETTING

OWNER : SOUTH GRAYSON WATER SUPPLY CORPORATION  
P. O. BOX 2  
VAN ALSTYNE, TX 75495

WELL NO. 10

LOCATION : HAUN ROAD, 1/2 MILE EAST OF RED ROAD  
HOWE, GRAYSON COUNTY, TEXAS

DATE : SEPTEMBER 2000

FROM	TO	AMOUNT	DESCRIPTION
0	20	20	16 "OD casing cemented in place
+2	1205	1207	8-5/8" OD 28#/ft T&C casing with float collar & centralizers. Cemented by Jet Star with 300 sacks Class H plus 8% gel
1106	1216	110	4-1/2" OD Sch. 40 blank liner with with R&L coupling
1216	1304	88	4-1/2" OD SSWW Underbar plus WESCO screen. .020' opening
1304	1328	24	4-1/2" blank with centralizer
1328	1342	14	4-1/2" screen
1342	1414	72	4-1/2" blank with centralizer
1414	1446	32	4-1/2" screen
1446	1456	10	4-1/2" blank
1205	1450	245	14" underreamed hole packed with 16x30 gravel.

J. L. MYERS COMPANY  
8325 FORNEY ROAD  
DALLAS, TX 75227

FILE #		SEQ #
DATE	DEC 18 2000	DESC
COMMENT		

11-21-2



# PUMPING TEST

OWNER : SOUTH GRAYSON WATER SUPPLY CORPORATION  
P. O. BOX 2  
VAN ALSTYNE, TX 75495

WELL NO. 10

LOCATION: HAUN ROAD, 1/2 MILE EAST OF RED ROAD  
HOWE, GRAYSON COUNTY, TEXAS

DATE : SEPTEMBER 2000- PUMP SET 908

DATE & TIME	GPM	AIRLINE READING	WATER LEVEL	REMARKS
<u>10-24-00</u>				
11:00 AM	175	218	690	
12:00 PM	175	84	824	
01:00	175	78	830	
02:00	175	72	836	
03:00	175	72	836	
04:00	175	68	840	
05:00	175	68	840	
06:00	175	68	840	
07:00	175	68	840	
08:00	175	68	840	
09:00	175	68	840	
10:00	175	68	840	
11:00	175	68	840	
<u>10-25-00</u>				
12:00 AM	180	64	844	
01:00	180	64	844	
02:00	180	64	844	
03:00	180	64	844	
04:00	180	64	844	
05:00	180	64	844	
06:00	175	60	848	
07:00	175	56	852	
08:00	175	56	852	
09:00	175	56	852	
10:00	175	56	852	
11:00	175	56	852	
12:00 PM	173	54	854	
01:00	173	54	854	

FILE #	SEQ #
DATE	DESC CC
DEC 18 2000	
COMMENT	

18 - 36 - 3



SOUTH GRAYSON WATER SUPPLY CORPORATION -WELL NO. 10  
PUMPING TEST CONTINUED-PAGE 2

DATE & TIME	GPM	AIRLINE READING	WATER LEVEL	REMARKS
02:00 PM	172	54	854	
03:00	173	54	854	
04:00	173	54	854	
05:00	173	52	856	
06:00	173	52	856	
07:00	175	52	856	
08:00	172	52	856	
09:00	175	52	856	
10:00	175	55	853	
11:00	175	55	853	Shut off
<u>RECOVERY</u>				
11:05		204	704	
11:10		193	715	
11:15		196	712	
11:20		197	711	
11:25		199	709	
11:30		199	709	
11:45		200	708	
<u>10-26-00</u>				
12:00 AM		200	708	
12:15		200	708	
12:30		204	704	
01:00		205	703	
01:30		206	702	
02:00		208	700	
06:30		216	692	
10:00			775	E-line

J. L. MYERS COMPANY  
8325 FORNEY ROAD  
DALLAS, TX 75227

EMP #	DEC 18 2000	DESC #
COMMENT		

10-26-00



# POPE *Testing* LABORATORIES, Inc.

CONSULTING ANALYTICAL CHEMISTS  
AND TESTING ENGINEERS

FOODS, FEEDS, DAIRY PRODUCTS  
WATER, MISCL. ANALYSES  
COTTON SEED PRODUCTS  
PACKING HOUSE PRODUCTS

P. O. BOX 903  
DALLAS, TEXAS 75221  
AC 214 742-8491  
FAX 214 748-5817  
November 13, 2000

OFFICIAL CHEMISTS  
WEIGHERS AND INSPECTORS  
NATL. COTTONSEED PRODUCTS ASS'N.  
REFEREE CHEMISTS  
AMERICAN OIL CHEMISTS SOCIETY

Date Rec'd: 10-27-00

To: J L Myers Company  
8325 Forney Road  
Dallas, TX 75227

## Report of Tests on Water

Identification Marks: South Grayson W.S.C. Well #10 Woodbine sampled 10-25-00  
after pumping 36 hrs

Values reported are for minerals in solution

	<u>mg/L</u>
Calcium .....	0.8
Magnesium .....	0.5
Iron .....	0.09
Manganese .....	0.0
Sodium .....	212.7
Carbonate .....	12.0
Bicarbonate .....	363.6
Sulphate .....	108.6
Chloride .....	25.0
Fluoride .....	1.0
Nitrate .....	0.0
Phenolphthalein Alkalinity as CaCO <sub>3</sub> .....	10.0
Total Alkalinity as CaCO <sub>3</sub> .....	318.0
Total Hardness as CaCO <sub>3</sub> .....	3.9
Total Dissolved Solids .....	724.3
Total Iron .....	0.13
Arsenic .....	< 0.005
Barium .....	< 0.010
Beryllium .....	< 0.004
Chromium .....	< 0.005
Nickel .....	< 0.02
Selenium .....	< 0.04
Aluminum .....	0.09
Copper .....	0.007
Silver .....	< 0.005
Zinc .....	0.045
Nitrite (N) .....	< 0.005

Continued

FILE #	SEQ #
EMP #	DESC #
DEC 18 2000	
COMMENT	

10-31-2



Page -2-

South Grayson WSC Well #10

Specific Conductance Micromhos/cm ..... 850  
pH ..... 8.5

\* \* \* \* \*

Respectfully Submitted,

POPE TESTING LABORATORIES, INC.



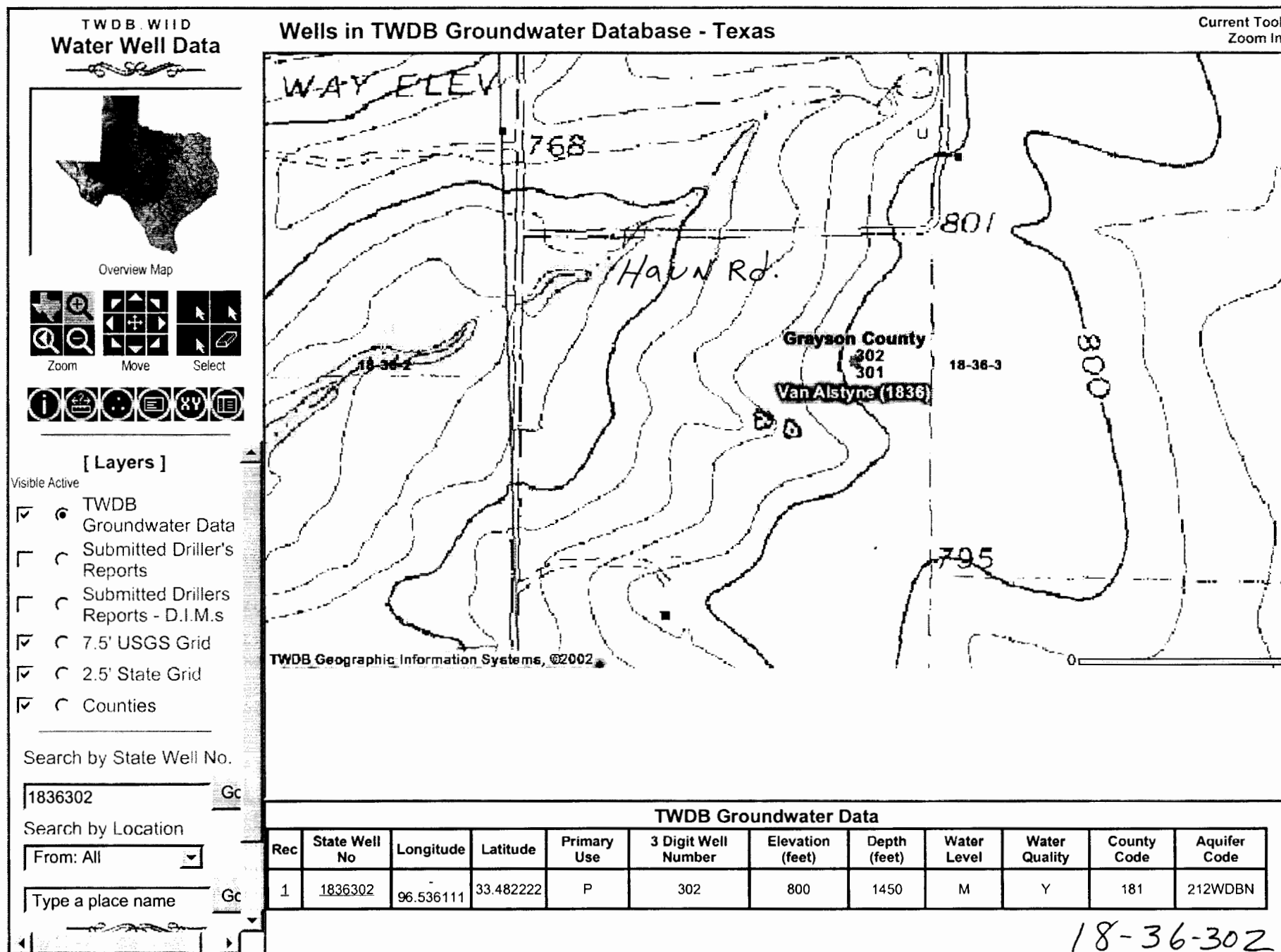
Leon Hunter

Lab No. 56752

FILE #	SEQ #
EMP #	DESC CO
DEC 18 2000	
COMMENT	

18-36:3







# TWDB Water Quality Field Data Sheet

Newly Invented Wel. 1 No

State Well Number: 18.36.302

Name: South Grayson WSC

Sample ID Number: 003

County: Grayson

Address: PO Box 2

Date: 10/12/04

County Code: 181

Van Alstyne, TX. 75095

Sampler(s): DR Jones

Aquifer Code: 212 WDBN

Phone Number: 903-482-6231

Aquifer Id: 29

Attention: John D. Spencer

Well Name or #: 10

CIRCLE EACH SAMPLE FRACTION COLLECTED:

1	2	3	4	5
500ml (filtered)	500ml (filtered)	250ml (filtered)	40 ml (unfiltered)	1 L (unfiltered)
Anions / Total Alk.	Cations	Nitrate	Atrazine	Alpha & Beta
Ice	Nitric (HNO3)	Ice + H2SO4	Ice and in dark	Nitric (HNO3)

Proper Cation and Nitrate preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0

Calibration Verification Readings	
pH	7 = <u>7.02</u>
	4 or 10 = <u>10.05</u>
SLP = <u>59.2</u>	7.38 = <u>        </u>
Conductivity	500 = <u>494</u>
	1000 = <u>994</u>
	2000 = <u>1982</u>
	5000 = <u>4920</u>

Time In: 14:30

Time Out: 15:15

W. L. depth from LSD (ft.):         

W.L. remark:          M.P. =         

Pumping Since: 14:35

Sampling Point: FAW

Well Use: PS

FIELD G.P.S. readings

Lift: Subm.

Latitude: 33°28'56.3"

Power: Elec.

Longitude: 096°32'11.0"

Casing Type: Steel

Casing Size:         "

Sample Time: 15:00

Filter pressure: hand pump / line         

Field Alkalinity Titration:	
<u>8.62</u> Start pH	<u>4.51</u> End pH
<u>50.0</u> mL Sample Size	
<u>1.9</u> mL Acid added for Phenol (> 8.3)	
<u>16.1</u> mL Acid added for Total (to pH 4.5)	
Items below calculated from: mL acid added x 20 = Alkalinity	
Phenol Alkalinity (82244):	<u>38</u> mg/L
Total Alkalinity (39086):	<u>322</u> mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	<u>568</u>
Hardness (as CaCO3):	<u>3</u>
Balanced:	<u>yes</u>

## Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	<u>14:45</u>	<u>14:50</u>	<u>14:55</u>				
pH:	<u>8.36</u>	<u>8.43</u>	<u>8.45</u>				
Celsius Temp. (00010)	<u>23.3</u>	<u>23.3</u>	<u>23.3</u>				
Conductivity (uS/cm):	<u>922</u>	<u>931</u>	<u>931</u>				

Notes:

Data Entered By Sampler Into Database:

yes / no



# LCRA Environmental Laboratory Services

Date: 08-Nov-04

CLIENT: Texas Water Development Board Client Sample ID: 18-36-302  
 Lab Order: 0410308 File No: 33712  
 Project: TWDB FY05 Collection Date: 10/12/2004 3:00:00 PM  
 Lab ID: 0410308-003 Matrix: GROUNDWATER

Analyses	Storet	Result	Qual	PQL	Units	DF	Batch ID	Date Analyzed
----------	--------	--------	------	-----	-------	----	----------	---------------

## ICP METALS DISSOLVED

E200.7

Analyst: TH

Calcium	0.695	0.204	mg/L	1	29967	10/27/2004 9:42:39 PM
Magnesium	0.248	0.204	mg/L	1	29967	10/27/2004 9:42:39 PM
Potassium	0.695	0.204	mg/L	1	29967	10/27/2004 9:42:39 PM
Sodium	217	0.714	mg/L	1	29967	10/27/2004 9:42:39 PM

## ICP METALS DISSOLVED

E200.7

Analyst: TH

Boron	775	51	µg/L	1	29977	10/27/2004 9:42:39 PM
Iron	151	51	µg/L	1	29977	10/27/2004 9:42:39 PM
Strontium	54	20	µg/L	1	29977	10/27/2004 9:42:39 PM

## ICPMS DISSOLVED METALS

E200.8

Analyst: SW

Aluminum	ND	4.08	µg/L	1	29974	10/27/2004
Antimony	ND	1.02	µg/L	1	29930	10/26/2004
Arsenic	ND	2.04	µg/L	1	29974	10/27/2004
Barium	2.97	1.02	µg/L	1	29930	10/26/2004
Beryllium	ND	1.02	µg/L	1	30043	11/1/2004
Cadmium	ND	1.02	µg/L	1	29930	10/26/2004
Chromium	ND	1.02	µg/L	1	29974	10/27/2004
Cobalt	ND	1.02	µg/L	1	29974	10/27/2004
Copper	2.59	1.02	µg/L	1	29974	10/27/2004
Lead	ND	1.02	µg/L	1	29930	10/26/2004
Lithium	12.7	2.04	µg/L	1	30043	11/1/2004
Manganese	5.99	1.02	µg/L	1	29974	10/27/2004
Molybdenum	ND	1.02	µg/L	1	29930	10/26/2004
Selenium	ND	4.08	µg/L	1	29974	10/27/2004
Thallium	ND	1.02	µg/L	1	29930	10/26/2004
Vanadium	ND	1.02	µg/L	1	29974	10/27/2004
Zinc	11.6	4.08	µg/L	1	29974	10/27/2004

## CATION/ANION BALANCES

CALCULATION

Analyst: AMJ

Cation/Anion Balance	Balanced	0	Date	1	30057	11/2/2004
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## ANIONS BY ION CHROMATOGRAPHY, DISSOLVE

E300

Analyst: WR

Bromide Dissolved	0.11	0.10	mg/L	5	29751	10/19/2004 12:47:00 AM
Chloride Dissolved	20.0	5.00	mg/L	5	29751	10/19/2004 12:47:00 AM
Fluoride Dissolved	1.06	0.05	mg/L	5	29751	10/19/2004 12:47:00 AM
Sulfate Dissolved	123	5.00	mg/L	5	29751	10/19/2004 12:47:00 AM

## ALKALINITY

M2320 B

Analyst: WR

Alkalinity, Phenolphthalein	10	0	mg/L CaCO3	1	29874	10/22/2004
Alkalinity, Total (As CaCO3)	321	2	mg/L CaCO3	1	29874	10/22/2004

## NITRATE AND NITRITE

E353.2

Analyst: LW

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	S Spike Recovery outside accepted recovery limits	



**LCRA Environmental Laboratory Services**

Date: 08-Nov-04

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<b>CLIENT:</b>	Texas Water Development Board	<b>Client Sample ID:</b>	18-36-302
<b>Lab Order:</b>	0410308	<b>File No:</b>	33712
<b>Project:</b>	TWDB FY05	<b>Collection Date:</b>	10/12/2004 3:00:00 PM
<b>Lab ID:</b>	0410308-003	<b>Matrix:</b>	GROUNDWATER

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Analyses	Storet	Result Qual	PQL	Units	DF	Batch ID	Date Analyzed
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<b>NITRATE AND NITRITE</b>		<b>E353.2</b>					Analyst: <b>LW</b>
Nitrogen, Nitrate & Nitrite		ND	0.02	mg/L	1	30012	10/29/2004
<b>SILICA</b>		<b>E370.1</b>					Analyst: <b>LW</b>
Silica, Dissolved (as SiO2)		12.9	0.50	mg/L	1	29952	10/28/2004

---

<b>Qualifiers:</b>	<b>*</b>	Value exceeds Maximum Contaminant Level	<b>B</b>	Analyte detected in the associated Method Blank
	<b>E</b>	Value above quantitation range	<b>H</b>	Holding times for preparation or analysis exceeded
	<b>J</b>	Analyte detected below quantitation limits	<b>ND</b>	Not Detected at the Reporting Limit
	<b>S</b>	Spike Recovery outside accepted recovery limits		



FY06

## TWDB Water Quality Field Data Sheet

SWN: 18-36-302  
 County: GRAYSON  
 County Code: 181  
 Aquifer Code: 212 WDBN  
 Aquifer Id: 29

Name: South Grayson WSC  
 Address: P.O. Box 2  
VAN ALSTINE TX. 75095  
 Phone Number: 903-482-6231  
 Attention: JOHN SPENCER  
 Well Name or #: 10

Newly Inventoried Well NOID Number: 2247Date: 6/7/06Sampler(s): D.W.

CIRCLE EACH SAMPLE FRACTION COLLECTED:

①	②	③	4	5	6	7	8	9	10
500ml filtered	250 ml filtered	500ml filtered	40ml unfiltered	1 L unfiltered	1 L unfiltered				
Anions/T. Alk.	Cation	Nitrate	Atrazine	Tritium	C14				
Ice	(HNO3)	Ice + H2SO4	Ice & in dark	None	NaOH (*)				

All acidified samples pH &lt; 2.0. (\*) If natural pH &lt; 7, then add NaOH until pH is &gt; 7. If natural pH is ≥ 7, no NaOH required.

Time In: 13:57Time Out: 14:40Water Level: —W.L. remark: 42M.P. = —Pumping time: 14:01Sampling Point: FAWWell Use: P

## FIELD G.P.S. readings

Lift: SLatitude: 33° 28' 56" NPower: ELongitude: 96° 32' 10" WCasing Type: —Casing Size: —Sample Time: 14:32Filter pressure: hand pump (line) / spring

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Notes:

Time	<u>14:11</u>	<u>14:16</u>	<u>14:21</u>						
pH	<u>8.45</u>	<u>8.46</u>	<u>8.45</u>						
Celsius Temp.	<u>28.2</u>	<u>28.3</u>	<u>28.3</u>						
Conductivity	<u>1058</u>	<u>1055</u>	<u>1059</u>						

## Calibration Verification Readings

pH 7 = 7.03  
 4 or 10 = 10.08  
 SLP = 94.8 7.38 = —  
 Conductivity 500 = 504  
 1000 = 1008  
 2000 = 1970  
 5000 = 4970

## Field Alkalinity Titration:

8.48 Start pH 4.50 End pH  
50.0 mL Sample Size  
0.4 mL Acid added for Phenol (> 8.3)  
17.0 mL Acid added for Total (to pH 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 8 mg/LTotal Alkalinity (39086): 340 mg/L

## Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 633Hardness (as CaCO3): 4Balanced: B

Data Entered By Sampler Into Database:

(yes) no



## LABORATORY ANALYTICAL REPORT

**Client:** Texas Water Development Board  
**Project:** TWDB  
**Lab ID:** C06060464-004  
**Client Sample ID:** 1836302 (2247)

**Report Date:** 06/22/06  
**Collection Date:** 06/07/06 14:32  
**Date Received:** 06/08/06  
**Matrix:** Aqueous

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
MAJOR IONS							
Alkalinity, Phenolphthalein as CaCO3	15	mg/L		1		A2320 B	06/19/06 08:21 / th
Alkalinity, Total as CaCO3	326	mg/L		1		A2320 B	06/19/06 08:21 / th
Bromide	ND	mg/L		0.50		E300.0	06/17/06 01:22 / eli-b
Calcium	0.7	mg/L		0.5		E200.7	06/14/06 16:33 / ts
Chloride	26	mg/L		1		A4500-Cl B	06/12/06 17:01 / jl
Fluoride	0.8	mg/L		0.1		A4500-F C	06/20/06 16:02 / th
Magnesium	ND	mg/L		0.5		E200.7	06/14/06 16:33 / ts
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	06/12/06 11:04 / jal
Potassium	1.0	mg/L		0.5		E200.7	06/14/06 16:33 / ts
Silica	11.6	mg/L		0.1		E200.7	06/14/06 16:33 / ts
Sodium	240	mg/L		0.5		E200.7	06/14/06 16:33 / ts
Sulfate	156	mg/L	D	1		A4500-SO4 E	06/20/06 09:40 / bm
METALS - DISSOLVED							
Aluminum	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Antimony	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Arsenic	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Barium	4	ug/L		1		E200.8	06/09/06 22:24 / sml
Beryllium	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Boron	741	ug/L		100		E200.7	06/14/06 16:33 / ts
Cadmium	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Chromium	1	ug/L		1		E200.8	06/09/06 22:24 / sml
Cobalt	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Copper	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Iron	45	ug/L		30		E200.7	06/14/06 16:33 / ts
Lead	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Lithium	11	ug/L		1		E200.8	06/15/06 12:51 / bws
Manganese	6	ug/L		1		E200.8	06/09/06 22:24 / sml
Molybdenum	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Selenium	3	ug/L		1		E200.8	06/09/06 22:24 / sml
Strontium	57	ug/L		1		E200.8	06/09/06 22:24 / sml
Thallium	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Vanadium	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
Zinc	ND	ug/L		1		E200.8	06/09/06 22:24 / sml
DATA QUALITY							
A/C Balance (± 5)	-0.144	%				Calculation	06/21/06 11:55 / cp
Anions	10.6	meq/L				Calculation	06/21/06 11:55 / cp
Cations	10.5	meq/L				Calculation	06/21/06 11:55 / cp

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



WQ FY 2010

## TWDB Water Quality Field Data Sheet

SWN: 18-36-302  
 County: Grayson  
 County Code: 181  
 Aquifer Code: 212WDBN  
 Aquifer Id: 29

Name: South Grayson WSC  
 Address: PO Box 2  
Van Alstyne TX, 75095

Newly Invented Well N

ID Number: 160  
 Date: 7/14/10  
 Sampler(s): AF

Attention: \_\_\_\_\_

Well Name or #: 10

1	2	3	4	5	6	7	8	9	10	11
40 ml unfiltered	500 ml filtered	500 ml filtered	250 ml filtered	1L filtered	2L filtered					
Atrazine	Cation	Anions/T. Alk.	Nitrate	Gross Alpha	Radium					
					(226/228)					
ICE	HNO3 by lab	ICE	ICE + H2SO4	HNO3 by lab	HNO3 by lab					

All acidified samples pH &lt;2.0. (C14/C13 samples only: If natural pH &lt;7, then add NaOH until pH is &gt;7. If natural pH is ≥7, no NaOH required.)

Time In: 13:00Time Out: 1345

Water Level: \_\_\_\_\_

W.L. remark: \_\_\_\_\_

M.P. = \_\_\_\_\_

Pumping time: POASampling Point: FAWWell Use: P

## FIELD G.P.S. readings

Lift: S

Latitude: ° . "

Power: E

Longitude: ° . "

Casing Type: \_\_\_\_\_

Casing Size: \_\_\_\_\_

Sample Time: 1325Filter pressure: hand pump / (line) / spring

Field Alk. Titration (0.0200 N) H2SO4		
<u>8.45</u>	Start pH	<u>4.51</u> End pH
<u>50</u>	mL Sample Size	
	mL Acid Phenol (> 8.3)	
<u>17.45</u>	mL Acid Total (to pH 4.5)	
mL acid added x 20 = Alkalinity		

Phenol Alkalinity (82244): \_\_\_\_\_ mg/L

Total Alkalinity (39086): 349 mg/LColorimeter DO (00300): 63 mg/LField Data entered into GWDB: yes / no

Balanced: \_\_\_\_\_

Notes: \_\_\_\_\_

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	1315	1320	1325						
pH	<u>8.40</u>	<u>8.41</u>	<u>8.43</u>						
Celsius Temp.	<u>29.3</u>	<u>28.9</u>	<u>28.9</u>						
Conductivity	<u>1319</u>	<u>1256</u>	<u>1225</u>						



# LCRA Environmental Laboratory Services

Date: 05-Aug-10

CLIENT: Texas Water Development Board  
Lab Order: 1007639  
Project: TWDB FY2010  
Lab ID: 1007639-012

Client Sample ID: 18-36-302  
Collection Date: 7/14/2010 1:25:00 PM  
Matrix: GROUNDWATER  
Tag No: 160

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Calcium	0.70	0.20		mg/L	1	7/27/2010 2:13:36 PM
Magnesium	0.31	0.20		mg/L	1	7/27/2010 2:13:36 PM
Potassium	0.97	0.20		mg/L	1	7/27/2010 2:13:36 PM
Sodium	247	0.51		mg/L	1	7/27/2010 2:13:36 PM
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Boron	795	51		µg/L	1	7/27/2010 2:13:36 PM
Iron	< 51	51		µg/L	1	7/27/2010 2:13:36 PM
Strontium	58	20		µg/L	1	7/27/2010 2:13:36 PM
<b>ICPMS METALS, DISSOLVED</b>						
		<b>E200.8</b>				Analyst: <b>SW</b>
Aluminum	< 4.1	4.1		µg/L	1	7/27/2010 6:40:32 PM
Antimony	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Arsenic	< 2.0	2.0		µg/L	1	7/27/2010 6:40:32 PM
Barium	4.7	1.0		µg/L	1	7/27/2010 6:40:32 PM
Beryllium	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Cadmium	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Chromium	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Cobalt	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Copper	3.3	1.0		µg/L	1	7/27/2010 6:40:32 PM
Lead	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Lithium	14.1	2.0	A	µg/L	1	7/28/2010 1:52:06 PM
Manganese	5.8	1.0		µg/L	1	7/27/2010 6:40:32 PM
Molybdenum	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Selenium	< 4.1	4.1		µg/L	1	7/27/2010 6:40:32 PM
Silver	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Thallium	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Uranium	< 1.0	1.0	A	µg/L	1	7/27/2010 6:40:32 PM
Vanadium	< 1.0	1.0		µg/L	1	7/27/2010 6:40:32 PM
Zinc	< 4.1	4.1		µg/L	1	7/27/2010 6:40:32 PM
<b>MERCURY, TOTAL</b>						
		<b>SW7470A</b>				Analyst: <b>AE</b>
Mercury	< 0.200	0.200		µg/L	1	7/22/2010 1:30:00 PM
<b>DISSOLVED ANIONS BY ION CHROMATOGRAPH</b>						
		<b>E300.0</b>				Analyst: <b>WR</b>
Bromide Dissolved	0.11	0.10		mg/L	5	7/20/2010 10:51:00 PM
Chloride Dissolved	26.3	5.00		mg/L	5	7/20/2010 10:51:00 PM
Fluoride Dissolved	1.02	0.05		mg/L	5	7/20/2010 10:51:00 PM
Sulfate Dissolved	163	5.00		mg/L	5	7/20/2010 10:51:00 PM
<b>ALKALINITY</b>						
		<b>SM2320 B</b>				Analyst: <b>JB</b>
Alkalinity, Phenolphthalein	16	2	A	mg/L CaCO <sub>3</sub>	1	7/27/2010

## Qualifiers:

A Not Available for Accreditation  
E Value Above Quantitation Range  
N Not Accredited  
X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank  
H Holding Time Exceeded  
S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



**LCRA Environmental Laboratory Services****Date:** 05-Aug-10**CLIENT:** Texas Water Development Board**Client Sample ID:** 18-36-302**Lab Order:** 1007639**Collection Date:** 7/14/2010 1:25:00 PM**Project:** TWDB FY2010**Matrix:** GROUNDWATER**Lab ID:** 1007639-012**Tag No:** 160

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ALKALINITY</b>						Analyst: <b>JB</b>
Alkalinity, Total (As CaCO <sub>3</sub> )	330	2		mg/L CaCO <sub>3</sub>	1	7/27/2010
<b>CATION/ANION BALANCE</b>						Analyst: <b>AMJ</b>
Cation/Anion Balance	-0.25	5.0		%	1	8/4/2010
<b>NITRATE AND NITRITE</b>						Analyst: <b>KK</b>
Nitrogen, Nitrate & Nitrite	< 0.020	0.020		mg/L	1	7/21/2010
<b>DISSOLVED PHOSPHATE AS P IN WATER</b>						Analyst: <b>CM</b>
Phosphorus, Dissolved (As P)	0.461	0.020		mg/L	1	7/20/2010
<b>SILICA</b>						Analyst: <b>KK</b>
Silica, Dissolved (as SiO <sub>2</sub> )	12.5	2.50		mg/L	5	7/23/2010

**Qualifiers:**

A Not Available for Accreditation

E Value Above Quantitation Range

N Not Accredited

X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank

H Holding Time Exceeded

S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



WQ FY 2015

## TWDB Water Quality Field Data Sheet

Newly Invented Well N

SWN: 18-36-302  
 County: Grayson  
 County Code: 181  
 Aquifer Code: 212WDBN  
 Aquifer Id: 29

Name: South Grayson WSC  
 Address: PO Box 2  
Van Alstyne, TX 75095  
 Attention: \_\_\_\_\_

ID Number: 7  
 Date: 8/27/15  
 Sampler(s): AF

Well Name or #: 10

1	2	3	4	5	6	7	8	9	10
40 ml unfiltered Atrazine	250 ml filtered Nitrate	500 ml filtered Anions/T. Alk.	250 ml filtered Cation	128 oz cubitainer filtered UNAT Radium Gross Alpha (226/228) HNO <sub>3</sub> by lab					
ICE	ICE + H <sub>2</sub> SO <sub>4</sub>	ICE	HNO <sub>3</sub>						

Calibration Verification Readings	
pH	SLOPE = _____
	7 = _____
	4 or 10 = _____
Conductivity	500 = _____
	1000 = _____
	2000 = _____
	5000 = _____

Time In: 14:00Time Out: 14:55

Water Level: \_\_\_\_\_

M.P. = \_\_\_\_\_ W.L. remark: \_\_\_\_\_

Pumping time: 20 minSampling Point: FAWWell Use: P

## FIELD G.P.S. readings

Lift: S

Latitude: \_\_\_\_\_

Power: E

Longitude: \_\_\_\_\_

Casing Type: \_\_\_\_\_

Casing Size: \_\_\_\_\_

Sample Time: 14:20

Filter pressure: hand pump / line / spring sampler

Field Alkalinity Titration	
<u>8.66</u>	Start pH
<u>4.52</u>	End pH
<u>50</u>	mL Sample Size
	mL Acid Phenol (> 8.3)
<u>16.65</u>	mL Acid Total (to pH 4.5)
mL acid added x 20 = Alkalinity	

Phenol Alkalinity (82244): \_\_\_\_\_ mg/L

Total Alkalinity (39086): 333 mg/L

Notes: \_\_\_\_\_

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	14:05	14:10	14:15	14:20					
pH	<u>8.39</u>	<u>8.46</u>	<u>8.38</u>	<u>8.60</u>					
Celsius Temp.	<u>24.1</u>	<u>27.0</u>	<u>27.5</u>	<u>27.6</u>					
Conductivity	<u>1119</u>	<u>1090</u>	<u>796</u>	<u>776</u>					





LCRA Environmental Laboratory Services  
3505 Montopolis Drive  
Austin, TX 78744  
Phone: (512)356-6022  
Fax: (512)356-6021

## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: **Q1520025007**  
Sample ID: **18-36-302**  
Project ID: **TWDB CAN**

Date Received: 6/2/2015 10:16 Matrix: Aqueous  
Date Collected: 5/27/2015 14:20 Sample Type: SAMPLE

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>INORGANICS</b>										
<b>Analysis Desc: E200.7 Metals, Trace Elements</b>		<b>Preparation Method: E200.7 Prep</b>								
		<b>Analytical Method: E200.7 Metals, Trace Elements</b>								
Boron Dissolved	581 ug/L	20.0	50.0		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Calcium Dissolved	0.340 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Strontium Dissolved	26.5 ug/L	4.00	10.0		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Iron Dissolved	<50.0 ug/L	20.0	50.0		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Magnesium Dissolved	<0.200 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Potassium Dissolved	0.519 mg/L	0.0700	0.200		1	06/10/15 13:36	MM	06/15/15 13:59		MV
Sodium Dissolved	194 mg/L	0.200	0.500		1	06/10/15 13:36	MM	06/15/15 13:59		MV
<b>Analysis Desc: E200.8, ICP-MS</b>		<b>Preparation Method: E200.8, ICP-MS Prep</b>								
		<b>Analytical Method: E200.8, ICP-MS</b>								
Aluminum Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Antimony Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Arsenic Dissolved	<2.00 ug/L	0.700	2.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Barium Dissolved	2.18 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Beryllium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Cadmium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Chromium Dissolved	2.32 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Cobalt Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Copper Dissolved	1.80 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Lithium Dissolved	9.06 ug/L	0.700	2.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW N
Lead Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Manganese Dissolved	4.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Molybdenum Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Selenium Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Silver Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Thallium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Uranium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW N
Vanadium Dissolved	<1.00 ug/L	0.400	1.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW
Zinc Dissolved	<4.00 ug/L	1.50	4.00		1	06/10/15 13:40	MM	06/11/15 13:48		SLW

Report ID: 157091 - 1772532

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## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: **Q1520025007**  
Sample ID: **18-36-302**  
Project ID: **TWDB CAN**

Date Received: 6/2/2015 10:16 Matrix: **Aqueous**  
Date Collected: 5/27/2015 14:20 Sample Type: **SAMPLE**

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>Analysis Desc: E300.0, Anions</b>		<b>Preparation Method: E300.0, Anions</b>								
		<b>Analytical Method: E300.0, Anions</b>								
Chloride Dissolved	15.6 mg/L	0.400	1.00	1		06/16/15 19:25	ML	06/16/15 19:25	ML	
Bromide Dissolved	0.0709 mg/L	0.00800	0.0200	1		06/16/15 19:25	ML	06/16/15 19:25	ML	
Fluoride Dissolved	0.957 mg/L	0.00400	0.0100	1		06/16/15 19:25	ML	06/16/15 19:25	ML	
Sulfate Dissolved	76.3 mg/L	0.400	1.00	1		06/16/15 19:25	ML	06/16/15 19:25	ML	
<b>TOTAL PHOSPHATE AS P</b>										
<b>Analysis Desc: E365.4 Phosphorus, Total</b>		<b>Preparation Method: E365.4 / E351.2 Water Prep</b>								
		<b>Analytical Method: E365.4 Phosphorus, Total</b>								
Phosphorus, Dissolved (As P)	0.588 mg/L	0.00800	0.0200	1		06/15/15 09:22	MM	06/16/15	CM	
<b>ALKALINITY</b>										
<b>Analysis Desc: SM2320B, Alkalinity</b>		<b>Preparation Method: SM2320B, Alkalinity</b>								
		<b>Analytical Method: SM2320B, Alkalinity</b>								
Phenolphthalein Alkalinity	<20.0 mg/L	20.0	20.0	1		06/09/15	HP	06/09/15	HP	N
Hydroxide Alkalinity	<20.0 mg/L	20.0	20.0	1		06/09/15	HP	06/09/15	HP	N
Bicarbonate Alkalinity	273 mg/L	20.0	20.0	1		06/09/15	HP	06/09/15	HP	N
Carbonate Alkalinity	<20.0 mg/L	20.0	20.0	1		06/09/15	HP	06/09/15	HP	N
Total Alkalinity	292 mg/L	20.0	20.0	1		06/09/15	HP	06/09/15	HP	
<b>NITRATE AND NITRITE</b>										
<b>Analysis Desc: SM4500-NO3-H, Nitrate/Nitrite</b>		<b>Preparation Method: SM4500-NO3-H, Nitrate/Nitrite</b>								
		<b>Analytical Method: SM4500-NO3-H, Nitrate/Nitrite</b>								
Nitrate/Nitrite	<0.0200 mg/L	0.00800	0.0200	1		06/15/15 10:00	ML	06/15/15 10:00	ML	
<b>SILICA</b>										
<b>Analysis Desc: SM4500-SiO2-C, Silica</b>		<b>Preparation Method: SM4500-SiO2-C, Silica</b>								
		<b>Analytical Method: SM4500-SiO2-C, Silica</b>								
Silica, Dissolved	12.6 mg/L	0.200	0.500	1		06/10/15	CM	06/10/15	CM	
<b>HEAVY METALS</b>										
<b>Analysis Desc: E245.1 Mercury Water</b>		<b>Preparation Method: E245.1 Mercury Water</b>								
		<b>Analytical Method: E245.1 Mercury Water</b>								
Mercury Dissolved	<0.200 ug/L	0.0700	0.200	1		06/05/15	FM	06/08/15 13:19	FM	

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## ANALYTICAL RESULTS

Workorder: Q1520025

Lab ID: Q1520025007

Date Received: 6/2/2015 10:16 Matrix: Aqueous

Sample ID: 18-36-302

Date Collected: 5/27/2015 14:20 Sample Type: SAMPLE

Project ID: TWDB CAN

Parameters	Results Units	LOD	LOQ	ML	DF	Prepared	By	Analyzed	By	Qual
<b>INORGANICS</b>										
Analysis Desc: SM1030B Cation/Anion Balance			Preparation Method: SM1030B Cation/Anion Balance							
			Analytical Method: SM1030B Cation/Anion Balance							
Cation/Anion Balance	-3.360 %				1	06/17/15 13:11	CW	06/17/15 13:11	CW	



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Kwb Field No. J-38 State Well No. 18-36-506  
 Owner's Well No. \_\_\_\_\_ County GRAYSON

1. Location: 1/4, 1/4 Sec. \_\_\_\_\_, Block \_\_\_\_\_ Survey \_\_\_\_\_

2. Owner: CITY OF VAN ALSTYNE Address: \_\_\_\_\_

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: J. L. MYERS' SONS Address: \_\_\_\_\_

3. Elevation of LSD is 785 ft. above sea, determined by TOPO

4. Drilled: 4-5 19 45; Dug, Cable Tool, Rotary

5. Depth: Rept. 1411 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. \_\_\_\_\_ Type Turb.

No. Stages \_\_\_\_\_, Bore Dia. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft.

Column Dia. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel elec Make & Model \_\_\_\_\_ HP \_\_\_\_\_

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used plugged

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 8-8-51 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, Myers

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: P. N. ROSTRON Date 4-16 19 76

Source of Data B-6013 J. L. MYERS CO. City, obs

16. Remarks: \_\_\_\_\_

E-Log shows top of woodbine @ 880'


CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.		Setting, ft.	
Diam. (in.)	Type	from	to
16	Steel	0	17
10	"	0	662
8	"	662	1296
6	Liner	1275	1410

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
6	perf	opposite all water	sands

See -502

(Sketch)



Depth	Thickness	Formatton
15	15	Surface soil
66	51	Rock
430	364	Rock and shale
1022	592	Sandy shale and lime
1058	36	Shale and lime
1157	99	Shale
1195	38	Sand
1202	7	Lime
1289	87	Sandy shale
1308	19	Soft sand
1321	13	Hard sand
1338	17	Broken sand
1369	<del>31</del>	Soft sand
1376	7	Sandy lime
1381	5	Soft sand
1407	26	Sand
1411	4	Lime

18-36-506



Well No. 18-36-506

Company MYERS

Well Van Alstyne

Location: 3-22-45 1411'

Type of log electric

Elevation: DF           

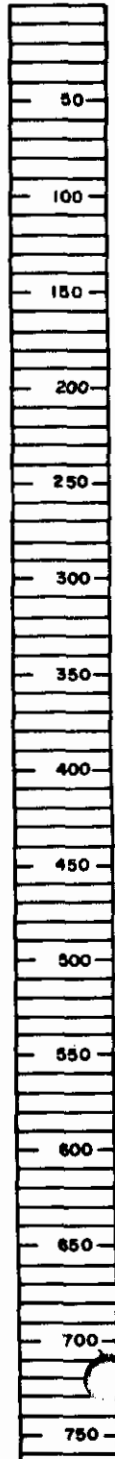
KB           

GL 791

Location of log used:

GW-11

Information by:



*Top of Woodbine @ 880'*



TEXAS STATE DEPARTMENT OF HEALTH

BUREAU OF LABORATORIES

412 EAST FIFTH STREET

AUSTIN, TEXAS

REC'D JUN 5 1945

Laboratory number **5-5-15** Sample number \_\_\_\_\_ Received **5-7- 19 45**  
 Town **Van Alstyne** County **Gregg** Requested by **City Health Officer**  
 Source **Well** Formation **Lower woodbine** Age **2 years** Depth **1411**  
 Ownership **Municipal** Treatment **None** Water level \_\_\_\_\_ Pumpage rate \_\_\_\_\_  
 Collected by **City Engineer** At **Well** On \_\_\_\_\_ **5-6- 19 45**

CHEMICAL ANALYSIS

	<u>P.H.</u>	<u>8.5</u>	<u>Color</u>		
Total Solids	P.P.M.	P.P.M.		P.P.M.	
494	Calcium	3	Carbonate	21	
Silica residue	37	Magnesium	1	Bicarbonate	348
As CaCO <sub>3</sub> :-		Iron *	.4	Sulphate	78
P. alkalinity	18	Manganese less than	.05	Chloride	28
Total alkalinity	320	Sodium (Calc.)	198	Fluoride	1.5
Total hardness	12			Nitrate	1.3

HYPOTHETICAL COMBINATION

	<u>P.P.M.</u>	<u>G.P.G.</u>
Calcium carbonate	8	.47
Magnesium carbonate	3	.17
Sodium carbonate	25	1.46
Sodium bicarbonate	480	27.98
Sodium sulphate	115	6.70
Sodium chloride	46	2.68

REMARKS

\*The United States Public Health Service standards do not recommend water for domestic use which contains an excess of: Iron -.3 p.p.m

K. F. B.  
ANALYST

DIRECTOR OF LABORATORIES

A. D. P.  
CHIEF CHEMIST

June 1, 1945  
DATE REPORTED

3045

18-36-502



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDB USE ONLY

Program No. \_\_\_\_\_

Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County KT GRAYSON  
State Well No. 18-38-506  
(J-38) Well No. \_\_\_\_\_  
Date Collected 08-08-51  
By \_\_\_\_\_

Location \_\_\_\_\_  
Source (type of well) T, E Owner CITY OF VAN ALSTYNE  
Date Drilled 1945 Depth 146 ft. WBF Kwb  
Producing intervals 1296-1410 Water level \_\_\_\_\_ ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup><sub>est.</sub> Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C  
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other  
Use P.S. Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica . . . . .	<u>24</u>	
Calcium . . . . .	<u>10</u>	<u>50</u>
Magnesium . . . . .	<u>22</u>	<u>1.81</u>
Sodium . . . . .	<u>167</u>	<u>7.26</u>
Total	<u>9.57</u>	
<input type="checkbox"/> Potassium . . . . .		
<input type="checkbox"/> Manganese . . . . .		
<input type="checkbox"/> Boron . . . . .		
<u>3</u> Total Iron . . . . .	<u>24</u>	

%Na 75.91

SAR 6.8

RSC \_\_\_\_\_

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X \_\_\_\_\_

☐ " " items will be analyzed if checked.

1 The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2 Nitrogen cycle requires separate sample.

3 Total Iron requires separate sample.

	MG/L	ME/L
Carbonate . . . . .		
Bicarbonate . . . . .		
Sulfate . . . . .	<u>85</u>	
Chloride . . . . .	<u>28</u>	
Fluoride . . . . .	<u>.9</u>	
Nitrate . . . . .		
pH . . . . .	<u>8.5</u>	
Total		
<u>1</u> Dissolved Solids (sum in MG/L) . . . . .		<u>57.5</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub> . . . . .		
Total Alkalinity as CaCO <sub>3</sub> . . . . .		<u>350</u>
Total Hardness as CaCO <sub>3</sub> . . . . .		<u>116</u>
<u>2</u> Nitrogen Cycle		
Ammonia - N . . . . .		
Nitrite - N . . . . .		
Nitrate - N . . . . .		
Organic Nitrogen . . . . .		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_





Texas Water Development Board  
Well Schedule

groundwater resources

State Well Number: **18-36-805** Previous Well Number: County: **Collin** **85**

Latitude (dms): **332311** Longitude (dms): **963338** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Anna** Driller: **J.J. Biffle Water** Aquifer ID: **Woodbine**  
**WSC Well #8** **Well Drilling** Aquifer Code: **212WDBN**

Depth (ft): **1490** Elevation (ft): **761** **WOODBINE SAND**

Source of Depth: **Driller's Log** Source of Elevation: **Digital Elevation Model -DEM**

Date Drilled: **06/30/1997** Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower:

Construction: **Hydraulic Rotary** Completion: **Gravel Pack w/Screen**

Casing Material: **Steel** Screen Material: **Stainless Steel**

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	8	0	1366
S	4	1366	1396
S	4	1440	1490

WATER USE

Primary: **Public Supply** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **Y**

**2 measurements**  
**1997 to 2001**  
**MIN -490 MAX -490**

Other Data: **C** Logs: **D**

**REMARKS:**

Owner well #8. PWS ID #0430027H.  
Measured yield 200 GPM with 225  
feet drawdown after pumping 32  
hours. Specific capacity 0.9  
gpm/ft. Pumping level 715 feet.  
Pump set at 940 feet. Cemented from  
0 to 1366 feet. Gravel packed from  
1366 to 1490 feet. Well originally  
drilled for South Grayson WSC. Sold  
to City of Anna in 2006.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **10/06/1999**

Recorded by: D.R. Jones







ATTENTION OWNER: Confidentiality  
Privilege Notice on Reverse SideState of Texas  
WELL REPORTTexas Water Well Drillers Advisory Council  
P.O. Box 13087  
Austin, TX 78711-3087  
512-239-66301) OWNER South Grayson W.S.C. ADDRESS P. O. Box 2, Van Alstyne, TX 75495  
(Name) Well #8 (Street or RFD) (City) (State) (Zip)2) ADDRESS OF WELL: Collin Hwy. 5 South Van Alstyne, TX 75495 GRID # \_\_\_\_\_  
County (Street, RFD or other) (City) (State) (Zip)3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging4) PROPOSED USE (Check): ☐ Monitor ☐ Environmental Soil Boring ☐ Domestic  
☐ Industrial ☐ Irrigation ☐ Injection ☒ Public Supply ☐ De-watering ☐ Testwell  
If Public Supply well, were plans submitted to the TNRCC? ☒ Yes ☐ No5) WELL LOG:  
Date Drilling: \_\_\_\_\_  
Started 4-14 19 97  
Completed 6-30 19 97DIAMETER OF HOLE  
Dia. (in.) From (ft.) To (ft.)  
14 3/4" Surface 15657) DRILLING METHOD (Check): ☐ Driven  
☐ Air Rotary ☒ Mud Rotary ☐ Bored  
☐ Air Hammer ☐ Cable Tool ☐ Jetted  
☐ Other \_\_\_\_\_

From (ft.)	To (ft.)	Description and color of formation material
0	9	Black Dirt
9	100	White Rock
100	980	Green Shale
980	1366	Sandy Shale
1366	1396	Gray Sand
1396	1440	Blue Shale
1440	1490	Gray Sand
1490	1565	Blue Shale

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Well  
☐ Underreamed ☒ Gravel Packed ☐ Other \_\_\_\_\_  
If Gravel Packed give interval ... from 1366 ft. to 1490 ft.

## CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Peril., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
8	N	Steel Casing	+3	1366	24"
4	N	Houston SS Screen	1366	1396	.0020
4	N	Houston SS Screen	1440	1490	.0020

13) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 940 ft.14) WELL TESTS:  
Type test: ☒ Pump ☐ Sailer ☐ Jetted ☐ Estimated  
Yield: 1200 gpm with 225 ft. drawdown after 32 hrs.16) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable constituents?  
☐ Yes ☒ No If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? \_\_\_\_\_ Depth of strata? \_\_\_\_\_  
Was a chemical analysis made? ☐ Yes ☐ No9) CEMENTING DATA [Rule 338.44(1)]  
Cemented from +3 ft. to 1366 ft. No. of sacks used 550  
ft. to \_\_\_\_\_ ft. No. of sacks used \_\_\_\_\_  
Method used Circulated From Bottom To Top  
Cemented by Pumpco Services  
Distance to septic system field lines or other concentrated contamination 250 ft.  
Method of verification of above distance Measured10) SURFACE COMPLETION  
☒ Specified Surface Slab Installed [Rule 338.44(2)(A)]  
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]  
☐ Pitless Adapter Used [Rule 338.44(3)(b)]  
☐ Approved Alternative Procedure Used [Rule 338.71]11) WATER LEVEL:  
Static level 490 ft. below land surface Date 6-30-97  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_12) PACKERS: Type Depth  
None

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete Items 1 thru 15 will result in the log(s) being returned for completion and resubmission.

COMPANY NAME J.J. Biffle Water Well Drilling WELL DRILLER'S LICENSE NO. 2741 WI  
(Type or print)ADDRESS P. O. Drawer 1 Muenster Texas 76252  
(Street or RFD) (City) (State) (Zip)(Signed) [Signature] (Signed) \_\_\_\_\_  
(Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.



Mr. John Spencer  
Page 2  
January 28, 1998

SAMPLE NUMBER: 90306

Quality Control Information (Continued)

<u>Parameter</u>	<u>Sample Preservation</u>	<u>EPA Method</u>	<u>C.V.%</u>	<u>Standard Deviation</u>	<u>Spike Recovery%</u>	<u>Date of Analyses</u>	<u>Time of Analyses</u>	<u>Analyst</u>
Chromium	HNO <sub>3</sub> to pH <2	6010	1.8	± 0.02	105	01/26/98	11:30AM	D. Schwartz
Copper	HNO <sub>3</sub> to pH <2	6010	2.5	± 0.02	97	01/22/98	11:28PM	D. Schwartz
Iron	HNO <sub>3</sub> to pH <2	6010	0.4	± 0.004	97	01/23/98	7:17PM	D. Schwartz
Manganese	HNO <sub>3</sub> to pH <2	6010	0.6	± 0.006	96	01/23/98	7:17PM	D. Schwartz
Nickel	HNO <sub>3</sub> to pH <2	6010	0.02	± 0.0002	99	01/26/98	10:06AM	D. Schwartz
Selenium	HNO <sub>3</sub> to pH <2	6010	3.5	± 0.03	100	01/26/98	11:30AM	D. Schwartz
Silver	HNO <sub>3</sub> to pH <2	6010	0.2	± 0.0008	92	01/23/98	7:17PM	D. Schwartz
Zinc	HNO <sub>3</sub> to pH <2	6010	1.2	± 0.01	102	01/26/98	11:30AM	D. Schwartz
Nitrate	HNO <sub>3</sub> to pH <2	9056	1.2	± 0.60	95	01/20/98	5:10PM	M. Coker
Nitrite	HNO <sub>3</sub> to pH <2	9056	2.6	± 1.30	104	01/20/98	5:10PM	M. Coker

Respectfully submitted,



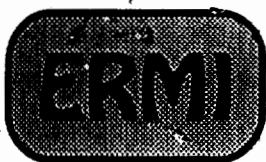
Kendall K. Brown  
President

Prepared By S. Doster  
Reviewed By Shelly Weems

RECORD

18-36-805





## Environmental Laboratories

Bethany Tech Center ♦ Suite 190  
400 W. Bethany Rd. ♦ Allen, Texas 75013

January 28, 1998

REPORT OF: Well Water Analysis

REPORT TO: Mr. John Spencer  
South Grayson Water Supply Co.  
PO Box 2  
Van Alstyne, Texas 75495

PROJECT NAME: #8

SAMPLE DATE: January 20, 1998  
SAMPLE TIME: 1:00PM  
SAMPLE RECEIVED: January 20, 1998  
TIME RECEIVED: 2:10PM  
SAMPLE COLLECTED BY: Customer

SAMPLE NUMBER: 90306

### RESULTS:

<u>Parameter</u>	<u>Detection Limits (mg/l)</u>	<u>Observed Concentration (mg/l)</u>
Aluminum, Total	0.020	0.036
Arsenic, Total	0.020	0.051
Barium, Total	0.005	0.009
Beryllium, Total	0.001	<0.001
Chromium, Total	0.005	<0.005
Copper, Total	0.005	<0.005
Iron, Total	0.005	0.123
Manganese, Total	0.002	0.005
Nickel, Total	0.010	<0.010
Selenium, Total	0.015	<0.015
Silver, Total	0.007	<0.007
Zinc, Total	0.002	0.006
Nitrate Nitrogen (as N)	0.01	<0.01
Nitrite Nitrogen (as N)	0.01	<0.01

### Quality Control Information

<u>Parameter</u>	<u>Sample Preservation</u>	<u>EPA Method</u>	<u>C.V.%</u>	<u>Standard Deviation</u>	<u>Spike Recovery%</u>	<u>Date of Analyses</u>	<u>Time of Analyses</u>	<u>Analyst</u>
Metals Digestion - Furnace		3020				01/27/98	11:00AM	K. Hartzell
Metals Digestion - ICP		3010				01/22/98	2:30PM	D. Schwartz
Aluminum	HNO <sub>3</sub> to pH <2	6010	0.6	± 0.006	103	01/23/98	7:17PM	D. Schwartz
Arsenic	HNO <sub>3</sub> to pH <2	6010	2.6	± 0.03	102	01/22/98	11:28PM	D. Schwartz
Barium	HNO <sub>3</sub> to pH <2	6010	2.3	± 0.02	96	01/23/98	7:17PM	D. Schwartz
Beryllium	HNO <sub>3</sub> to pH <2	7091	8.4	± 0.0004	104	01/28/98	10:40AM	K. Hartzell

18-36-805



Mr. John Spencer  
Page 2  
May 23, 1997

SAMPLE NUMBER: 76630

Quality Control Information (Continued)

Parameter	Sample Preservation	EPA Method	C.V. %	Standard Deviation	Spike Recovery %	Date of Analyses	Time of Analyses	Analyst
Chloride	Cool to 4°C	9058	2.7	± 0.03	102	05/16/97	4:03PM	F. Coskey
Nitrate	Cool to 4°C	9058	0.5	± 0.004	93	05/16/97	4:21PM	F. Coskey
Sulfate	Cool to 4°C	9056	6.0	± 0.06	95	05/16/97	4:03PM	F. Coskey
Alkalinity	Cool to 4°C	310.1	0.9	± 0.14	104	05/20/97	12:00PM	R. Champagne
Bicarbonate	Cool to 4°C	2320B	0.9	± 0.14	104	05/20/97	12:00PM	R. Champagne
Carbonate	Cool to 4°C	2320B	0.9	± 0.14	104	05/20/97	12:00PM	R. Champagne
P. Alkalinity	Cool to 4°C	2320B	0.9	± 0.14	104	05/20/97	12:00PM	R. Champagne
Fluoride	Cool to 4°C	340.2	0.5	± 0.04	110	05/19/97	7:40AM	K. Hartzell
Specific Cond.	Cool to 4°C	9050	0.4	± 212.00	99	05/19/97	8:40AM	K. Hartzell
Hardness	HNO <sub>3</sub> to pH <2	130.2	2.8	± 2.50	108	05/19/97	2:40PM	K. Hartzell
TDS	Cool to 4°C	180.1	0.0	± 0.00	96	05/20/97	8:30AM	R. Champagne
pH	Cool to 4°C	9040B	0.0	± 0.00	N/A	05/16/97	3:00PM	K. Hartzell

Standard Methods, 18<sup>th</sup> Edition.

Respectfully submitted,

*Kendall K. Brown*

Kendall K. Brown  
President

Prepared By Shelly Weems  
Reviewed By Shelly Pope

18-36-805



**Environmental Laboratories**  
Bethany Tech Center • Suite 190  
400 W. Bethany Rd. • Allen, Texas 75013

May 23, 1997

REPORT OF:

Well Water Analysis

REPORT TO:

Mr. John Spencer  
South Grayson Water Supply  
PO Box 2  
Van Alstyne, Texas 75495

PROJECT NAME:

Well #8

SAMPLE DATE:

May 16, 1997

SAMPLE TIME:

1:30PM

SAMPLE RECEIVED:

May 16, 1997

TIME RECEIVED:

2:45PM

SAMPLE COLLECTED BY:

Customer

SAMPLE NUMBER:

76630

RESULTS:

Parameter	Detection Limits (mg/l)	Observed Concentration (mg/l)
<b>METALS</b>		
Calcium, Total	0.025	1.2
Magnesium, Total	0.015	0.259
Sodium, Total	0.080	177
<b>CONVENTIONAL POLLUTANTS</b>		
Chloride	0.2	24
Nitrate Nitrogen (as N)	0.01	<0.01
Sulfate	0.2	69
Alkalinity, Total (as CaCO <sub>3</sub> )	2.0	330
Bicarbonate Alkalinity (as CaCO <sub>3</sub> )	2.0	322
Carbonate Alkalinity (as CaCO <sub>3</sub> )	2.0	8.0
Phenolphthalein Alkalinity (as CaCO <sub>3</sub> )	2.0	4.0
Fluoride	0.01	1.3
Specific Conductance	1.0 µmhos/cm	825 µmhos/cm
Hardness, Total	1.0	3.0
Total Dissolved Solids	5.0	522
pH	0.1 units	8.3 units

Quality Control Information

Parameter	Sample Preservation	EPA Method	C.V.%	Standard Deviation	Spike Recovery%	Date of Analysis	Time of Analysis	Analyst
Metals Digestion - ICP		3010						
Calcium	HNO <sub>3</sub> to pH <2	6010	2.3	± 0.43	94	05/21/97	3:00PM	B. Hardin
Magnesium	HNO <sub>3</sub> to pH <2	6010	2.5	± 0.49	99	05/22/97	9:05AM	B. Hardin
Sodium	HNO <sub>3</sub> to pH <2	6010	0.04	± 0.007	95	05/21/97	7:40PM	B. Hardin
						05/21/97	7:40PM	B. Hardin

Local: (972) 727-1123

Long Distance: (800) 228-ERM1

FAX: (972) 727-1175

Printed on recycled paper

PUMP

18-36-805



# Texas Water Development Board

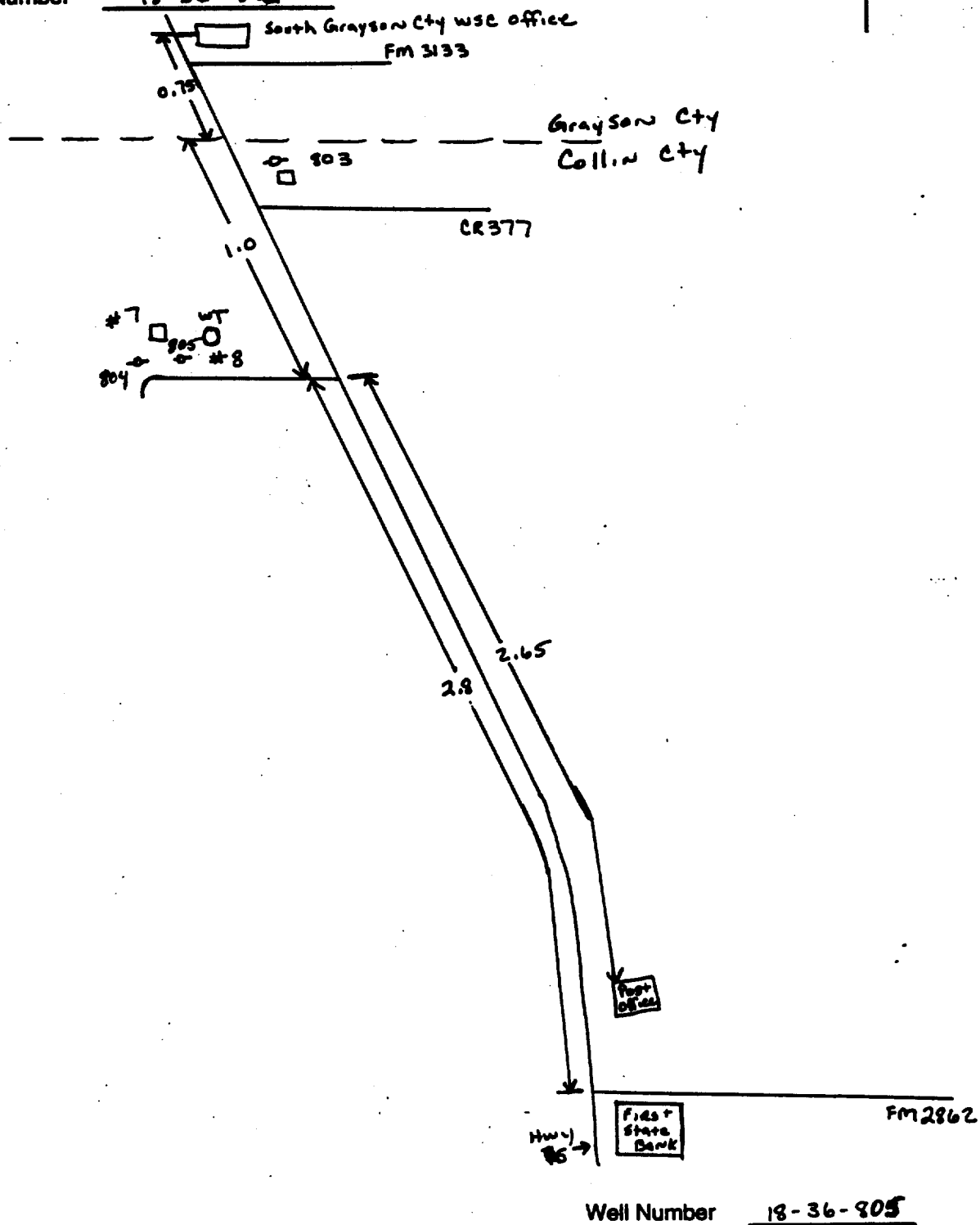
By Bryan Smith

Date 9/21/99

County Collin

Well Number 18-36-805

North





# AMERICAN EAGLE WELL LOGGING

REVISION 350-39  
GAMMA RAY

COUNTY: COLLIN TEXAS  
FIELD: WATER WELL  
LOCATION: 5 MILES SOUTH OF JCT.  
WELL: SOUTH GRAYSON W.S.C. NO. 8  
COMPANY: J. J. BIFFLE WTR. WELL DRLG

COMPANY J. J. BIFFLE WTR. WELL DRLG  
WELL SOUTH GRAYSON W.S.C. NO. 8  
FIELD WATER WELL  
COUNTY COLLIN STATE TEXAS

LOCATION  
5 MILES SOUTH OF JCT.  
FM 121 & TEXAS 5  
Sec. \_\_\_\_\_  
Twp. \_\_\_\_\_  
Rge. \_\_\_\_\_  
Other Services

Permanent datum GROUND LEVEL Elev. NIA  
Log Measured From KELLY BUSHING Above Perm. Datum  
Drilling Measured From KELLY BUSHING Elev. K.B. NIA  
D.F. NIA  
C.L. NIA

Date	4-24-97				
Run No.	DNE				
Depth-Driller	1565				
Depth-Logger	1560				
Bitm Log Interval	1558				
Top Log Interval	100				
Casing Driller	e	e	e	e	e
Casing Logger					
Bit Size	14.75				
Type Fluid in Hole	NATIVE				
Density   Viscosity	9.3 50				
PH   Fluid Loss	cc cc cc cc				
Source of Sample	PIT				
Rm e Meas. Temp.	e	e	e	e	e
Raf e Meas. Temp.	e	e	e	e	e
Rac e Meas. Temp.	e	e	e	e	e
Source of Raf and Rac	HEMS. CML.				
Rm e BHT	e	e	e	e	e
End Circulation	1200				
Logger on bottom	1300				
Max Rec Temp Deg. F	9f	9f	9f	9f	9f
Equip No.   Location	202 WICHITA				
Recorded By	FERCUSON				
Witnessed By	MR. BIFFLE				

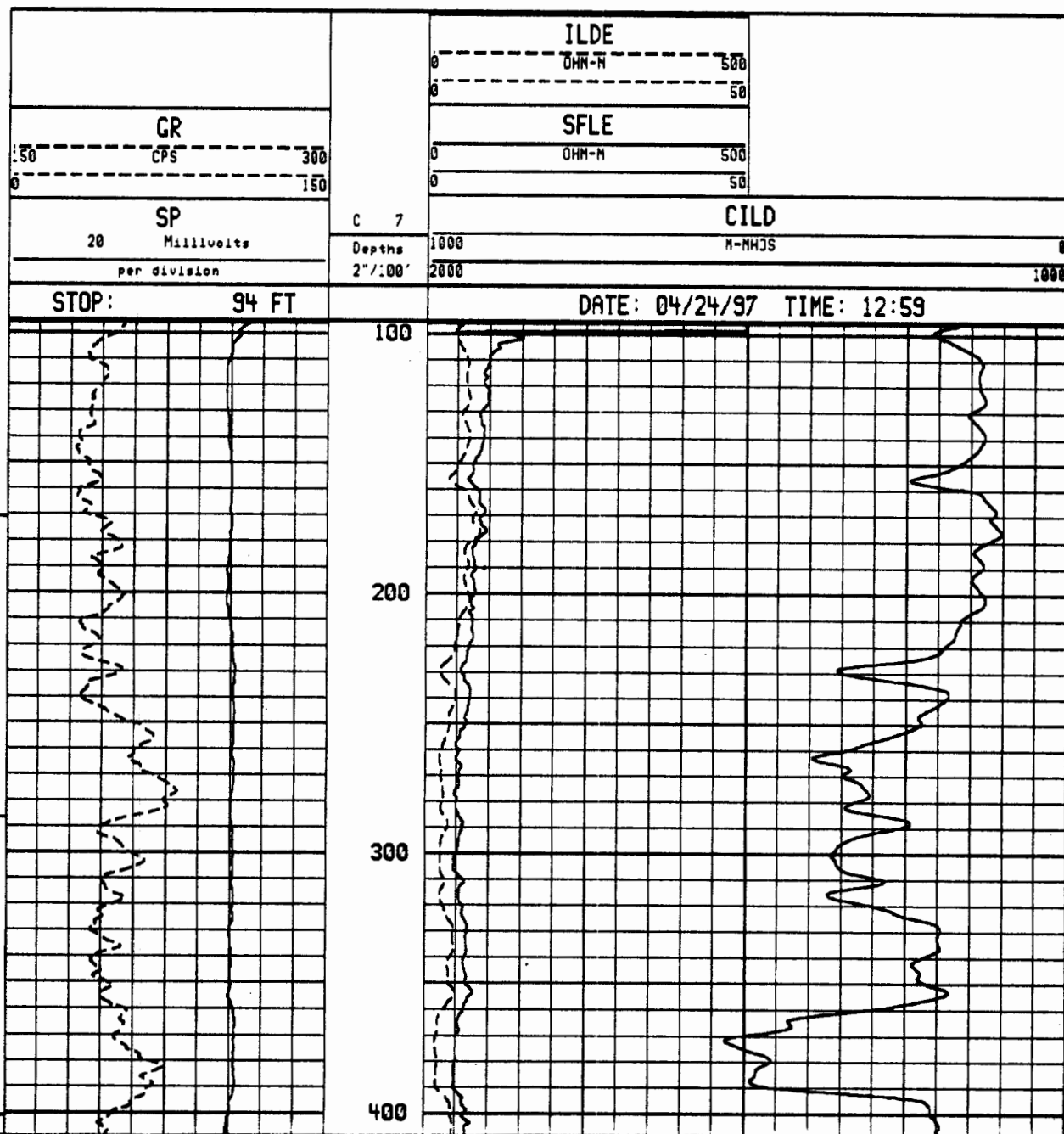
18-36-805



REMARKS:	
AMERICAN EAGLE WELL LOGGING, INC.	
P.O. BOX 8101 2919 SHEPPARD AVE. S.E.	
WICHITA FALLS, TEXAS 76307 24 HR. # 817-761-5545 OFFICE # 817-855-5329	
QUALITY AT A COMPETITIVE PRICE!! OPEN HOLE WIRELINE SERVICES AND INTERPRETATION!!	
NOTICE: All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by one of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule. American Eagle Well Logging, Inc.	

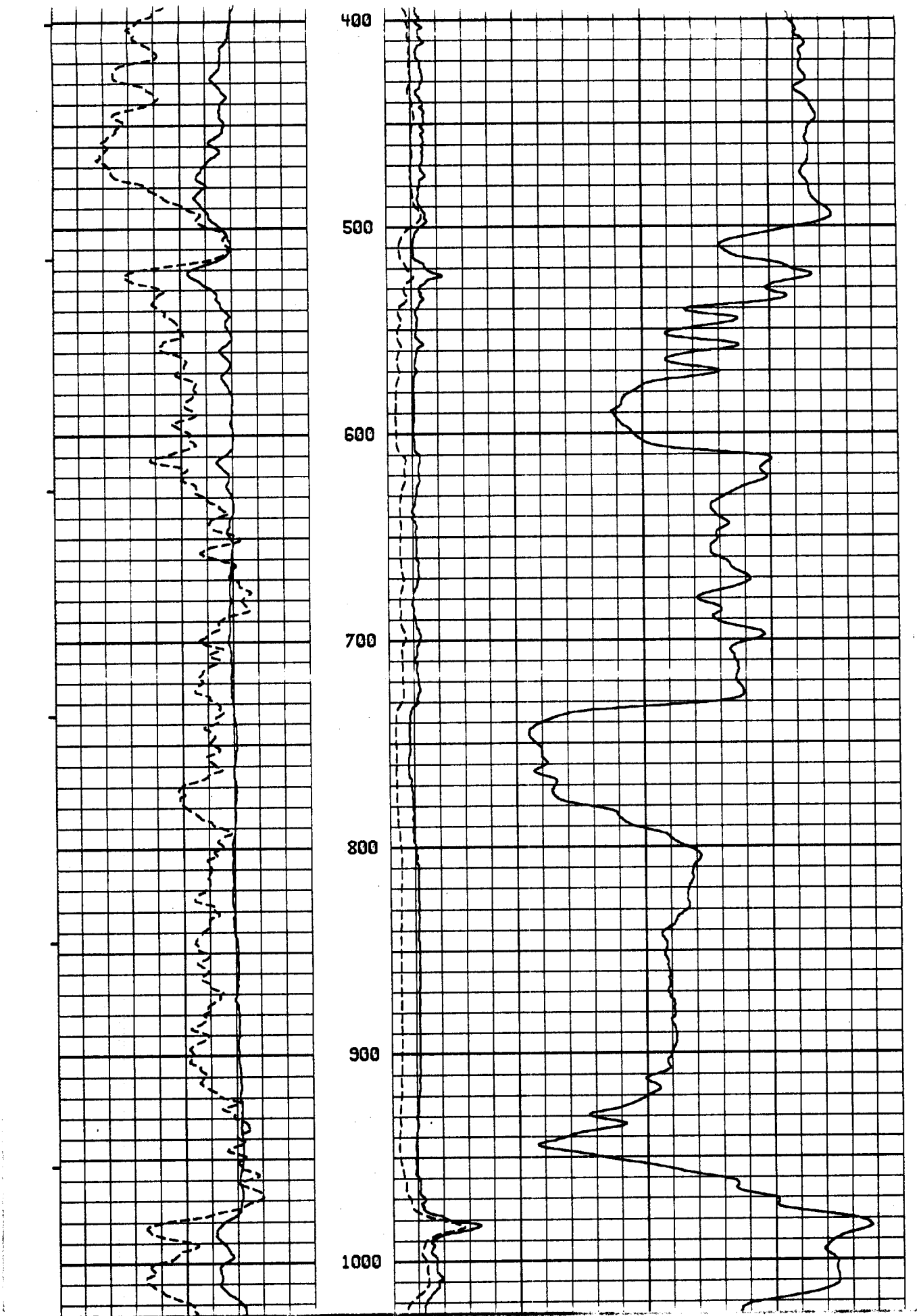
COMPANY J. J. BIFFLE WTR. WELL DRLG  
 WELL SOUTH GRAYSON W.S.C. NO. 8  
 FIELD WATER WELL  
 COUNTY COLLIN STATE TEXAS

Logger FR 1552  
 Logger TD 1560  
 DRLR TD 1565  
 Elev. KB N.A.  
 DF N.A.  
 CL N.A.



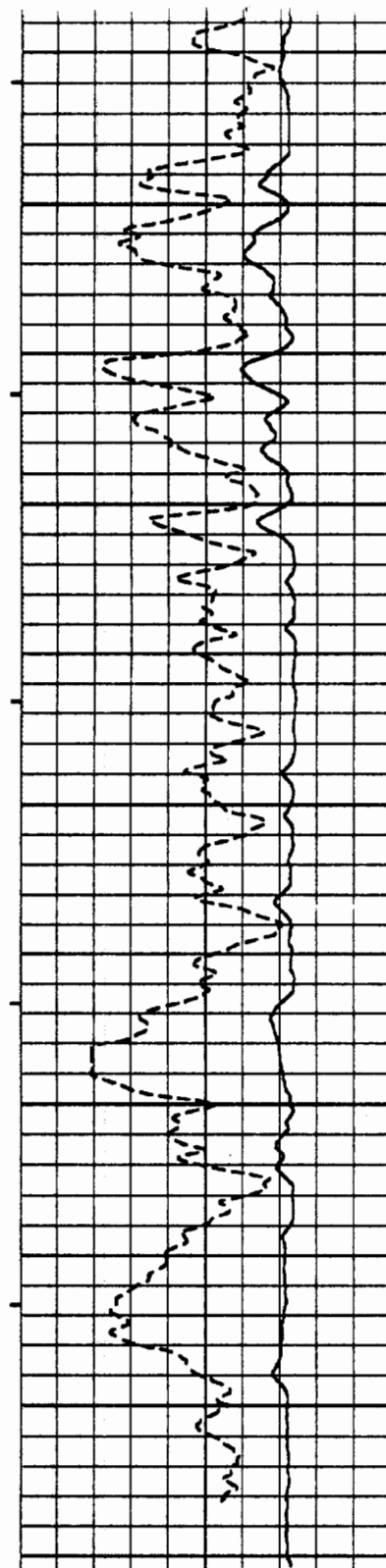
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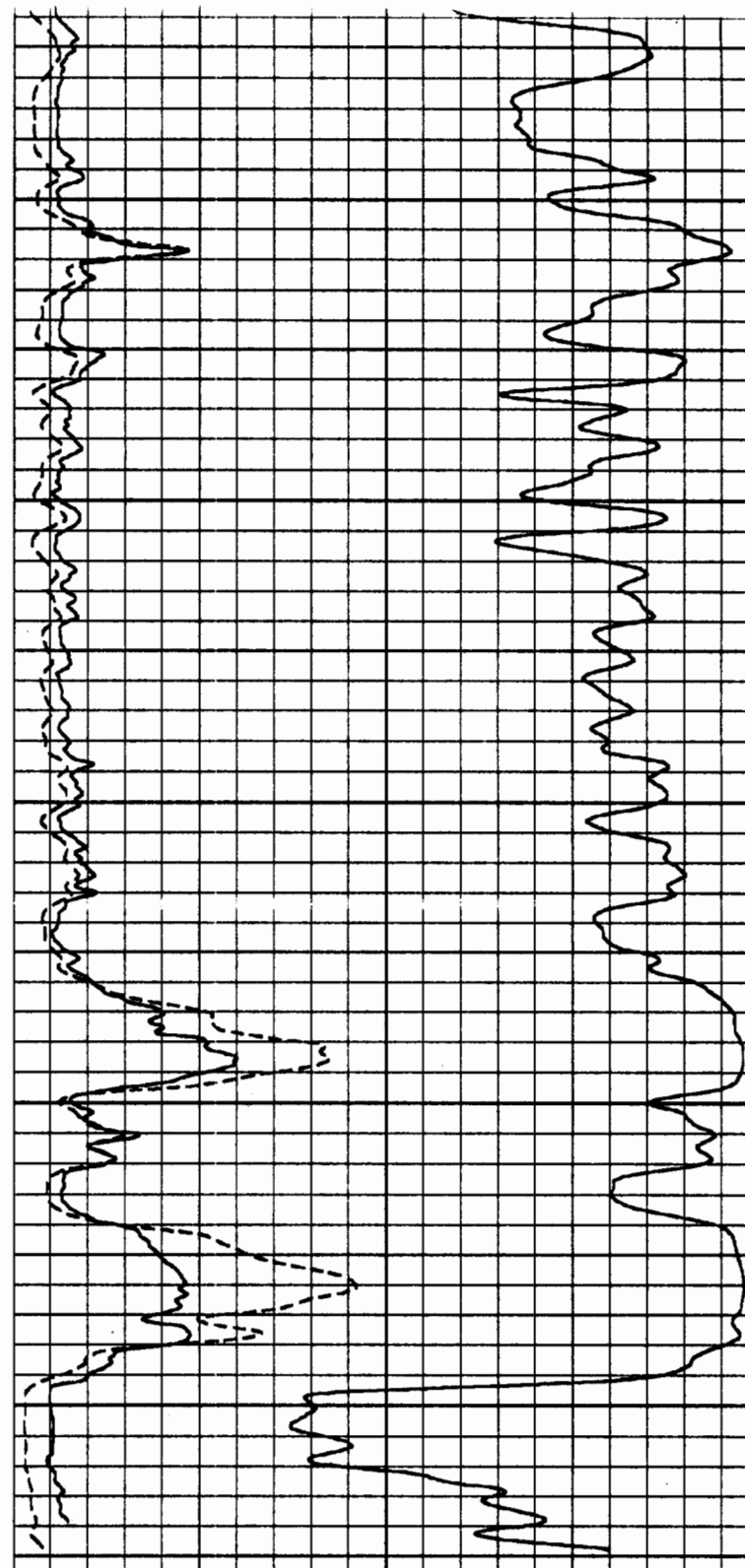
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1200

1300

1400

1500



START: 1554 FT

DATE: 04/24/97 TIME: 12:45

GR  
CPS

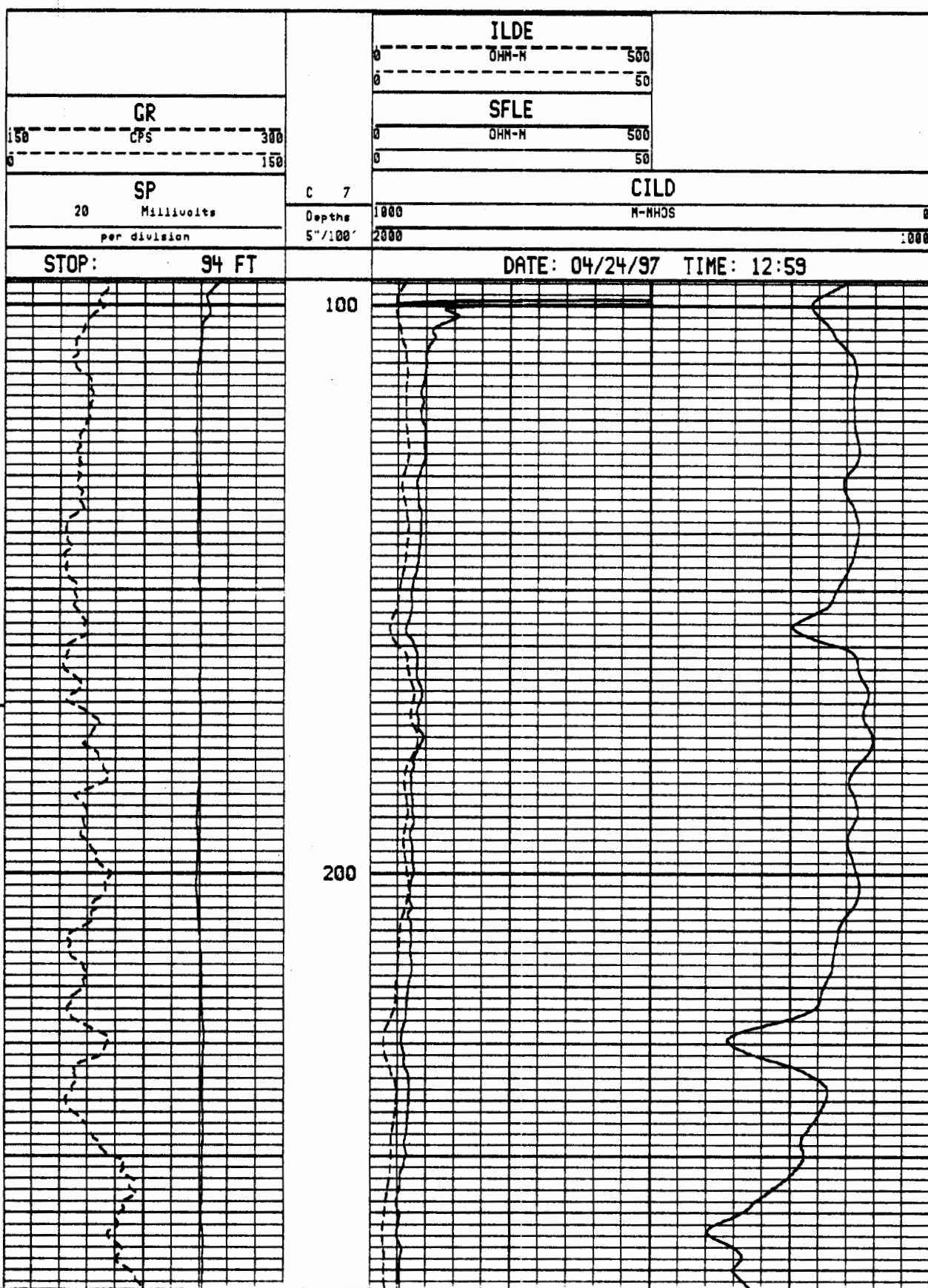
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OHM-M

SFLE  
OHM-M

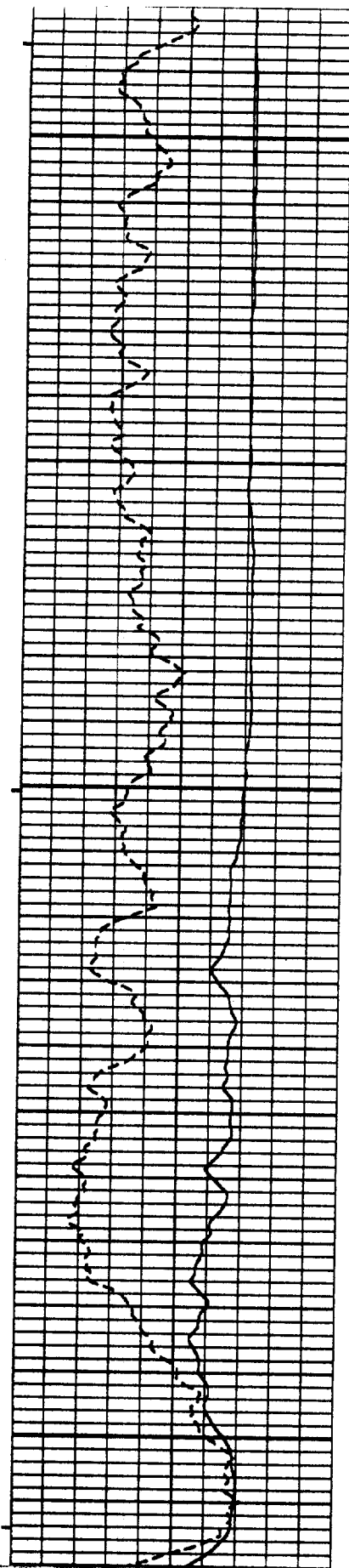
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20	Millivolts	Depths	1000	M-NHOS	0
	per division	2"/100'	2000		1000



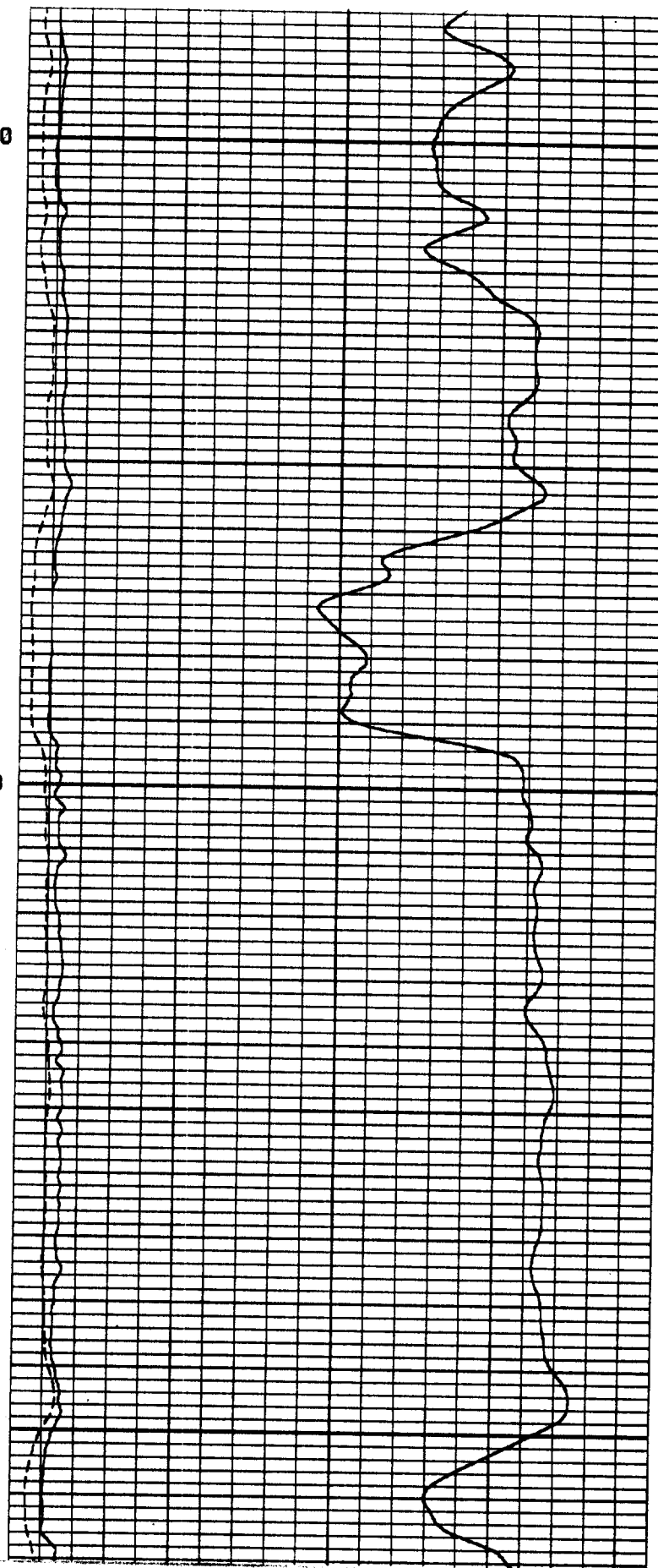




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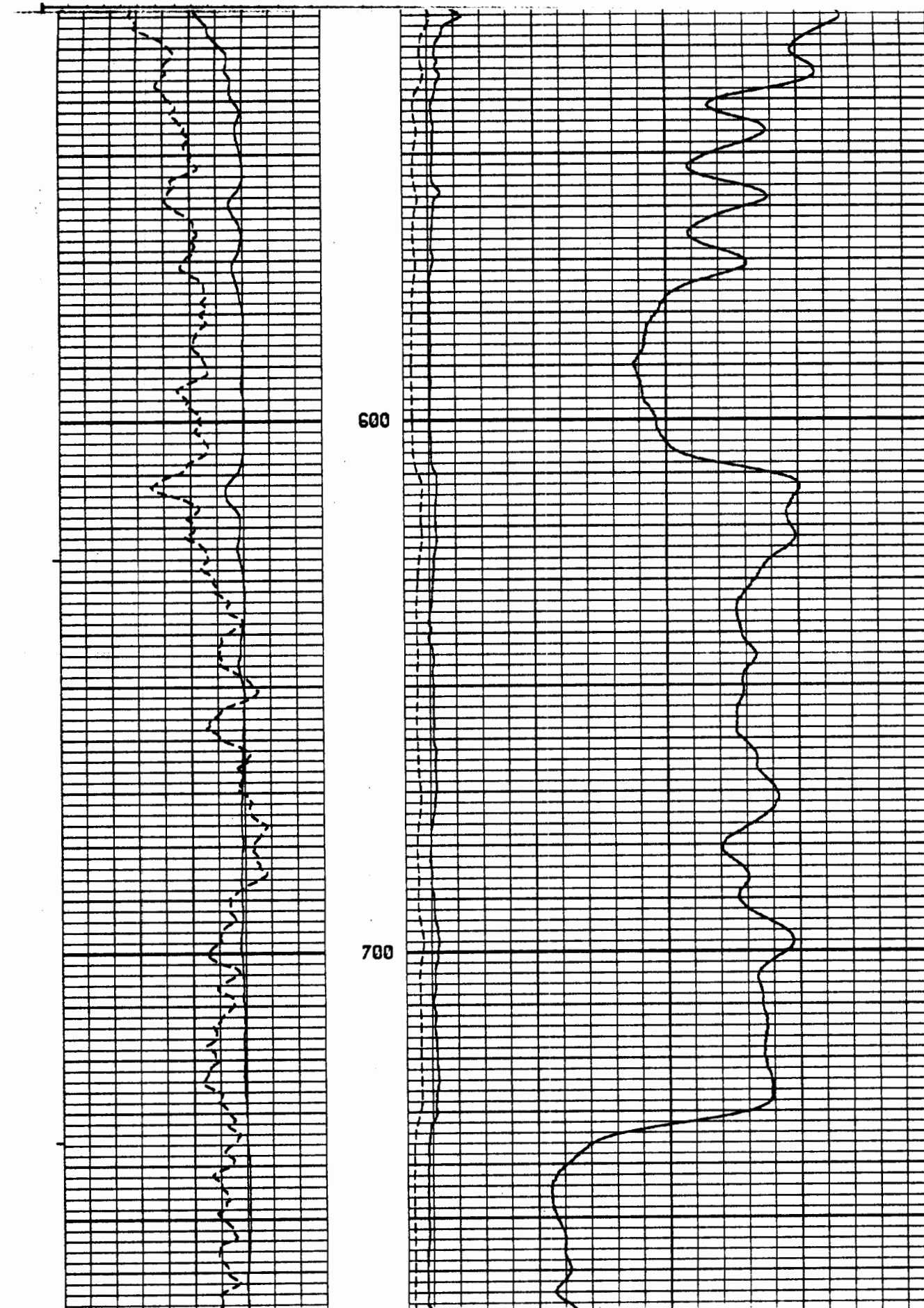
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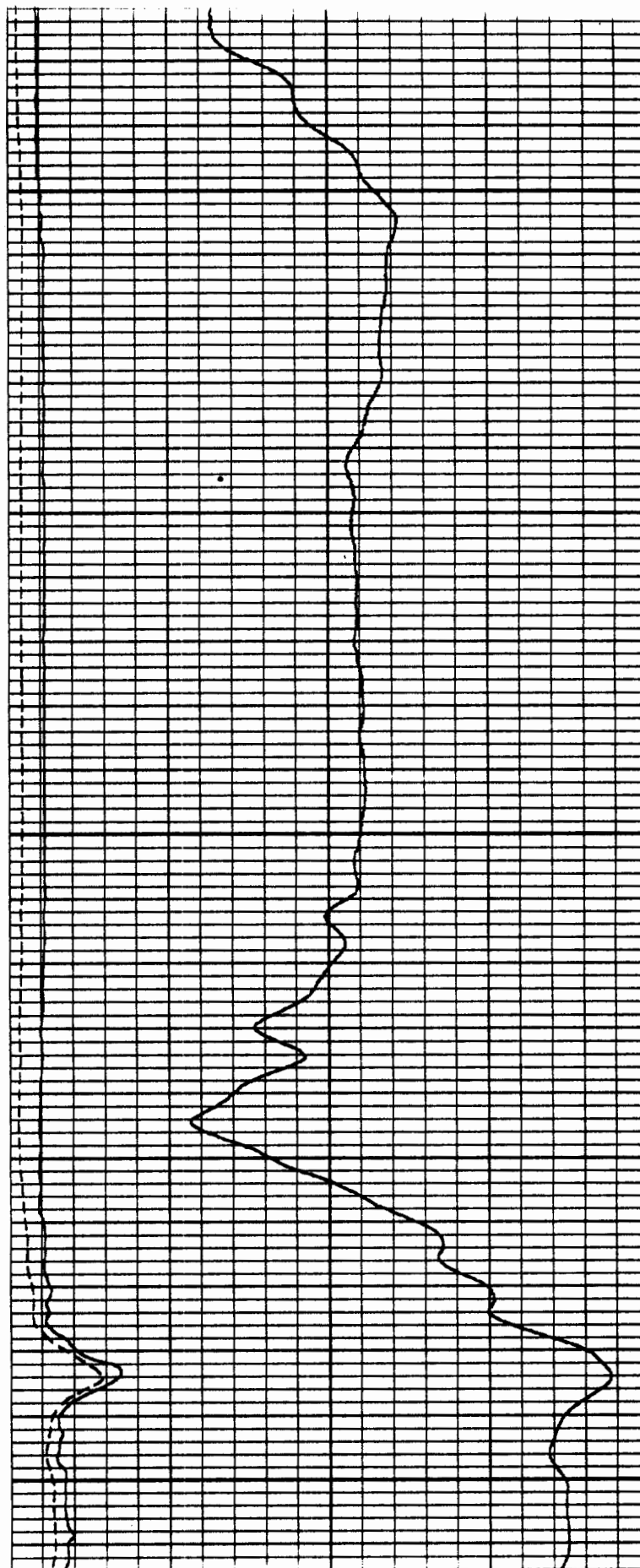
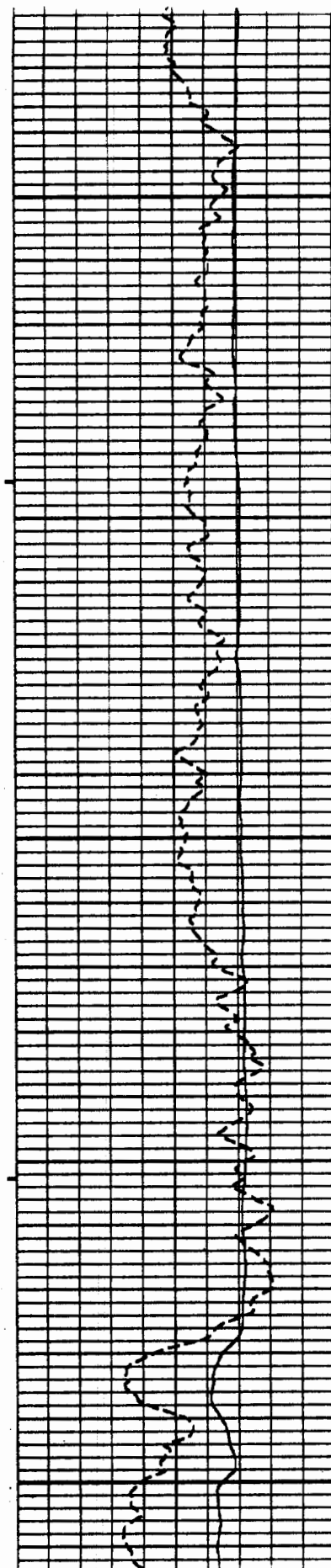


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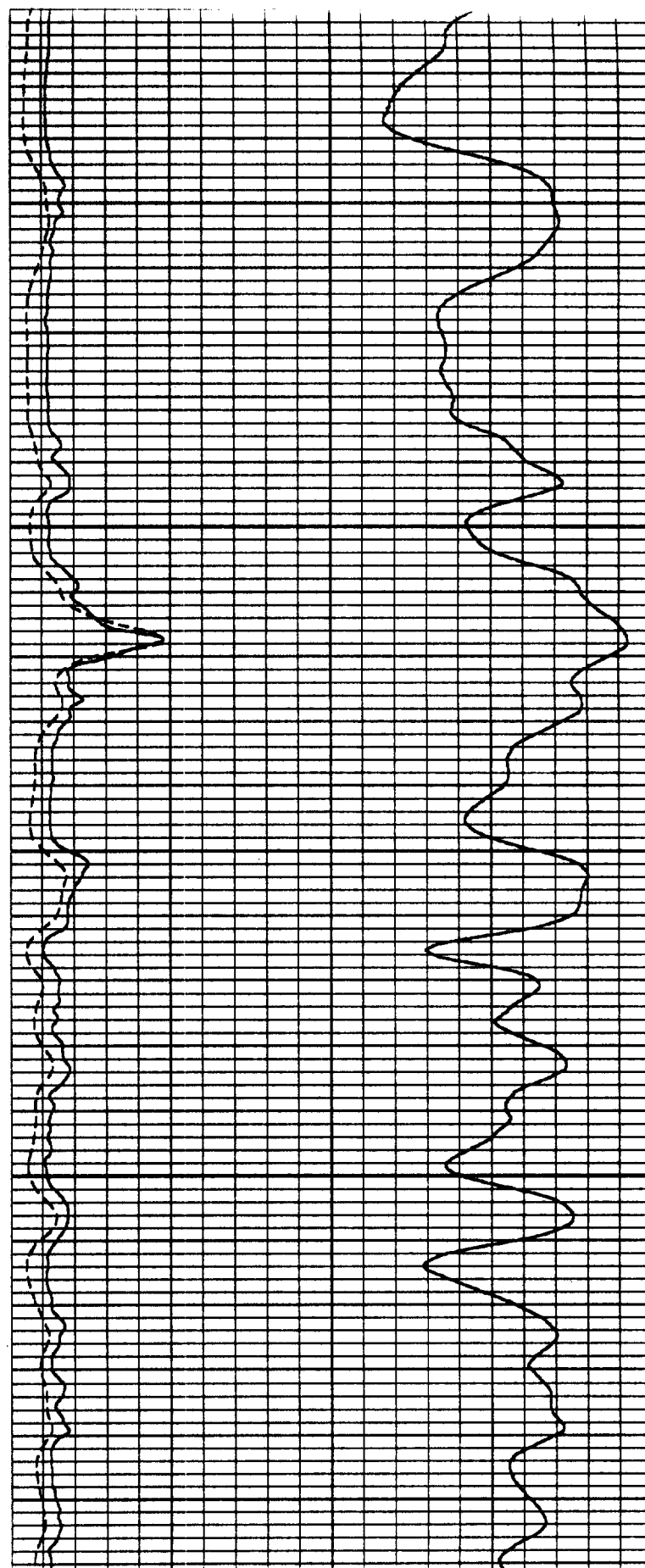
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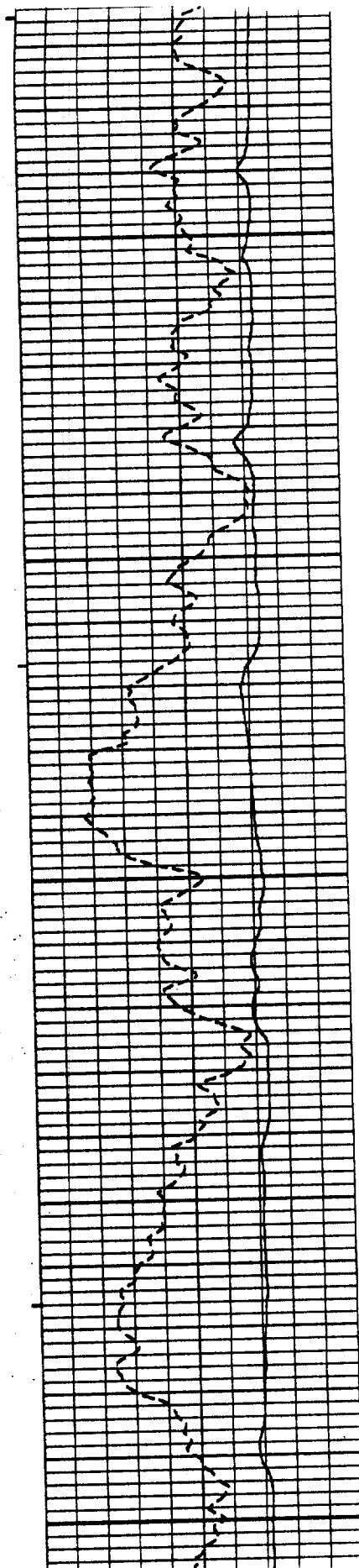
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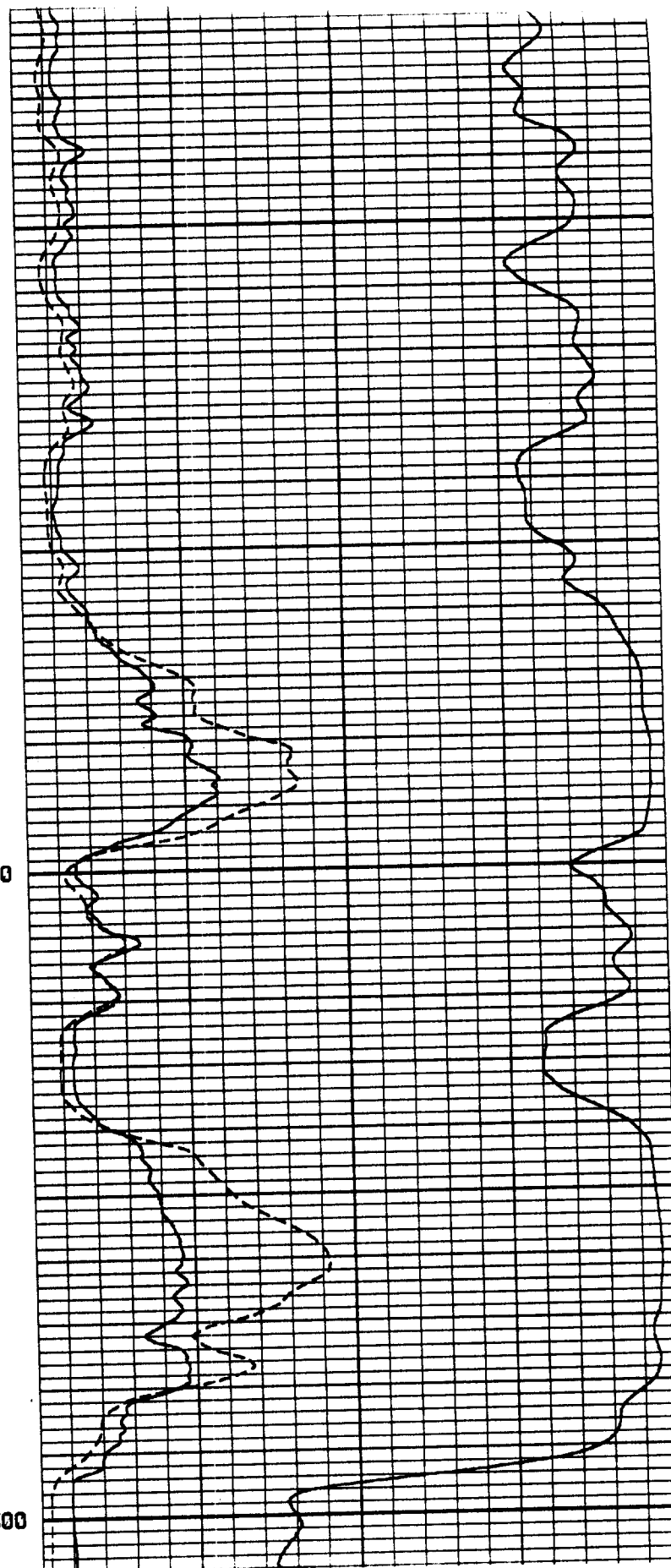




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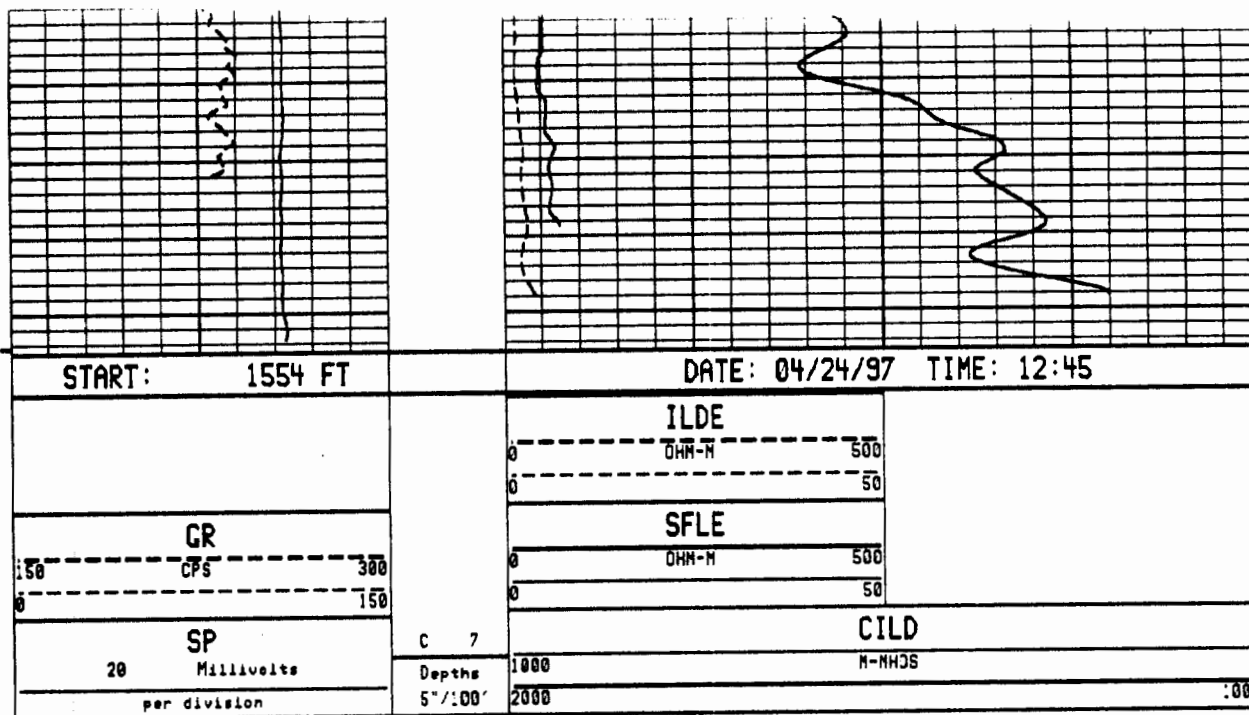
1400

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18-36-805







2002FY

## TWDB Water Qual / Field Data Sheet

State Well Number: 1836805County: CollinCounty Code: 085Aquifer Code: 212WD BNAquifer Id: 29Name: South Grayson County WSCAddress: P.O. Box 2Van Alstyne, TX 75459Phone Number: 903-482-6231Attention: John SpencerWell Name or #: 8Sample ID Number: 604Date: 9/11/01Sampler(s): D. Rau

## Calibration Verification Readings

pH 7.00 7.04SLP = 4 or 10 10.06Conductivity 500 5011000 10022000 1.97x10<sup>3</sup>5000 4.96x10<sup>3</sup>

7.44

## CIRCLE EACH SAMPLE FRACTION COLLECTED:

①	②	③	④	⑤
500ml (filtered)	500ml (filtered)	250ml (filtered)	40 ml (unfiltered)	1L (unfiltered)
Anions / Total Alk.	Cations	Nitrate	Atrazine	Radioactivity
Ice	Nitric (HNO <sub>3</sub> )	Ice + H <sub>2</sub> SO <sub>4</sub>	Ice and in dark	Nitric (HNO <sub>3</sub> )

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Time In: 12:20Time Out: 12:55W. L. depth from LSD (ft.): —W.L. remark: 41 M.P. = —Pumping Since: POHSampling Point: Pet Coke WHWell Use: P

## FIELD G.P.S. readings

Lift: SLatitude: 33 23Power: ELongitude: 096 33 26Sample Time: 12:42Filter pressure: hand pump (line)

## Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	12:25	12:30	12:35	12:40				
pH:	8.57	8.56	8.55	8.55				
Celsius Temp. (00010)	28.7	28.8	28.8	28.8				
Conductivity (uS/cm):	851	853	844	844				

Notes: 9760 = ? / 8.3 / 8.25

## Field Alkalinity Titration:

8.55 Start pH 4.49 End pH

50.0 mL Sample Size

0.3 mL Acid added for Phenol (&gt; 8.3)

16.5 mL Acid added for Total (8.3 - 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 60 mg/LTotal Alkalinity (39085): 330.0 mg/L

Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 493Hardness (as CaCO<sub>3</sub>): 8Balanced: 8

Data Entered By Sampler Into Database

Yes / No



# LCRA Environmental Laboratory Services

Date: 09-Oct-01

CLIENT: Texas Water Development Board  
 Lab Order: 0109142 File No: 17307  
 Project: TWDB FY02  
 Lab ID: 0109142-04

Client Sample ID: 18-36-805  
 Collection Date: 09/11/2001 12:42:00 PM  
 Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		Analyst: <b>SW</b>				
Calcium	00915	0.303	0.204		mg/L	1.02	R10737A	09/20/2001 12:01:08 PM
Magnesium	00925	ND	0.204		mg/L	1.02	R10737A	09/20/2001 12:01:08 PM
Potassium	00935	0.823	0.204		mg/L	1.02	R10737A	09/20/2001 12:01:08 PM
Sodium	00930	187	0.714		mg/L	1.02	R10737A	09/20/2001 12:01:08 PM
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		Analyst: <b>SW</b>				
Boron	01020	760	51.0		µg/L	1.02	R10739A	09/20/2001 12:01:08 PM
Iron	01046	ND	51.0		µg/L	1.02	R10739A	09/20/2001 12:01:08 PM
Strontium	01080	ND	20.4		µg/L	1.02	R10739A	09/20/2001 12:01:08 PM
<b>ICPMS DISSOLVED METALS</b>		<b>E200.8</b>		Analyst: <b>PJM</b>				
Aluminum	01106	ND	4.00		µg/L	1	R10686A	09/19/2001
Antimony	01095	ND	1.00		µg/L	1	R10686A	09/19/2001
Arsenic	01000	ND	2.00		µg/L	1	R10686A	09/19/2001
Barium	01005	1.41	1.00		µg/L	1	R10686A	09/19/2001
Beryllium	01010	ND	1.00		µg/L	1	R10700A	09/20/2001
Cadmium	01025	ND	1.00		µg/L	1	R10686A	09/19/2001
Chromium	01030	1.23	1.00		µg/L	1	R10686A	09/19/2001
Cobalt	01035	ND	1.00		µg/L	1	R10686A	09/19/2001
Copper	01040	1.57	1.00		µg/L	1	R10686A	09/19/2001
Lead	01049	ND	1.00		µg/L	1	R10686A	09/19/2001
Lithium	01130	10.0	2.00		µg/L	1	R10700A	09/20/2001
Manganese	01056	4.04	1.00		µg/L	1	R10686A	09/19/2001
Molybdenum	01060	ND	1.00		µg/L	1	R10686A	09/19/2001
Nickel	01065	ND	1.00		µg/L	1	R10686A	09/19/2001
Selenium	01145	ND	4.00		µg/L	1	R10686A	09/19/2001
Thallium	01057	ND	1.00		µg/L	1	R10686A	09/19/2001
Vanadium	01085	ND	1.00		µg/L	1	R10686A	09/19/2001
Zinc	01090	ND	4.00		µg/L	1	R10686A	09/19/2001
<b>CATION/ANION BALANCES</b>		<b>CALCULATION</b>		Analyst: <b>AMJ</b>				
Cation/Anion Balance		Balanced		Date		1	R10905	10/05/2001
<b>RADIOLOGICALS</b>		<b>RADIOCHEM</b>		Analyst: <b>SB</b>				
ALPHA, Gross		1.0		pci/L		1	R10847	09/20/2001
BETA, Gross		1.6		pci/L		1	R10847	09/20/2001

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 \* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 E - Value above quantitation range



# LCRA Environmental Laboratory Services

Date: 09-Oct-01

CLIENT: Texas Water Development Board  
 Lab Order: 0109142 File No: 17307  
 Project: TWDB FY02  
 Lab ID: 0109142-04

Client Sample ID: 18-36-805

Collection Date: 09/11/2001 12:42:00 PM  
 Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300</b>			Analyst: <b>AMJ</b>		
Bromide Dissolved	71870	0.0845	0.0200		mg/L	1	R10826A	09/26/2001
Chloride Dissolved	00941	20.2	5.00		mg/L	5	R10711A	09/20/2001
Fluoride Dissolved	00950	1.07	0.0500		mg/L	5	R10711A	09/20/2001
Sulfate Dissolved	00946	70.2	5.00		mg/L	5	R10711A	09/20/2001
<b>ALKALINITY</b>			<b>M2320 B</b>			Analyst: <b>CMM</b>		
Alkalinity, Phenolphthalein	00415	7.71			mg/L CaCO	1	R10656	09/18/2001
Alkalinity, Total (As CaCO3)	00410	332	2.00		mg/L CaCO	1	R10656	09/18/2001
<b>NITRATE AND NITRITE</b>			<b>E353.2</b>			Analyst: <b>WR</b>		
Nitrogen, Nitrate & Nitrite	00631	ND	0.0200		mg/L	1	R10902B	10/04/2001
<b>SILICA</b>			<b>E370.1</b>			Analyst: <b>WR</b>		
Silica, Dissolved (as SiO2)	00995	14.3	0.500		mg/L	1	R10860A	10/02/2001

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 \* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 E - Value above quantitation range



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Project C1-7106

Aquifer Woodbine

Field No. 14

State Well No. 18-41-302

Owner's Well No. \_\_\_\_\_

County Denton

1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_, Survey \_\_\_\_\_

9500 feet north of Mypstang on FM 1385, 4350 feet east on surfaced road & 5500 feet north on light duty road.

2. Owner: R. Fought Address: Rt. 1, Pilot Point, Texas

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: G. J. Ray Address: Pilot Point, Texas

3. Elevation of land surface is 618 ft. above msl, determined by topo map

4. Drilled: 19 42; Log, Cable Tool Rotary,

5. Depth: Rept. 300+ ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. Crane Type \_\_\_\_\_

No. Stages \_\_\_\_\_, Bwls Diam. \_\_\_\_\_ in., Setting 180 ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel \_\_\_\_\_ Make & Model \_\_\_\_\_ HP.

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 60 ft. rept. 3-23 19 71 below land surface which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ above which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ below which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ below which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ below which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ below which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 3-23-71 Laboratory TSPH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: R. Gind & D. M. Jorgensen Date 3-23 19 71

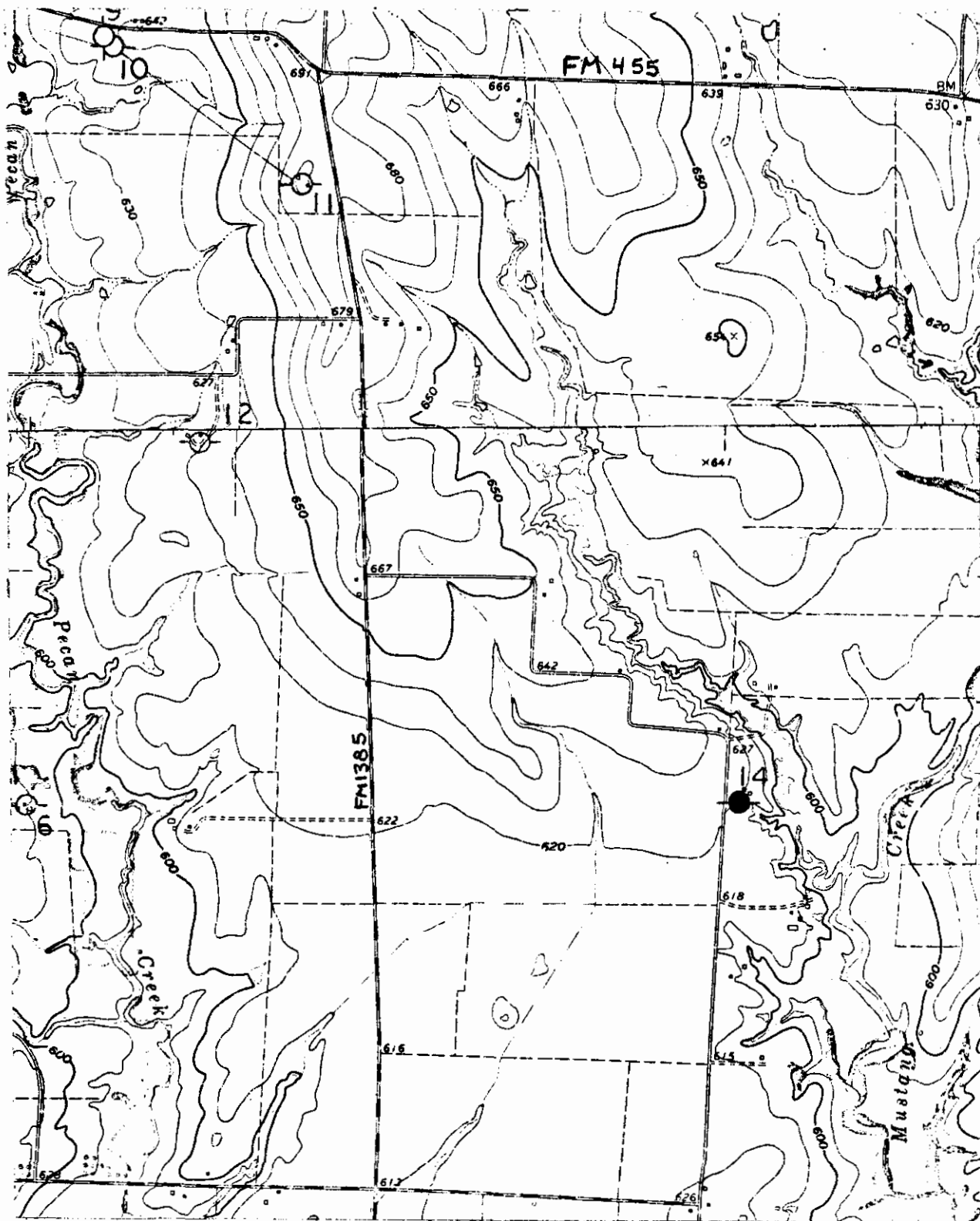
Source of Data \_\_\_\_\_

16. Remarks: Sample taken from tap at sink inside of house. Iron reported to be in the water.


CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
6	steel	0	300+

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to







Program No. 7730Proj. No. CI-7106

## CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin 5, Texas

Send report to:

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County DentonState Well No. 18-41-302Well No. 14Date Collected 3-23-71By R. Ginn & D. JorgensenLocation 9500 feet N. of Mustang on FM 1385, 4350 feet E. on med. duty rd. & 5500 ft. N. on light duty road.Source (type of well) drilled Owner R. FaughtDate Drilled 1942 Depth 300+ ft. WEF Woodbine Fm.Producing intervals — Water level 60 ft ± cap't ft.Sampled after pumping 5 min. Yield — GPM meas. est. Temperature — °F — °CPoint of collection Tap at kitchen sink Appearance clear

clear - turbid - colored

Use domestic Remarks —

FOR LABORATORY USE ONLY

## CHEMICAL ANALYSIS

## KEY PUNCHED

Laboratory No. 188033 Received MAR 26 1971 Date Reported APR -2 1971

	MG/L	ME/L
Silica	<u>13</u>	
Calcium	<u>10</u>	<u>0.48</u>
Magnesium	<u>2</u>	<u>0.19</u>
Sodium	<u>114</u>	<u>4.95</u>
Total		<u>5.62</u>

☐ Potassium\* ☒ Manganese☐ Boron☐ Total Iron☐ (other)Specific Conductance (micromhos/cm<sup>3</sup>) 524Diluted Conductance (micromhos/cm<sup>3</sup>) 4 x 140"□" items will be analyzed if checked. 560\* MN Total ~~sum~~ requires separate sample.

	MG/L	ME/L
Carbonate		<u>0</u>
Bicarbonate	<u>130</u>	<u>4.00</u>
Sulfate	<u>52</u>	<u>1.09</u>
Chloride	<u>21</u>	<u>0.58</u>
Fluoride	<u>0.5</u>	
Nitrate	<u>1.5</u>	
pH	<u>8.0</u>	
Total		<u>5.67</u>

1/Dissolved Solids (sum) 335Phenolphthalein Alkalinity as C aCO<sub>3</sub> 0Total Alkalinity as C aCO<sub>3</sub> (4.00) 200Total Hardness as C aCO<sub>3</sub> (0.67) 34Analyst —Checked by —

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.





Texas Water Development Board  
Well Schedule

groundwater resources  
bullet

State Well Number: **18-42-601** Previous Well Number: County: **Collin** **85**

Latitude (dms): **331917** Longitude (dms): **964704** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Celina** Driller: **R.H. Dearing and** Aquifer ID: **Woodbine**  
**Well #1** **Sons** Aquifer Code: **212WDBN**

Depth (ft): **700** Elevation (ft): **692** **WOODBINE**  
**SAND**

Source of Depth: **Driller's Log** Source of Elevation: **Digital Elevation**  
**Model -DEM**

Date Drilled: **08/00/1927** Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump** Power: **Electric Motor** Horsepower: **15.00**

Construction: **Hydraulic Rotary** Completion: **Perforated or Slotted**

Casing Material: **Steel** Screen Material: **Steel**

WATER USE

Primary: **Public** Secondary: Tertiary:  
**Supply**

Water Levels: **TWDB Current Observation Well** Water Quality: **Y**

21 measurements  
1928 to 2010  
MIN -396 MAX -130

Other Data: Logs: **D**

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	8	0	40
C	7	40	492
C	6	474	494
S	6	494	512
C	6	512	562
S	6	562	572
C	6	572	592
S	6	592	612
C	6	612	614
C	5	606	624
S	6	624	700

REMARKS:

Owners well #1. PWS ID #0430003B.  
Reported yield 110 GPM. This well  
originally assigned as Paluxy, but  
in going through records and drill-  
ing company's files this well is a  
Woodbine well. Confirmed by Joseph  
Johnson (Water Supt.) on 2/3/2011.

Reporting Agency: **TWDB or Predecessor**  
**Agency**

Date Collected or Reported: **06/15/2006**

Recorded by: D. R. Jones



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Paluxy

Field No. \_\_\_\_\_

State Well No. 18-42-601

Owner's Well No. 1

County COLLIN

1. Location: 1/4, 1/4 Sec. \_\_\_\_\_, Block \_\_\_\_\_, Survey \_\_\_\_\_

2. Owner: CITY OF CELINA

Address: P.O. Box 75, CELINA, TX. 75009

Tenant: Pick Vest

Address: \_\_\_\_\_

Driller: R.H. Dearing & Sons

Address: DENTON, Tex.

3. Elevation of 150 is 693 ft. above msl, determined by TOPO

4. Drilled: Aug June 19 25; Dug, Cable Tool, Rotary, \_\_\_\_\_

5. Depth: Rept. 154 ft. Meas. 147 ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. Red JACKET

Type Farbman 546

No. Stages \_\_\_\_\_, Bowls Diam. \_\_\_\_\_ in., Setting 422 ft. 7-15-72

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel ELEC Make & Model \_\_\_\_\_

HP. 15

9. Yield: Flow \_\_\_\_\_ gpm, Pump 125 gpm, Meas. (Rept.) 1943

10. Performance Test: Date 7-15-72 Length of Test \_\_\_\_\_ Made by Myers Co

Static Level 250 ft. Pumping Level 280 ft. Drawdown 30 ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 130 ft. (Rept.) 3 19 28 above 150

which is \_\_\_\_\_ ft. above surface.

250 ft. (Rept.) 7-15 19 72 above

which is \_\_\_\_\_ ft. above surface.

ft. meas. \_\_\_\_\_ 19 above

which is \_\_\_\_\_ ft. above surface.

ft. meas. \_\_\_\_\_ 19 below

which is \_\_\_\_\_ ft. above surface.

ft. meas. \_\_\_\_\_ 19 below

which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.) 2/18/43

Temp. \_\_\_\_\_ °F, Date sampled for analysis 10-10-38 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis 5-12-42 Laboratory "

Temp. \_\_\_\_\_ °F, Date sampled for analysis 9-1-51 Laboratory TSDH

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test,

15. Record by: Gene Davis

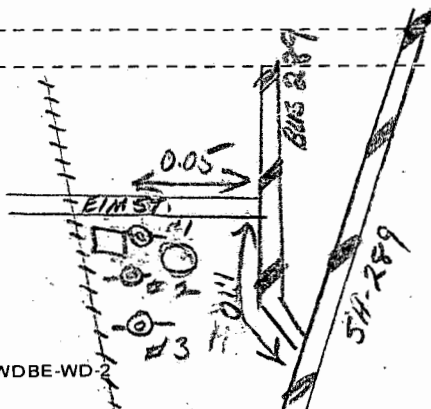
Date 12-22 1975

Source of Data uses sch, City Records & obs

16. Remarks: well has AIR LINE, but CAN'T FIND OUT WHERE IT'S SET.

CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
8"	steel	0	1321
6"	"	1301	1501

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
6"	Perf	1370	1462
6"	Perf	1483	1501
5 1/8"	OPEN	1501	1541



1 C 8" 0-40  
2 C 7" 40-492  
3 C 6" 474-494  
4 S 6" 494-515  
5 C 6" 512-562  
6 S 6" 562-572

7 C 6" 572-592  
8 S 6" 592-612  
9 C 6" 612-614  
10 C 6" 606-624  
11 S 6" 604-700



## DRILLERS' LOG

- 0-500 - SURFACE SOIL, SHALE + THIN ROCKS
- 700 - WOODBINE SANDS
- 860 - SHALE, GUMBO + THIN ROCKS
- 1321 - BROKEN WEATHERED LIME
- 1370 - HARD GRITTY LIME
- 1462 - PALUXY SAND
- 1483 - SHALE + SOAPSTONE
- 1501 - GOOD SAND
- 1541 - SAND



## ANALYTICAL STATEMENT

COUNTY

Collin

Well No. DT1842601

Location

City of Celina

Well # 2

Source (type of well)

PS T, E

Owner

Date drld. 1926

Depth. 1540 ft

WBF

Paluxy

Producing intervals

Water level

ft

Sampled after pumping

Yield

GPM

Pt of coll.

Appearance

Temp (°F)

Use

Collector

Chemist

Date completed

Date of collection

9/5/1

Ignition Loss

Dissolved Solids:

Calculated (sum)

7.30

Residue at 180°C

Hardness as CaCO<sub>3</sub>

30

N.C. hardness

% Na

SAR

RSC

Specific conductance

(micromhos at 25°C)

pH

8.5

Color

epm

ppm

SiO<sub>2</sub>

Fe + 3

Fe (total)

Co

Mg

No

K

Na + K

HCO<sub>3</sub>CO<sub>3</sub>SO<sub>4</sub>

Cl

F

NO<sub>3</sub>

18

.14

7

3

289

75

32

1.2

1.8

KEY PUNCHED

GW-9



## TEXAS BOARD OF WATER ENGINEERS

## GROUND-WATER DIVISION

## WELL SCHEDULE

Date 6-22, 1960 Field No. \_\_\_\_\_  
 Record by RWA Office No. DT1842601  
 Source of data Obs & owner & 1943 Min. H. & Sup. in E. Tex

1. Location: County Collin  
 Map under water tank  
 Survey \_\_\_\_\_
2. Owner: City of Belina #2 Address \_\_\_\_\_  
 Tenant \_\_\_\_\_ Address \_\_\_\_\_  
 Driller \_\_\_\_\_ Address \_\_\_\_\_
3. Topography: \_\_\_\_\_
4. Elevation: 696 ft. above MSL 1926  
 below
5. Type: Dug, drilled, driven, bored, jetted 1926
6. Depth: Rept. 1540 ft. Meas. 700 ft.
7. ☒ Casing: Diam. 8 in., to 5 1/8 in., Type \_\_\_\_\_  
 Depth \_\_\_\_\_ ft., Finish \_\_\_\_\_
8. Chief Aquifer: Aquifer From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 Others 212 WOB
9. Water level: \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above  
 meas. \_\_\_\_\_ below  
WTM which is \_\_\_\_\_ ft. above surface  
 below
10. Pump: Type T Capacity \_\_\_\_\_ gpm  
 Power: Kind E Horsepower 15
11. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept. Est. \_\_\_\_\_  
 Drawdown \_\_\_\_\_ ft. after \_\_\_\_\_ hours pumping \_\_\_\_\_ gpm
12. Use: Dom., Stock, PS, RR., Ind., Obs. Irr. \_\_\_\_\_  
 Adequacy, permanence \_\_\_\_\_
13. Quality: \_\_\_\_\_  
 Temp. \_\_\_\_\_ °F Sample Yes 43+51  
 No
14. Log: Yes  
 No
15. Remarks: Well #2 (Most Southerly Well)  
P.S. 400'  
PL. in 325-350'



DT 1842601

9-260  
(July 1938)UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY  
WATER RESOURCES BRANCH  
ANALYTICAL STATEMENT

[Parts per million]

Collin County 1943

Location <u>Colina, Texas</u>	Use <u>public supply</u>	Date <u>Feb. 18</u>
Source <u>Well 700</u> <u>1,540 ft. deep</u> <u>pumped 125 GPM for 7 min.</u> <u>Well # 2</u>	Color _____	SiO <sub>2</sub> <u>13</u>
	Suspended matter _____	Fe <u>0.02</u>
	Hardness (calc.) <u>6</u>	Ca <u>2.0</u>
	Ignition loss <u>8.4</u>	Mg <u>0.4</u>
	Total dissolved solids <u>728</u>	Na <u>287 calc</u>
	K $\times 10^3$ at 25°C. _____	K <u>4.2</u>
	pH <u>8.4</u>	CO <sub>3</sub> <u>62</u> <u>646</u>
		HCO <sub>3</sub> <u>520</u>
		SO <sub>4</sub> <u>73</u>
		Cl <u>18</u>
		F <u>1.3</u>
		NO <sub>3</sub> <u>2.5</u>

Chemist J. H. RowleyW. R. Lab. No. 5055Coll. No. B. B. Livingston

NEW PATENTED

Sum. 720~~Patented~~  
WOODBINE



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. 410 Lab No. 01

Work No. 6040

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County

043 Collin

State Well No.

18-42-601

Well No.

Date Collected

06-20-83

Owner

CITY OF CELINA



Send copy to owner

Sample No.

By F. Bilberry

Address DRAWER CELINA TEXAS 75009

Well Location

Date Drilled

6-25

Depth

154

ft. WBF

Paluxy - (138)

Source (type of well) 546

Producing intervals

08-1927

Water level

ft. Sample depth

700

ft.

Sampled after pumping

POA

hrs. Yield

GPM meas.

Temperature

078 °F   °C

Point of collection

Valve on Disch-pipe

Appearance

☒ clear ☐ turbid ☐ colored ☐ other

Use

P.S.

Remarks

(FOR LABORATORY USE ONLY)

Laboratory No.

EW3 2327

CHEMICAL ANALYSIS

Date Received JUN 24 1983

KEY PUNCHED

Date Reported JUL 26 1983

Silica . . . 00955 . . .

MG/L  
10

Calcium . . . 00910 . . .

41

Magnesium . . . 00920 . . .

41

Sodium . . . 00929 . . .

294

Total

12.86

☐ Potassium . . . 00937 . . .

☐ Manganese . . . 01055 . . .

%Na

☐ Boron . . . 01022 . . .

SAR

☐ Total Iron . . . 01045 . . .

RSC

☐ (other) . . . MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) . . . 00095

1128

Diluted Conductance (micromhos/cm<sup>3</sup>)

11 x 118  
1298

Carbonate . . . 00445 . . .

287  
24

Bicarbonate . . . 00440 . . .

584

Sulfate . . . 00945 . . .

52

Chloride . . . 00940 . . .

54

Fluoride . . . 00951 . . .

1.9

Nitrate . . . 71850 . . .

4  
04

pH . . . 00403 . . .

8.7

Total

13.09

Dissolved Solids (residue at 180°C) . . . 70300

726

Phenolphthalein Alkalinity as CaCO<sub>3</sub> . . . 00415

20

Total Alkalinity as CaCO<sub>3</sub> . . . 00410

519

Total Hardness as CaCO<sub>3</sub> . . . 00900

4

<sup>2</sup> Nitrogen Cycle

Ammonia - N . . . 00610

Nitrite - N . . . 00615

Nitrate - N . . . 00620

Organic Nitrogen . . . 00605

Analyst

Checked By

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Program No. \_\_\_\_\_ Lab No. 03

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin

State Well No. 18 42 601

Well No. \_\_\_\_\_

Date Collected 06 30 64

Location \_\_\_\_\_

Sample No.    By \_\_\_\_\_

Source (type of well) 700

Owner Calina

Date Drilled 6-25

Depth 154

ft. WBF KCPA

Producing intervals 5-27

Water level \_\_\_\_\_

ft. Sample depth            

ft.            

Sampled after pumping \_\_\_\_\_

hrs. Yield \_\_\_\_\_

GPM meas.  
est.

Temperature             °F             °C

Point of collection well

Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use P

Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

### KEY PUNCHED

Laboratory No. \_\_\_\_\_

Date Received \_\_\_\_\_

Date Reported \_\_\_\_\_

Silica

MG/L			

Calcium

MG/L			

Magnesium

MG/L			

Sodium

MG/L			

Total

ME/L			

☐ Potassium

MG/L			

☐ Manganese

%Na \_\_\_\_\_

☐ Boron

SAR \_\_\_\_\_

☒ Total Iron

MG/L			

RSC \_\_\_\_\_

☐ (other) \_\_\_\_\_

MG/L

Specific Conductance (micromhos/cm<sup>3</sup>)


Diluted Conductance (micromhos/cm<sup>3</sup>)

X

☐ " " items will be analyzed if checked.

☒ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

☒ Nitrogen cycle requires separate sample.

☒ Total Iron requires separate sample.

Carbonate

MG/L			

Bicarbonate

Sulfate

Chloride

Fluoride

Nitrate

pH

☒ Dissolved Solids (sum in MG/L)

Phenolphthalein Alkalinity as C aCO<sub>3</sub>

Total Alkalinity as C aCO<sub>3</sub>

Total Hardness as C aCO<sub>3</sub>

☒ Nitrogen Cycle

Ammonia - N

Nitrite - N

Nitrate - N

Organic Nitrogen

Analyst \_\_\_\_\_

Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Pl  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDB USE ONLY

Program No. \_\_\_\_\_

Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division

Texas Water Development Board

P.O. Box 13087

Austin, Texas 78711

County

DT Collin

State Well No.

18-42-601

Well No.

1

Date Collected

10-10-38

By

city

Location

Source (type of well)

T-E

Owner

CELINA, City of

Date Drilled

1925

Depth

754 ft

ft. WBF

KCTM KCPA

Producing intervals

1501-1541

Water level

130 (1928)

Sampled after pumping

hrs. Yield

125

GPM meas.  
est.

Temperature

°F °C

Point of collection

well

Appearance

☐ clear ☐ turbid ☐ colored ☐ other

Use

P.S.

Remarks

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No.

Date Received

Date Reported

Silica

MG/L			
			21
			4
			3
			293

Calcium

ME/L			

Magnesium

Sodium

Total

Carbonate

340

Bicarbonate

Sulfate

Chloride

Fluoride

Nitrate

pH

MG/L			
			691
			74
			27
			1.4
			<.4
			8.7

Total

☐ Potassium

☒ Manganese

☐ Boron

☒ Total Iron

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>)

Diluted Conductance (micromhos/cm<sup>3</sup>)

X

" " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

1/ Dissolved Solids (sum in MG/L)

Phenolphthalein Alkalinity as C aCO<sub>3</sub>

Total Alkalinity as C aCO<sub>3</sub>

Total Hardness as C aCO<sub>3</sub>

2/ Nitrogen Cycle

Ammonia - N

Nitrite - N

Nitrate - N

Organic Nitrogen

ME/L			

			742
--	--	--	-----

--	--	--	--

			540
--	--	--	-----

			22
--	--	--	----

--	--	--	--

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Analyst \_\_\_\_\_ Checked By \_\_\_\_\_







Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. \_\_\_\_\_ Lab No. 

--	--

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

Analysis copied from  
Texas Department of  
Health Files

County 

0	4	3
---	---	---

COLLIN

State Well No. 

1	8
---	---

 - 

4	2
---	---

 - 

6	0	1
---	---	---

Well No. \_\_\_\_\_

Date Collected 

0	7
---	---

 - 

2	7
---	---

 - 

4	0
---	---

Owner CITY OF CELINA \_\_\_\_\_ Send copy to owner Sample No. 

--

 By CSP

Address \_\_\_\_\_ Well Location \_\_\_\_\_

Date Drilled 1927 1928 Depth 700 1540 ft. WBF 

--	--	--

 Source (type of well) \_\_\_\_\_

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth 

--	--	--

 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 

--	--

 °F 

--	--

 °C

Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

**KEY PUNCHED**

### CHEMICAL ANALYSIS

Laboratory No. \_\_\_\_\_

Date Received 7-30-40

Date Reported \_\_\_\_\_

	MG/L	ME/L																																																
Silica . . . 00955 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>1</td><td>7</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				1	7																<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
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Calcium . . . 00910 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>5</td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				5																	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
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Magnesium . . . 00920 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>5</td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				5																	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
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Sodium . . . 00929 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>2</td><td>9</td><td>0</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				2	9	0																			<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																								
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Total

	MG/L	ME/L																																																																
<input type="checkbox"/> Potassium . . . 00937 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																					<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																																												
<input type="checkbox"/> Manganese . . . 01055 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>4</td><td>0</td><td> </td><td>0</td><td>3</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				4	0		0	3																									<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																																
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<input type="checkbox"/> Boron . . . 01022 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																																	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																																
<input type="checkbox"/> Total Iron . . . 01045 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>0</td><td> </td><td>0</td><td>5</td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				0		0	5																										<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																																
			0		0	5																																																												

%Na

SAR

RSC

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 00095 \_\_\_\_\_

Diluted Conductance (micromhos/cm<sup>3</sup>): \_\_\_\_\_

X

☐ " items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.

	MG/L	ME/L																																																
Carbonate . . . 00445 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>3</td><td>6</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				3	6																<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
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Bicarbonate . . . 00440 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>5</td><td>8</td><td>6</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				5	8	6																			<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																								
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Sulfate . . . 00945 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>7</td><td>5</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				7	5																<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
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Chloride . . . 00940 . . .	<table border="1"><tr><td> </td><td> </td><td> </td><td>3</td><td>2</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>				3	2																<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																												
			3	2																																														

Fluoride . . . 00951 . . .

Nitrate . . . 71850 . . .

pH . . . 00403 . . .

<sup>1</sup> Dissolved Solids (residue at 180°C) . . . 70300 . . .

Phenolphthalein Alkalinity as CaCO<sub>3</sub> . . . 00415 . . .

Total Alkalinity as CaCO<sub>3</sub> . . . 00410 . . .

Total Hardness as CaCO<sub>3</sub> . . . 00900 . . .

<sup>2</sup> Nitrogen Cycle

Ammonia - N . . . 00610 . . .

Nitrite - N . . . 00615 . . .

Nitrate - N . . . 00620 . . .

Organic Nitrogen . . . 00605 . . .

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. \_\_\_\_\_ Lab No. 

--	--

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

Analysis copied from  
Texas Department of  
Health Files

County

0	4	3
---	---	---

 COLLIN

State Well No.

1	8	4	2	6	0	1
---	---	---	---	---	---	---

Well No.

0	5	1	3	4	1
---	---	---	---	---	---

Date Collected

Owner CITY OF CELINA

Send copy to owner Sample No. 

--

 By CSP

Address

Well Location

Date Drilled 1987 Depth 700 ft. WBF \_\_\_\_\_

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth 

--	--	--

 ft.

Source (type of well) \_\_\_\_\_

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 

--	--	--

 °F 

--	--	--

 °C

Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

#### KEY PUNCHED

#### CHEMICAL ANALYSIS

Laboratory No. \_\_\_\_\_

Date Received 5-14-41

Date Reported \_\_\_\_\_

	MG/L	ME/L																																																
Silica . . . 00955 . . .	<table><tr><td></td><td></td><td></td><td>1</td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>				1	4																<table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>																												
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Calcium . . . 00910 . . .	<table><tr><td></td><td></td><td></td><td>1</td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>				1	8																<table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>																												
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☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 00095 \_\_\_\_\_

Diluted Conductance (micromhos/cm<sup>3</sup>):  
\_\_\_\_\_ X \_\_\_\_\_ = 

--	--	--	--	--

			MG/L					ME/L				
Carbonate . . . 00445 . . .						6	0					
Bicarbonate . . . 00440 . . .					5	4	9					
Sulfate . . . 00945 . . .						7	4					
Chloride . . . 00940 . . .						3	2					
Fluoride . . . 00951 . . .						1	0					
Nitrate . . . 71850 . . .												

<sup>1</sup> Dissolved Solids (residue at 180° C)	70300																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Analyst \_\_\_\_\_ Checked By \_\_\_\_\_

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.



Typewrite (Black ribbon) or Print Plain  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

T.S.D.H.

TWDBE-GW ONLY

Program No. \_\_\_\_\_  
Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County DT Collin  
State Well No. 18-42-601  
Well No. 7  
Date Collected 05-12-42  
By USGS

Location \_\_\_\_\_

Source (type of well) T-E 700 Owner CITY OF CELINA

Date Drilled June 1925 Depth 1541 ft. WBF ECTM KCPA

Producing intervals 1501-1541 Water level 130 ft. (1928)

Sampled after pumping \_\_\_\_\_ hrs. Yield 125 GPM meas. Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use P.S. Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<u>19</u>	
Calcium	<u>3</u>	
Magnesium	<u>1</u>	
Sodium	<u>302</u>	

Total

<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		
<input type="checkbox"/> Boron		
<u>3</u> Total Iron	<u>0.2</u>	

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X \_\_\_\_\_

☐ " " items will be analyzed if checked.

1 The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2 Nitrogen cycle requires separate sample.

3 Total Iron requires separate sample.

	MG/L	ME/L
Carbonate		
Bicarbonate	<u>677</u>	
Sulfate	<u>74</u>	
Chloride	<u>25</u>	
Fluoride	<u>1.6</u>	
Nitrate	<u>.4</u>	
pH		

Total

1 Dissolved Solids (sum in MG/L) 759

Phenolphthalein Alkalinity as CaCO<sub>3</sub> \_\_\_\_\_

Total Alkalinity as CaCO<sub>3</sub> \_\_\_\_\_

Total Hardness as CaCO<sub>3</sub> 11

2 Nitrogen Cycle

Ammonia - N \_\_\_\_\_

Nitrite - N \_\_\_\_\_

Nitrate - N \_\_\_\_\_

Organic Nitrogen \_\_\_\_\_







Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. \_\_\_\_\_ Lab No. 

--	--

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

Analysis copied from  
Texas Department of  
Health Files.

County 

0	4	3
---	---	---

 COLLIN

State Well No. 

1	8
---	---

4	2
---	---

6	0	1
---	---	---

Well No. \_\_\_\_\_

Date Collected 

0	1
---	---

1	9
---	---

4	5
---	---

Owner CITY OF CELINA Send copy to owner Sample No. 

--

 By CSP

Address \_\_\_\_\_ Well Location \_\_\_\_\_

Date Drilled 1927 1929 Depth 700 1540 ft. WBF 

--	--	--

 Source (type of well) \_\_\_\_\_

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth 

--	--	--

 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 

--	--	--

 °F 

--	--	--

 °C

Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

**KEY PUNCHED**

### CHEMICAL ANALYSIS

Laboratory No. \_\_\_\_\_

Date Received 1-22-45

Date Reported \_\_\_\_\_

	MG/L	ME/L																																
Silica . . . 00955 . . .	<table><tr><td></td><td></td><td>2</td><td>2</td></tr><tr><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td>2</td><td>8</td><td>5</td></tr></table>			2	2				4				1		2	8	5	<table><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>																
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Diluted Conductance (micromhos/cm <sup>3</sup> ): _____																																		
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		MG/L					ME/L				
Carbonate . . . 00445 . .					3	3					•
Bicarbonate . . 00440 . .				5	7	0					•
Sulfate . . . 00945 . .					7	3					•
Chloride . . . 00940 . .					2	5					•
Fluoride . . . 00951 . .					1	•	3				•
Nitrate . . . 71850 . .				0	•	4	5				•
pH . . . . 00403 . .				8	•	9					•
							Total				•

<sup>1</sup> Dissolved Solids (residue at 180°C)	70300																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Analyst \_\_\_\_\_ Checked By \_\_\_\_\_

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.



Texas Water Development Board  
**Chemical Water Analysis Report**

HM- LW 1994 1504  
HM = Heavy Trace and Alkaline-Earth Metals

TWDB Use Only

Work No. 3120-11220

IAC No. \_\_\_\_\_

**Send Reply To:**

Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Well #2

Attention: Phil Nordstrom

State Well Number: 18-42-601

County: Collin

Date & Time: 10/14/93 12:45

Owner: city of celina Attn: Barry Nelson

☒ Send Copy To Owner

Address: P.O. Box Drive D Celina, TX 75009

Sampled After Pumping: \_\_\_\_\_ Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Lennie Winkelmann

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory N

EB3-2991

Date Received: OCT. 18 1993

Date Reported: MAR. 07 1994

		mg/l
Calcium	(00915)	<u>1.1</u>
Magnesium	(00925)	<u>0.3</u>

		mg/l
Sodium	(00930)	<u>268</u>
Potassium	(00935)	<u>1.4</u>

		µg/l
<del>Aluminum</del>	<del>(01100)</del>	_____
Arsenic	(01000)	<u>&lt;2.0</u>
Barium	(01005)	<u>4.2</u>
Cadmium	(01025)	<u>&lt;2</u>
Chromium	(01030)	<u>&lt;4.0</u>
Copper	(01040)	<u>5.5</u>
Iron	(01046)	<u>12.9</u>
Lead	(01049)	<u>&lt;5</u>

		µg/l
Manganese	(01056)	<u>1.9</u>
Mercury	(71890)	<u>&lt;0.13</u>
<del>Molybdenum</del>	<del>(01002)</del>	_____
Selenium	(01145)	<u>&lt;4.0</u>
Silver	(01075)	<u>&lt;10</u>
Strontium	(01080)	<u>56</u>
<del>Vanadium</del>	<del>(01085)</del>	_____
Zinc	(01090)	<u>&lt;5.0</u>

**Note:** Crossout those elements not to be analyzed.



## Water Quality Sampling Run

WN: 18-42-601  
 county: collin  
 culfer(s): patxy  
 WOODBINE

Name: City of Celina  
Address: ~~121~~ P.O. Box Drawer D  
Celina, TX 75009  
Attn: Barry Nelson

Sample No. 1504  
Date: 10/14/93 12:45  
By: Lennie Winkelman

Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total
1 liter	1 liter	1 liter	500 ml	1 Qt.(glass)			
Anions	Cations	Radioactivity	Nitrate	(TOC)Organics			
Preserve with:	2 ml	2 ml	1 ml				
	HNO <sub>3</sub>	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>				
	(Nitric)	(Nitric)	(Sulfuric)				
10/12/93							
Water Level	390 ft	LSD					
Temperature (00010)	29.2 c						
Specific Conductance (00094)	926 umhos/cm						
H (00400)	8.72						
Ph (00090)	8.72						
Phenol ALK (82244)	18 mg/l						
Total ALK (39086)	384 mg/l						
Carbonate (00452)	meq/l						
Bicarbonate (00453)	meq/l						
Total Cations(+)							
Total Anions (-)							
Total Hardness (46570)	4						
Dissolved Solids(70301)	677						



Texas Water Development Board  
**Chemical Water Analysis Report**

RAD - LL 1994. 1504

RAD = Radioactivity Sample

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Well #2

*TWDB Use Only*

Work No. 3120-11220

IAC No. \_\_\_\_\_

Attention: Phil Nordstrom

State Well Number: 18-42-601

County: Collin

Date & Time: 10/14/93 12:45

Owner: City of Celina Attn: Barry Nelson

☒ Send Copy To Owner

Address: P.O. Box 10400 Celina, TX 75009

Sampled After Pumping: \_\_\_\_\_ Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Lennie Linkelman

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.: EB3-3003

Date Received: OCT. 18 1993

Date Reported: JAN. 25 1994

✓ Alpha	(01503)	<u>&lt; 2.0</u>	pCi/l
✓ Beta	(03503)	<u>&lt; 4.0</u>	pCi/l
<del>Radium-226</del>	<del>(00503)</del>	_____	pCi/l
<del>Radium-228</del>	<del>(01366)</del>	_____	pCi/l
<del>Total Radium</del>	<del>(11500)</del>	_____	pCi/l
<del>Thorium</del>	<del>(06403)</del>	_____	pCi/l
<del>Uranium</del>	<del>(02700)</del>	_____	pCi/l



Texas Water Development Board  
**Chemical Water Analysis Report**

GWR- LW 1994 1504  
(Anions)

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Well #2

*TWDB Use Only*  
Work No. 3120 - 11220  
IAC No. \_\_\_\_\_

Attention: Phil Nordstrom

State Well Number: 18-42-601

County: Collin

Date & Time: 10/14/93 12:45

Owner: City of Celina Attn: Barry Nelson

☒ Send Copy To Owner

Address: P.O. Box 494 Celina, TX 75009

Sampled After Pumping: \_\_\_\_\_ Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Lennie Winkelman

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.:

**EB3-2997**

Date Received:

**OCT. 18 1993**

Date Reported: **NOV. 03 1993**

THD-Sample No.	EB3 2997	Date Received	10/18/93	Date Reported	10/28/93
	MEQ/L	MG/L		MEQ/L	MG/L
Silica (00955)		14			
		Sulfate (00946)		1.58	76
		Chloride (00941)		0.51	18
		Fluoride (00950)		0.07	1.26

P. Alkalinity (00415)	0.36	18
T. Alkalinity (00410)	9.88	494

\* Convert mg/l Boron to µg/l for data entry.



Texas Water Development Board  
**Chemical Water Analysis Report**

GWN. 24 1994 1504  
(Nitrogen Cycle)

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Well # 2

TWDB Use Only	
Work No.	<u>3120-11220</u>
IAC No.	_____

Attention: Phil Nordstrom

State Well Number: 18-42-601

County: Collin

Date & Time: 10/14/93 12:45

Owner: city of celina Attn: Barry Nelson

☒ Send Copy To Owner

Address: P.O. Box Drawer D celina, TX 75009

Sampled After Pumping: POA Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: fauet pH 8.72

Use: PS Temperature: 29.2 °C

By: Lennie Vinkelman

Specific Conductance: 926

**Requested Chemical Analysis**

Laboratory No.: EB3-2985

**OCT. 18 1993**

Date Received: \_\_\_\_\_

Date Reported: NOV. 08 1993

THD-Sample No.	Date Received	Date Reported
EB3 2985	10/18/93	11/05/93
00623-		0.26 TKN as N mg/L
00608-		0.41 Ammonia as N mg/L
00613-		0.06 Nitrite as N mg/L
00618-		0.11 Nitrate as N mg/L

\*Note: To convert NO<sub>3</sub>-N to NO<sub>3</sub>, multiply by 4.427.



# **TWDB Water Quality Field Data Sheet**

SWN: 18-42-601  
 County: COLLIN  
 County Code: 085  
 Aquifer Code: 212 WDBN  
 Aquifer Id: 29

Name: CITY OF CECILIA  
 Address: 302 W. WALNUT  
 Phone Number: 214-733-1439  
 Attention: CECILIA 75009  
 Well Name or #: \_\_\_\_\_

CIRCLE EACH SAMPLE FRACTION COLLECTED:									
1	2	3	4	5	6	7	8	9	10
500ml filtered	2 L filtered	500ml filtered	40ml unfiltered	1 L unfiltered					
Anions/T. Alk.	Radio/Cation	Nitrate	Atrazine	Tritium					
Ice	(HNO3)	Ice + H2SO4	Ice & in dark	None					

All acidified samples pH < 2.0. (\*) If natural pH < 7, then add NaOH until pH is > 7. If natural pH is ≥ 7, no NaOH required.

Time In: 0835

Time Out: 0930

Water Level: \_\_\_\_\_

W.L. remark: \_\_\_\_\_

M.P. = \_\_\_\_\_

Pumping time: POA

Sampling Point: FAW

Well Use: P

FIELD G.P.S. readings

Lift: S

Latitude: 33° 19' 17.4"

Power: E

Longitude: 96° 47' 09.2"

Casing Type: \_\_\_\_\_

Casing Size: \_\_\_\_\_

Sample Time: 0915

Filter pressure: hand pump / line spring

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	pH	Celsius Temp.	Conductivity
0850	8.81	25.2	1199
0855	8.81	25.2	1198
0910	8.81	25.3	1198

Notes: \_\_\_\_\_

Newly Invented Well \_\_\_\_\_

ID Number: 662  
 Date: 6-15-06  
 Sampler(s): MB

Calibration Verification Readings	
pH	7 = <u>7.00</u>
	4 or 10 = <u>4.02</u>
SLP =	<u>100.1</u> 7.38 =
Conductivity	500 = <u>508</u>
	1000 = <u>994</u>
	2000 = <u>1967</u>
	5000 = <u>4.77</u>

Field Alkalinity Titration:	
50.0 mL Sample Size	Start pH <u>8.64</u> End pH <u>4.46</u>
1.00 mL Acid added for Phenol (> 8.3)	
24.40 mL Acid added for Total (to pH 4.5)	
Items below calculated from: mL acid added x 20 = Alkalinity	
Phenol Alkalinity (8224):	<u>20</u> mg/L
Total Alkalinity (3906):	<u>488</u> mg/L

Items Below Calculated Later From Results:	
Dissolved Solids (mg/L):	<u>687</u>
Hardness (as CaCO3):	<u>5</u>
Balanced:	<u>R</u>

700 TD	494 512
	562 572
	592 612
	624 642

Data Entered By Sampler Into Database:

Q34 no 700

Charged 18-42-601 + 18-42-602 well data



# LABORATORY ANALYTICAL REPORT

**Client:** Texas Water Development Board  
**Project:** TWDB  
**Lab ID:** C06060935-009  
**Client Sample ID:** 1842601 (662)

**Revised Date:** 08/09/06  
**Report Date:** 07/12/06  
**Collection Date:** 06/15/06 09:15  
**Date Received:** 06/17/06  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Alkalinity, Phenolphthalein as CaCO <sub>3</sub>	37	mg/L		1		A2320 B	06/27/06 12:48 / th
Alkalinity, Total as CaCO <sub>3</sub>	460	mg/L		1		A2320 B	06/27/06 12:48 / th
Bromide	0.14	mg/L		0.05		E300.0	06/27/06 19:50 / eli-b
Calcium	1.1	mg/L		0.5		E200.7	06/23/06 17:10 / ts
Chloride	50	mg/L		1		A4500-Cl B	06/21/06 11:26 / jl
Fluoride	1.6	mg/L		0.1		E300.0	06/27/06 19:50 / eli-b
Magnesium	ND	mg/L		0.5		E200.7	06/23/06 17:10 / ts
Nitrogen, Nitrate+Nitrite as N	0.5	mg/L		0.1		E353.2	06/21/06 10:46 / jal
Potassium	0.9	mg/L		0.5		E200.7	06/23/06 17:10 / ts
Silica	10.9	mg/L		0.1		E200.7	06/23/06 17:10 / ts
Sodium	280	mg/L		0.5		E200.7	06/23/06 17:10 / ts
Sulfate	65	mg/L		1		A4500-SO <sub>4</sub> E	06/23/06 13:51 / bm
<b>METALS - DISSOLVED</b>							
Aluminum	8	ug/L		1		E200.8	06/20/06 04:02 / sml
Antimony	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Arsenic	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Barium	5	ug/L		1		E200.8	06/20/06 04:02 / sml
Beryllium	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Boron	939	ug/L		100		E200.7	06/23/06 17:10 / ts
Cadmium	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Chromium	1	ug/L		1		E200.8	06/20/06 04:02 / sml
Cobalt	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Copper	1	ug/L		1		E200.8	06/20/06 04:02 / sml
Iron	ND	ug/L		30		E200.7	06/23/06 17:10 / ts
Lead	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Lithium	15	ug/L		1		E200.8	06/26/06 16:53 / bws
Manganese	4	ug/L		1		E200.8	06/20/06 04:02 / sml
Molybdenum	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Selenium	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Strontium	86	ug/L		1		E200.8	06/20/06 04:02 / sml
Thallium	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Vanadium	ND	ug/L		1		E200.8	06/20/06 04:02 / sml
Zinc	4	ug/L		1		E200.8	06/20/06 04:02 / sml
<b>DATA QUALITY</b>							
A/C Balance (± 5)	1.17	%				Calculation	06/28/06 14:44 / cp
Anions	12.0	meq/L				Calculation	06/28/06 14:44 / cp
Cations	12.3	meq/L				Calculation	06/28/06 14:44 / cp

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.





## ANALYTICAL SUMMARY REPORT

May 23, 2008

Texas Water Development Board  
1700 N Congress Ave  
Austin, TX 78711-3231

Workorder No.: C06081298

Quote ID: C1577 - TWDB Groundwater Monitoring Samples

Project Name: TWDB

Energy Laboratories, Inc. received the following 24 samples from Texas Water Development Board on 8/25/2006 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C06081298-001	3442109 (656)	06/13/06 10:00	08/25/06	Groundwater	Subcontracted, Tritium Laboratory
C06081298-002	1842601 (662)	06/15/06 09:15	08/25/06	Groundwater	Same As Above
C06081298-003	3518303 (1036)	06/13/06 08:55	08/25/06	Groundwater	Same As Above
C06081298-004	6707402 (834)	06/13/06 10:42	08/25/06	Groundwater	Same As Above
C06081298-005	7718807 (429)	06/26/06 14:25	08/25/06	Groundwater	Same As Above
C06081298-006	7713202 (434)	06/27/06 15:40	08/25/06	Groundwater	Same As Above
C06081298-007	2915502 (2074)	07/11/06 09:30	08/25/06	Groundwater	Same As Above
C06081298-008	3544806 (613)	04/17/06 16:00	08/25/06	Groundwater	Same As Above
C06081298-009	3559902 (614)	04/17/06 18:15	08/25/06	Groundwater	Same As Above
C06081298-010	5918704 (2050)	05/03/06 13:32	08/25/06	Groundwater	Same As Above
C06081298-011	5936806 (2055)	05/23/06 08:22	08/25/06	Groundwater	Same As Above
C06081298-012	5927717 (2057)	05/24/06 12:00	08/25/06	Groundwater	Same As Above
C06081298-013	5905901 (2060)	05/25/06 08:55	08/25/06	Groundwater	Same As Above
C06081298-014	1660901 (1020)	05/16/06 14:25	08/25/06	Groundwater	Same As Above
C06081298-015	3413308 (1032)	05/25/06 10:10	08/25/06	Groundwater	Same As Above
C06081298-016	5949511 (831)	05/24/06 08:59	08/25/06	Groundwater	Same As Above
C06081298-017	7703401 (417)	05/30/06 17:40	08/25/06	Groundwater	Same As Above
C06081298-018	1829702 (2242)	06/06/06 11:37	08/25/06	Groundwater	Same As Above
C06081298-019	6608110 (2064)	06/13/06 11:20	08/25/06	Groundwater	Same As Above
C06081298-020	6434901 (2068)	06/15/06 09:27	08/25/06	Groundwater	Same As Above
C06081298-021	6858114 (402)	05/15/06 11:20	08/25/06	Groundwater	Same As Above
C06081298-022	7727304 (405)	05/16/06 10:35	08/25/06	Groundwater	Same As Above
C06081298-023	3522708 (635)	05/11/06 08:15	08/25/06	Groundwater	Same As Above
C06081298-024	3511902 (637)	05/11/06 10:45	08/25/06	Groundwater	Same As Above

Collin



Client: ENERGY LABORATORIES, INC.  
 Recvd : 06/08/31  
 Job# : 2257  
 Final : 07/09/19

Purchase Order: 1650  
 Contact: S. Dobos 307/235-0515  
 2393 Salt Creek Hwy, PO Box 3258  
 Casper, WY 82602

Cust LABEL INFO	JOB.SX	REFDATE	QUANT	ELYS	TU	eTU
ENERGY LABS-C06081298-001A	2257.01	060613	1000	275	-0.02	0.09
ENERGY LABS-C06081298-002A	2257.02	060615	1000	275	0.05	0.09
ENERGY LABS-C06081298-003A	2257.03	060613	1000	275	0.01	0.09
ENERGY LABS-C06081298-004A	2257.04	060613	1000	275	0.03	0.09
ENERGY LABS-C06081298-005A	2257.05	060626	1000	275	0.04	0.09
ENERGY LABS-C06081298-006A	2257.06	060627	1000	275	0.07	0.09
ENERGY LABS-C06081298-007A	2257.07	060711	1000	275	4.54	0.15
ENERGY LABS-C06081298-008A	2257.08	060417	1000	275	0.05	0.09
ENERGY LABS-C06081298-009A	2257.09	060417	1000	275	0.01	0.09
ENERGY LABS-C06081298-010A	2257.10	060503	1000	275	0.11	0.09
ENERGY LABS-C06081298-011A	2257.11	060523	1000	275	0.10	0.09
ENERGY LABS-C06081298-012A	2257.12	060524	1000	275	-0.03	0.09
ENERGY LABS-C06081298-013A	2257.13	060525	1000	275	0.14	0.09
ENERGY LABS-C06081298-014A	2257.14	060516	1000	275	2.37	0.10
ENERGY LABS-C06081298-015A	2257.15	060525	1000	275	-0.00	0.09
ENERGY LABS-C06081298-016A	2257.16	060524	1000	275	0.08	0.09
ENERGY LABS-C06081298-017A	2257.17	060530	1000	275	0.41	0.09
ENERGY LABS-C06081298-018A	2257.18	060606	1000	275	-0.01	0.09
ENERGY LABS-C06081298-019A	2257.19	060613	1000	275	-0.04	0.09
ENERGY LABS-C06081298-020A	2257.20	060615	1000	275	0.16	0.09
ENERGY LABS-C06081298-021A	2257.21	060515	1000	275	0.64	0.09
ENERGY LABS-C06081298-022A	2257.22	060516	1000	275	0.08	0.09
ENERGY LABS-C06081298-023A	2257.23	060511	1000	271	-0.14*	0.09
ENERGY LABS-C06081298-024A	2257.24	060511	1000	275	2.99	0.10

\* Average of duplicate runs



WQ FY 2010

**TWDB Water Quality Field Data Sheet**

SWN: 18-42-601  
 County: Collins  
 County Code: D85  
 Aquifer Code: 212 WDBN  
 Aquifer Id: 29

Name: City of Celina  
 Address: 302 W. Walnut  
Celina, TX 75009

Attention:

Well Name or #:

1	2	3	4	5	6	7	8	9	10	11
40 ml unfiltered	500 ml filtered	500 ml filtered	250 ml filtered	1L filtered	2L filtered					
Atrazine	Cation	Anions/T. Alk.	Nitrate	Gross Alpha	Radium (226/228)					
ICE	HNO3 by lab	ICE	ICE + H2SO4	HNO3 by lab	HNO3 by lab					

All acidified samples pH < 2.0. (C14/C13 samples only: If natural pH < 7, then add NaOH until pH is > 7. If natural pH is ≥ 7, no NaOH required.)

Time In: 9:45

Time Out: 10:40

Water Level:

W.L. remark:

M.P. =

Pumping time:

Sampling Point:

Well Use:

FIELD G.P.S. readings

Lift:

Latitude:

Power:

Longitude:

Casing Type:

Casing Size:

Sample Time:

Filter pressure: hand pump / line / spring

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)

Time	9:45	9:50	9:55							
pH	8.92	8.88	8.90							
Celsius Temp	26.8	26.2	26.0							
Conductivity	2233	1140	1117							

Notes:

Newly Invented Well N

ID Number: 120

Date: 5/27/10

Sampler(s): AF

Calibration Verification Readings

pH 7 = 7.00

4 or 10 = 10.04

SLP = 91.2

Conductivity

500 =

1000 = 1000

2000 =

5000 =

Field Alk. Titration (0.0200 N) H2SO4

8.90 Start pH 9.4 End pH

50 mL Sample Size

26.45 mL Acid Phenol (> 8.3)

26.45 mL Acid Total (to pH 4.5)

mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 533 mg/L

Total Alkalinity (39086): 533 mg/L

Colorimeter DO (00300): 8.7 mg/L

Field Data entered into GWDB: yes / no

Balanced:



# LCRA Environmental Laboratory Services

Date: 23-Jun-10

CLIENT: Texas Water Development Board  
Lab Order: 1006015  
Project: TWDB FY2010  
Lab ID: 1006015-007

Client Sample ID: 18-42-601  
Collection Date: 5/27/2010 9:55:00 AM  
Matrix: GROUNDWATER  
Tag No: 120

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Calcium	1.02	0.20		mg/L	1	6/9/2010 12:48:46 PM
Magnesium	0.28	0.20		mg/L	1	6/9/2010 12:48:46 PM
Potassium	0.98	0.20		mg/L	1	6/9/2010 12:48:46 PM
Sodium	294	0.51		mg/L	1	6/9/2010 12:48:46 PM
<b>ICP METALS, DISSOLVED</b>						
		<b>E200.7</b>				Analyst: <b>MV</b>
Boron	1060	51		µg/L	1	6/9/2010 12:48:46 PM
Iron	< 51	51		µg/L	1	6/9/2010 12:48:46 PM
Strontium	87	20		µg/L	1	6/9/2010 12:48:46 PM
<b>ICPMS METALS, DISSOLVED</b>						
		<b>E200.8</b>				Analyst: <b>SW</b>
Aluminum	< 4.1	4.1		µg/L	1	6/9/2010 12:29:53 PM
Antimony	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Arsenic	< 2.0	2.0		µg/L	1	6/9/2010 12:29:53 PM
Barium	7.8	1.0		µg/L	1	6/9/2010 12:29:53 PM
Beryllium	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Cadmium	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Chromium	2.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Cobalt	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Copper	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Lead	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Lithium	15.6	2.0	A	µg/L	1	6/9/2010 12:29:53 PM
Manganese	17.7	1.0		µg/L	1	6/9/2010 12:29:53 PM
Molybdenum	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Selenium	< 4.1	4.1		µg/L	1	6/9/2010 12:29:53 PM
Silver	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Thallium	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Uranium	< 1.0	1.0	A	µg/L	1	6/9/2010 12:29:53 PM
Vanadium	< 1.0	1.0		µg/L	1	6/9/2010 12:29:53 PM
Zinc	< 4.1	4.1		µg/L	1	6/9/2010 12:29:53 PM
<b>MERCURY, TOTAL</b>						
		<b>SW7470A</b>				Analyst: <b>AE</b>
Mercury	< 0.200	0.200		µg/L	1	6/4/2010 11:09:00 AM
<b>DISSOLVED ANIONS BY ION CHROMATOGRAPH</b>						
		<b>E300.0</b>				Analyst: <b>WR</b>
Bromide Dissolved	0.24	0.10		mg/L	5	6/14/2010 8:07:00 PM
Chloride Dissolved	59.3	5.00		mg/L	5	6/14/2010 8:07:00 PM
Fluoride Dissolved	1.82	0.05		mg/L	5	6/14/2010 8:07:00 PM
Sulfate Dissolved	50.5	5.00		mg/L	5	6/14/2010 8:07:00 PM
<b>ALKALINITY</b>						
		<b>SM2320 B</b>				Analyst: <b>JB</b>
Alkalinity, Phenolphthalein	34	2	A	mg/L CaCO3	1	6/3/2010

## Qualifiers:

A Not Available for Accreditation  
E Value Above Quantitation Range  
N Not Accredited  
X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank  
H Holding Time Exceeded  
S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



**LCRA Environmental Laboratory Services**

Date: 23-Jun-10

**CLIENT:** Texas Water Development Board  
**Lab Order:** 1006015  
**Project:** TWDB FY2010  
**Lab ID:** 1006015-007

**Client Sample ID:** 18-42-601  
**Collection Date:** 5/27/2010 9:55:00 AM  
**Matrix:** GROUNDWATER  
**Tag No:** 120

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ALKALINITY</b>						Analyst: <b>JB</b>
Alkalinity, Total (As CaCO <sub>3</sub> )	520	2		mg/L CaCO <sub>3</sub>	1	6/3/2010
<b>CATION/ANION BALANCE</b>						Analyst: <b>AMJ</b>
Cation/Anion Balance	1.26	5.0		%	1	6/17/2010
<b>NITRATE AND NITRITE</b>						Analyst: <b>KK</b>
Nitrogen, Nitrate & Nitrite	< 0.020	0.020		mg/L	1	6/14/2010
<b>DISSOLVED PHOSPHATE AS P IN WATER</b>						Analyst: <b>CM</b>
Phosphorus, Dissolved (As P)	0.188	0.020		mg/L	1	6/3/2010
<b>SILICA</b>						Analyst: <b>KK</b>
Silica, Dissolved (as SiO <sub>2</sub> )	10.8	2.50		mg/L	5	6/8/2010

**Qualifiers:**

A Not Available for Accreditation  
E Value Above Quantitation Range  
N Not Accredited  
X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank  
H Holding Time Exceeded  
S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit



TEXAS WATER DEVELOPMENT BOARD — WATER LEVEL MEASUREMENTS

AS OF

- ☐ Normal  
☐ Publ.  
☐ USGS

OLD WELL NUMBER

WELL LOCATION: LAT.

LONG.

YR. REC. BEGINS

LAST CHEMICAL ANALYSIS

STATE WELL NUMBER DEPTH OF WELL				LAND SURFACE DATUM ELEVATION COMPLETION INTERVAL								
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LAND SURFACE	CHANGE IN LEVEL SINCE LAST STATIC MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	ELEVATION OF DEPTH TO WATER FROM MEAN SEA LEVEL	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
10	13	93	390.00					01	304	P		pump set at 420 ft.
1	13	95	393	-3.0				01	3	P		
11	10	95	281.4					01	3	P		good mark used 420'
11	07	96	396.4					01	2	P		
11	18	97	276.8					01	3	P		off 62 PSI 30 min
11	19	98	332.2					01	3	P		38 PSI
11	9	99	369.1					01	3	P		22 PSI
11	17	00	328		JA			01	3	P		40'
12	4	01	309.5					01	304	P		off 100 min
11	08	02	—		CH	—		01	343	P		
11	13	03	355		MB			01	304	P		28 PSI
12	8	04	-281.1		DG			01	3	P		60 PSI
12	14	05	-345									
9	20	06	362.1		DG			01	3	P		25 PSI
2	27	07	-357.1		(40)			01	3	P		pump off for 33 19 16.7 27 PSI 36 47 04.6
11	15	07	-272.1	off for 3 hrs	BA			01	3	P		33 19 16.3 PSI 96 47 04.5
11	14	08	-269.5		AF			01	3	P		
11	19	09	-244		SS			01	3	P		
11	20	10	-359.1					01	3	P		24 PSI
11	30	11	-300		WS-120		9.25	01	3	P		52 PSI

AQUIFER

paluxy sand

Well #2

pump set @ 420'

WATERSHED

COUNTY

collin

WELL CLASS AND NUMBER

18-42-601

MEASURING POINT (MP)

AIRLINE  
(round to nearest foot)



# TEXAS WATER DEVELOPMENT BOARD - WATER LEVEL MEASUREMENTS

[illegible]

AQUIFER Paluxy  
WATERSHED  
COUNTY Collin

WELL CLASS AND NUMBER

MEASURING POINT (M.P.)

Pump @ 420'?

18-42-601

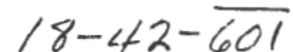


## WELL SCHEDULE

County COLLIN

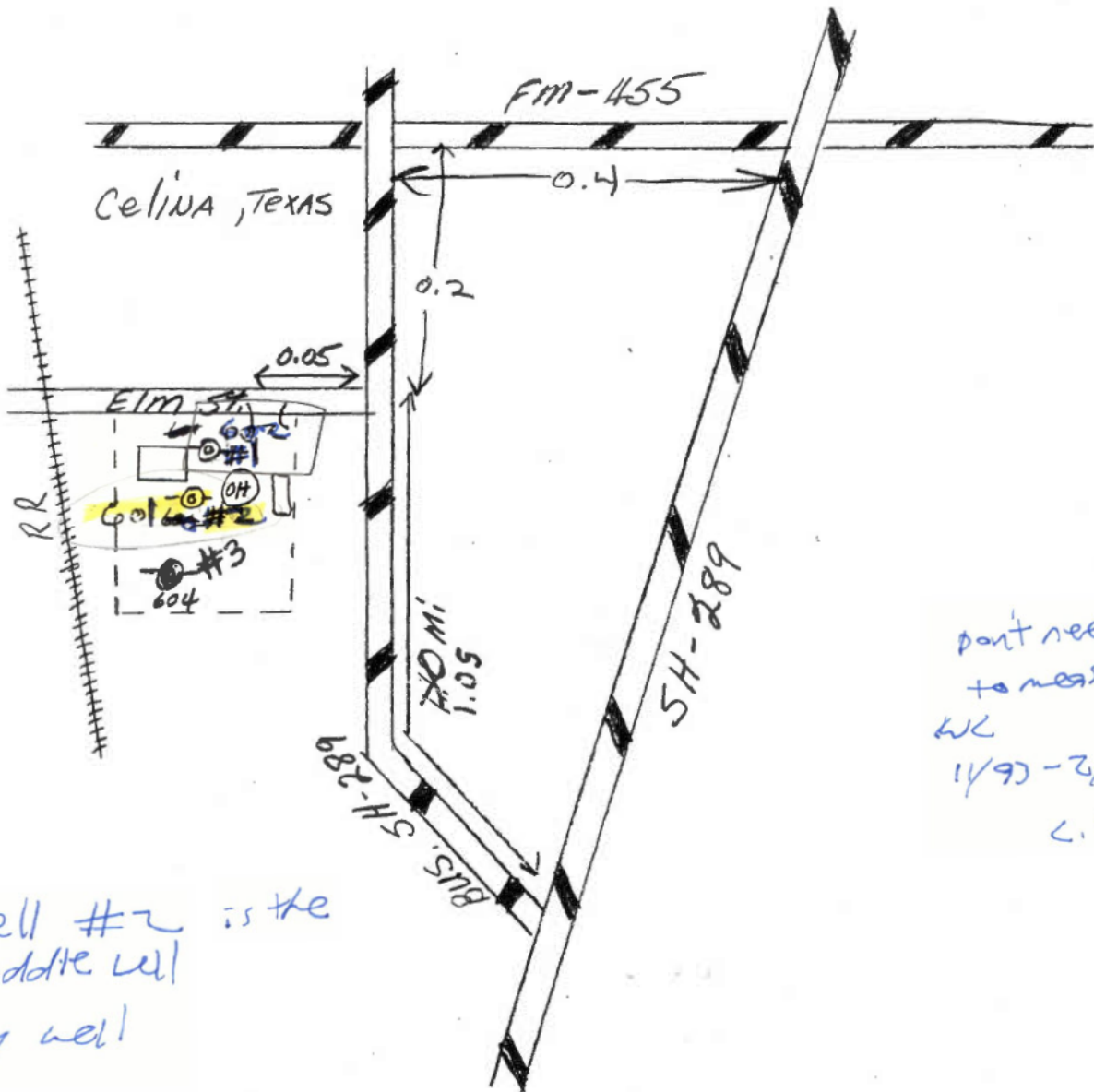
set.

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
6"	Perf.	1370	1462
6	Perf	1483	1501
5 7/8"	OPEN	1501	1541





601 WDB  
 604 TWMT



don't need  
 to measure  
 WC  
 11/93-2/94  
 C.W.

well #2 is the  
 middle well  
 proxy well

18-42-601







**State Well Number: 1842601**

*Notes are for in-house use only. They will not be published to the web.*

**Notes:**

City of Celina

Andrew [REDACTED] - [REDACTED]

Edit Record

1/27/15

DBC

Save Record



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-42-603Owner's Well No. #1County Collin1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_ Survey \_\_\_\_\_2. Owner: Wallace McKinney Address: Rt. 1, Celina, Texas

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: J.L. Myers Co. 780 Address: Dallas, Texas3. Elevation of 450 is 680 ft. above msl, determined by Topo4. Drilled: JAN 19 70, Dug, Cable Tool, Rotary5. Depth: Rept. 771 ft. Meas. \_\_\_\_\_ ft.6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed7. Pump: Mfr. Red Jacket Type Subm.No. Stages \_\_\_\_\_, Bows Diam. \_\_\_\_\_ in., Setting 616 ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel Elect Make & Model \_\_\_\_\_ HP. 39. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. Driller10. Performance Test: Date 1-70 Length of Test \_\_\_\_\_ Made by \_\_\_\_\_Static Level 420 ft. Pumping Level 462 ft. Drawdown 42 ft.Production 10 gpm Specific Capacity \_\_\_\_\_ gpm/ft.11. Water Level: 420.0 ft. rept. 1 19 70 above 450ft. rept. 19 belowft. rept. 19 aboveft. rept. 19 belowft. rept. 19 aboveft. rept. 19 below12. Use: Dom. Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used,

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 11-15-72 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log radioactivity Log Electric Log, Q-30

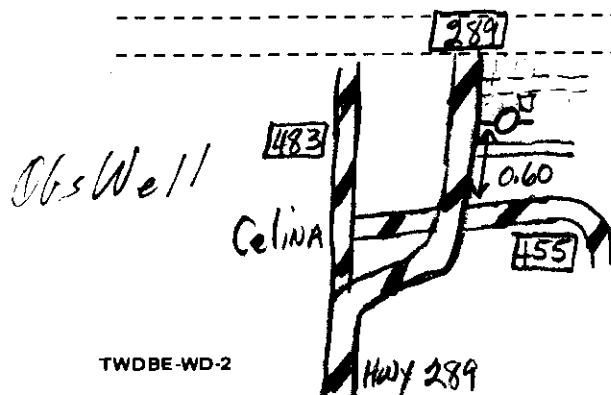
Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: D. Cunningham Gene Davis Date 3-4-77 19 70Source of Data DH, + 205, DBS, F&B, ER + 065

16. Remarks: \_\_\_\_\_

CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
8 5/8	Steel	0	10
5 1/2	"	0	771

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
5 1/2	GUN PERF.	621	628
5 1/2	8 shots	647	654
5 1/2	10 shots	679	688



Q-30

Obs. Well

18-42-603



## WELL SCHEDULE

Field No./Owner's Well No. 7

County Collin

Yours truly,  
J. C. McLaughlin

Tenant (other): \_\_\_\_\_ Address: \_\_\_\_\_

Driller: MEYERS Address: Dallas

3. Land Surface Elevation: 780 ft. above msl determined by Topo

4. Drilled: JAN 1970 ; Dug, Cable Tool, Rotary, Air,

5. Depth: Rept. <b>771</b>	ft.	Meas.	ft.	CASING, BLANK PIPE & WELL SCREEN
----------------------------	-----	-------	-----	----------------------------------

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump:	Mfr. <u>Red Jacket</u>	Type <u>Subm.</u>	Drum (in.)	Type	Setting (feet)
					from to

No. Stages \_\_\_\_\_, Bowls Diam. \_\_\_\_\_ in., Setting 616 ft.

Column Diam.	in., Length Tailpipe	ft.	5 1/2	"	0	771
--------------	----------------------	-----	-------	---	---	-----

8. Motor: Mfr. Fuel *Elec.* HP. *3*

9. Yield:	Flow	gpm, Pump	gpm, Meas., Rept., Est.	Date

10. Performance Test: Date 1-70 Length of Test \_\_\_\_\_ Made by drlr

Static Level **420** ft. Pumping Level **462** ft. Drawdown **42** ft.

Production	10	gpm	Specific Capacity	gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.)				
--	--	--	--	--

## Analyses

Date	Laboratory	TDS	Sp Cond

Date	Laboratory	TDS	Sp Cond

12. Other data available as circled: Pumping test, Power & Yield Test, Drillers

Logs, Formation Samples, Geophysical Log(s) Radioactivity Q-30

13. Water Level(s): \_\_\_\_\_ ft. <sup>rept.</sup> <sub>meas.</sub> 19 \_\_\_\_\_ above \_\_\_\_\_ below \_\_\_\_\_ which is \_\_\_\_\_ ft. above \_\_\_\_\_ below Land Surface

ft. meas. 19 above below which is ft. above below Land Surface

14. Use: Dom. Stock, Public Supply, Ind., Irr., Observation, Other (Test Hole, Oil Test, etc.) \_\_\_\_\_

15. Recorded by: J. Derton Source of data: TwDB shed + obs Date: 11-2-78

16. Remarks: Mr. McKinney would like us to leave note on his door when  
we meet well.

17. Location or Sketch:

MP = Top of Plastic  
Vent pipe + 2.0'

[illegible]

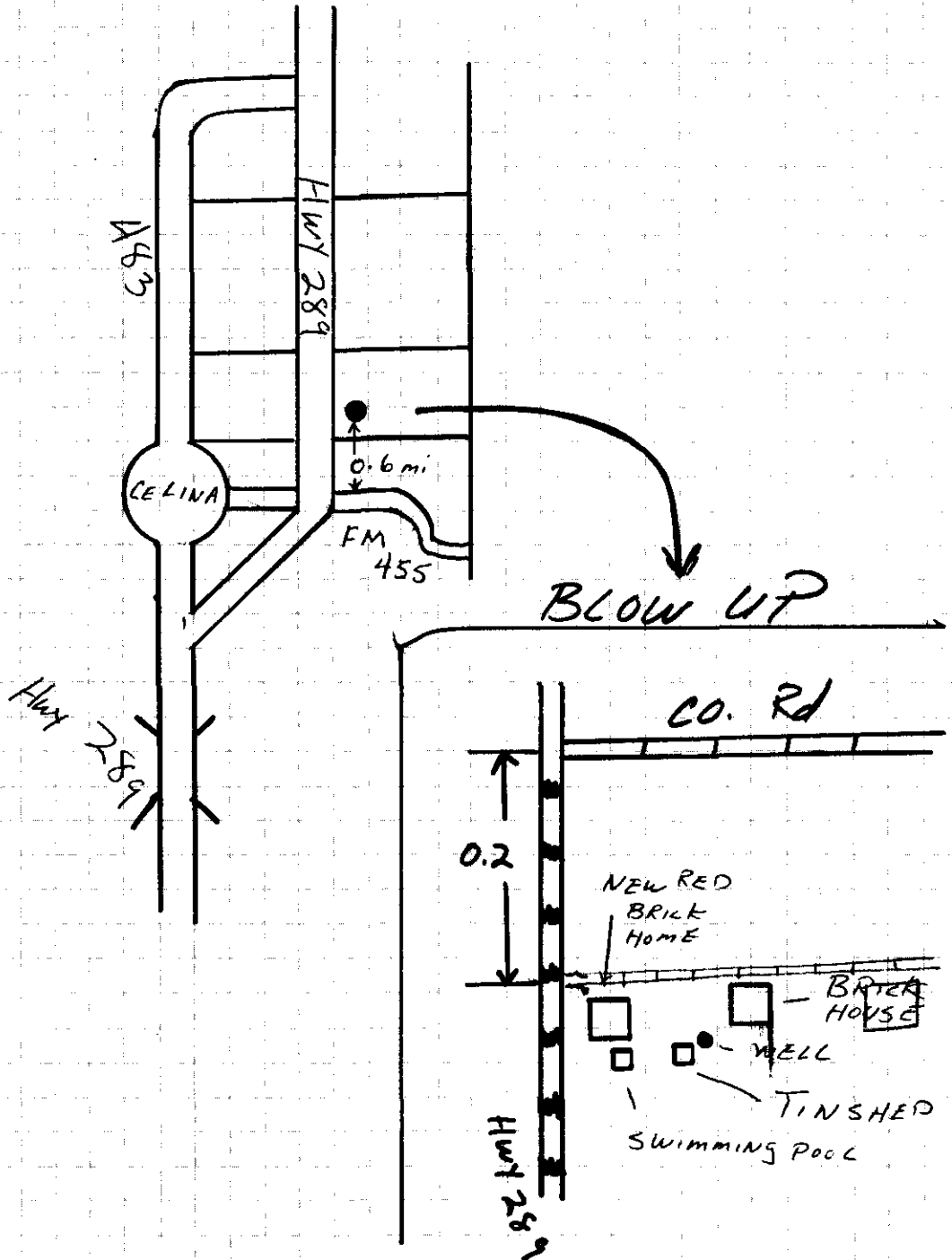


TEXAS WATER DEVELOPMENT BOARD

BY \_\_\_\_\_ DATE \_\_\_\_\_ DIVISION \_\_\_\_\_ SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_

CHKD \_\_\_\_\_ DATE \_\_\_\_\_ JOB NAME WALLACE MCKINNEY

18-42-603 JOB NO COLLIN CO PROG. CODE \_\_\_\_\_



18-42-603



TEXAS DEPARTMENT OF WATER RESOURCES—WATER LEVEL MEASUREMENTS (IN FT.)

AS OF 05-16-80

COORDINATES 33-19-50N  
096-46-10W

☒ Normal  
☐ Publ.  
☐ USGS

OLD WELL NUMBER

YR. REC. BEGINS

LAST CHEMICAL ANALYSIS

70

08-76

[illegible]

AQUIFER 200 - WOODBINE FORMATION

WATERSHED D8 - TRINITY RIVER BASIN

COUNTY 043 - COLLIN

~~CURRENT~~ 18-42-603

HIST



Send original copy by certified mail to the Texas Water Development Board P. O. Box 13386 Austin, Texas 78711

State of Texas  
WATER WELL REPORT

For TWDB use only  
Well No. 18-42-1A  
Located on map Yes  
Received 70  
Form GW 8  
Form GW 9

1) OWNER:  
Person having well drilled Wallace Kinney Address RFD #1 Colina Texas  
(Name) (Street or RFD) (City) (State)  
Landowner Wallace Kinney Address \_\_\_\_\_  
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:  
County Collin Labor \_\_\_\_\_ Leases \_\_\_\_\_ Abstract No. \_\_\_\_\_  
NE $\frac{1}{4}$  SE $\frac{1}{4}$  SW $\frac{1}{4}$  SE $\frac{1}{4}$  of Section \_\_\_\_\_ Block No. \_\_\_\_\_ Survey \_\_\_\_\_  
(Circle as many as are known)  
miles in 1 mi. Northeast from Colina  
(NE, SW, etc.) (Town)  
Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WELL (Check):  
New Well ☒ Deepening ☐  
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):  
Domestic ☒ Industrial ☐ Municipal ☐  
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):  
Rotary ☒ Driven ☐ Dug ☐  
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:  
Diameter of hole 3 1/4 in. Depth drilled 771 ft. Depth of completed well 621-688 ft. Date drilled Jan. 1970  
All measurements made from 3 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	58	Austin Chalk	610	627	Broken Sand
58	301	Bagle Ford Shale	627	685	Sandy Shale
301	320	First Woodbine	685	696	Sand
320	610	Sandy Shale	696	771	Shale with Streaks of Sand

(Use reverse side if necessary)

7) COMPLETION (Check):  
Straight well ☒ Gravel packed ☐ Other ☐  
Under reamed ☐ Open hole ☐ Gun Perforated  
See Gamma Ray

8) WATER LEVEL:  
Static level 420 ft. below land surface Date Jan. 1970  
Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_

9) CASING:  
Type: old ☒ New ☐ Steel ☐ Plastic ☐ Other ☐  
Cemented from TOP ft. to BOTTOM ft.

10) SCREEN:  
Type \_\_\_\_\_  
Perforated ☒ Slotted ☐

Diameter (inches)	Setting		Gage	Diameter (inches)	Setting		Slot size
	From (ft.)	To (ft.)			From (ft.)	To (ft.)	
5 1/2" OD	top	bottom	.275 Wall				
8 5/8"	0	10'					
ie Ground level to 10'							

11) WELL TESTS:  
Was a pump test made? ☒ Yes ☐ No If yes by whom \_\_\_\_\_  
Yield: 12 gpm with 150 ft. drawdown after \_\_\_\_\_ hrs  
Bailer test 10 gpm with 42 ft. drawdown after \_\_\_\_\_ hrs  
Artesian flow \_\_\_\_\_ gpm Date \_\_\_\_\_  
Temperature of water \_\_\_\_\_  
Was a chemical analysis made? ☐ Yes ☐ No  
Did any strata contain undesirable water? ☐ Yes ☐ No  
Type of water? Fresh depth of strata \_\_\_\_\_

12) PUMP DATA:  
Manufacturer's Name Red Jacket  
Type Submersible H.P. 3  
Designed pumping rate 12 gpm ☒ gph ☐  
Type power unit 1 ph Elec. Motor  
Depth to bowls, cylinder, jet, etc., 615 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME D. L. Myers (Type or Print) Water Well Drillers Registration No. 2002  
Address RFD #2 Denton Texas 76201  
(Street or RFD) (City) (State)  
(Signed) D. L. Myers D. L. Myers  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

18-42-1A 603 Q-30



Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

Proj. No.

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



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(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDBE-GW ONLY

Program No.

Proj. No.

6042

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18-42-603  
Well No. 08-10-76  
Date Collected 08-10-76  
By Gene Davis

Location

Source (type of well) Suk Elec Owner Wallace McKinney  
Date Drilled JAN 1970 Depth 77 ft. WBF Woodbine  
Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield 10 GPM \_\_\_\_\_ Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C  
Point of collection Pressure Tank Appearance ☒ clear ☐ turbid ☐ colored ☐ other  
Use Dam Remarks Sub to: Wallace McKinney, P.O., Celina, Texas

(FOR LABORATORY USE ONLY)

Laboratory No. 318570

CHEMICAL ANALYSIS

Date Received Aug 17 1976

KEY PUNCHED

Date Reported OCT. 18. 1976

80% broken  
1st

	MG/L	ME/L
Silica	12	
Calcium	2	0.12
Magnesium	1	0.05
Sodium	433	18.81
Total		18.98
<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		
<input type="checkbox"/> Boron		
<input checked="" type="checkbox"/> Total Iron	broken in transit	
<input type="checkbox"/> (other)		
Specific Conductance (micromhos/cm <sup>3</sup> )	1200	
Diluted Conductance (micromhos/cm <sup>3</sup> )	132 x 142	

	MG/L	ME/L
Carbonate	405	0
Bicarbonate	820	13.50
Sulfate	105	2.18
Chloride	115	3.23
Fluoride	2.6	0.14
Nitrate	40.4	
pH	8.2	
Total		19.05
1 Dissolved Solids (sum in MG/L)		1080
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		0
Total Alkalinity as CaCO <sub>3</sub>	(13.50)	680
Total Hardness as CaCO <sub>3</sub>	(0.17)	9
2 Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

" " items will be analyzed if checked.

1 The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2 Nitrogen cycle requires separate sample.

3 Total Iron requires separate sample.



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(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDB ONLY

Organization No. 422 Lab No.   

Work No. 6042 (IAC (86-87)-1525)

### CHEMICAL WATER ANALYSIS REPORT

Send Reply To:

Water Availability Data and Studies Section  
Texas Water Development Board  
Stephen F. Austin Building  
1700 Congress Ave.  
Austin, Texas 78711

Attn: Robert A. Flores Rm. 3046

County 643 Collin  
State Well No. 18 42 603  
Well No. 07 30 87  
Date Collected

Owner Mark Mason ☒ Send copy to owner Sample No. 1 By AAE  
Address Box K-1, Celina, Tx 75009 Well Location next to pool  
Date Drilled 01-70 Depth 771 ft. WBF Woodbine Source (type of well) Stratified well  
Producing intervals        Water level        ft. Sample depth 771 ft.  
Sampled after pumping 20 min Yield        GPM meas. est. Temperature    °F    °C  
Point of collection faucet next to well Appearance ☒ clear ☐ turbid ☐ colored ☐ other  
Use Dom. Remarks       

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

Laboratory No. XXXXXXXXXX

Date Received AUG 03 '87

Date Reported AUG 24 '87

### WATER ANALYSIS

Date: 081987

Sample No: FB7-1949

	MG/L	ME/L		MG/L	ME/L
Silica:00955:	13		Carbonate:00445:	15	.52
Calcium:00915:	2	.11	Bicarbonate:00440:	681	11.16
Magnesium:00925:	<1	.03	Sulfate:00946:	129	2.47
Sodium:00930:	325	16.30	Chloride:00940:	66	1.86
Potassium:00935:	1	.03	Fluoride:00950:	2.2	.12
T. Cations		16.47	Nitrate as NO3:71851:	.18	0
Manganese:01055:			T. Anions		16.33
Boron:01020:		SAR	pH:00403:	8.6	
Total Iron:01045:		RSC	TDS(Calc):70301:	938	
Other			P. Alk.:00415:	13	
(Specific Cond.100025:	1220		T. Alk.:00410:	584	
Diluted Conductance (micromhos/cm3)			T. Hardness:00900:	7	
11 x154 =1694			Ammonia-N:00610:		
items will be analyzed if checked.			Nitrite-N:00615:		
			Nitrate-N:00620:		
			OrganicNitrogen:00605:		





**Texas Water Development Board**  
**Well Schedule**

groundwater resources



State Well Number: **18-43-203**

Previous Well Number:

County: **Collin**

**85**

Latitude (dms): **332054**

Longitude (dms): **964011**

Coordinate Accuracy: **+/- 1 Second**

River Basin: **Trinity River**

GMA: **8**

RWPA: **C**

GCD: **North Texas GCD**

Owner: **City of Weston**  
**Old well #1**

Driller:

Aquifer ID: **Woodbine**

Aquifer Code: **212WDBN**

**WOODBINE**  
**SAND**

Depth (ft): **714**

Elevation (ft): **753**

Source of Depth: **Memory of**  
**Owner**

Source of Elevation: **Digital Elevation**  
**Model -DEM**

Date Drilled: **00/00/1950**

Well Type: **Withdrawal of Water**

Type of Lift: **None**

Power:

Horsepower:

Construction: **Hydraulic Rotary**

Completion:

Casing Material: **Steel**

Screen Material:

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

Dia. (in.)	Top (ft.)	Bottom (ft.)
---------------	--------------	-----------------

C	5	
---	---	--

**WATER USE**

Primary: **Unused**

Secondary:

Tertiary:

Water Levels: **Miscellaneous Measurements**

Water Quality: **Y**

**1 measurement**

**1977**

**-200**

Other Data:

Logs:

**REMARKS:**

**Owners old well #1. PWS ID**  
**#0430050. Unused PS well.**

Reporting Agency: **TWDB or Predecessor**  
**Agency**

Date Collected or Reported: **02/15/1977**

Recorded by:

*D.R. Jones*



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-43-203

Owner's Well No. \_\_\_\_\_

County Collin

1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_ Survey \_\_\_\_\_


2. Owner: CITY OF WESTON Address: \_\_\_\_\_

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: \_\_\_\_\_ Address: \_\_\_\_\_

3. Elevation of 45 is 753 ft. above msl, determined by TPPO

4. Drilled: 19 50's; Dug, Cable Tool, Rotary, \_\_\_\_\_

5. Depth: Rept. 714 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed \_\_\_\_\_

7. Pump: Mfg. \_\_\_\_\_ Type Sub

No. Stages \_\_\_\_\_, Bows Diam. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft. NONE 2-15-77

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft. 60

8. Motor: Fuel elec Make & Model \_\_\_\_\_ HP. \_\_\_\_\_

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 201.50 ft. rept. 2-15 19 77 above TOP of Cgs.

ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_

ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ below \_\_\_\_\_

ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_

ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ below \_\_\_\_\_

ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_

ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ below \_\_\_\_\_

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflood, Observation, Not Used

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 5-63 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, \_\_\_\_\_

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: Gene Davis Date 2-15 19 77

Source of Data Obs.

16. Remarks: \_\_\_\_\_

\_\_\_\_\_

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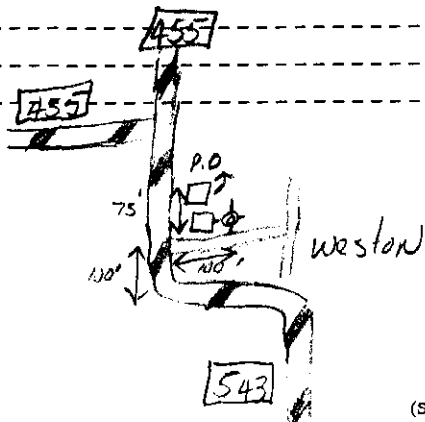
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CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft. from to	
5	Steel	?	

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft. from to	





## TEXAS BOARD OF WATER ENGINEERS

## GROUND-WATER DIVISION

## WELL SCHEDULE

Date 6-23, 1960 Field No. \_\_\_\_\_  
 Record by PWT Office No. DT1843203  
 Source of data Obs

1. Location: County Collin  
 Map well located 52 of P.O.  
 Survey at water pipe  
 2. Owner: City of Weston Address \_\_\_\_\_  
 Tenant \_\_\_\_\_ Address \_\_\_\_\_  
 Driller \_\_\_\_\_ Address \_\_\_\_\_

3. Topography: \_\_\_\_\_  
 4. Elevation: 750± ft. above M.S.L.  
 5. Type: Dug, drilled, driven, bored, jetted in 1950's ?  
 6. Depth: Rept. 714 ft. Meas. \_\_\_\_\_ ft.  
 7. Casing: Diam. ✓ in., to \_\_\_\_\_ in., Type \_\_\_\_\_  
 Depth \_\_\_\_\_ ft., Finish \_\_\_\_\_  
 8. Chief Aquifer: K Woodbine From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 Others \_\_\_\_\_


9. Water level: \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above  
UTM meas. \_\_\_\_\_ below  
 which is \_\_\_\_\_ ft. above surface  
 10. Pump: Type T (sub) Capacity 2000 gpm  
 Power: Kind E Horsepower 1/2  
 11. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept. Est.  
 Drawdown \_\_\_\_\_ ft. after \_\_\_\_\_ hours pumping \_\_\_\_\_ gpm  
 12. Use: Dom., Stock, PS, RR., Ind., Obs. Irr.  
 Adequacy, permanence \_\_\_\_\_  
 13. Quality: \_\_\_\_\_  
 Temp. \_\_\_\_\_ °F Sample Yes  
No  
 14. Log: Yes  
No  
 15. Remarks: \_\_\_\_\_



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Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDB USE ONLY

Program No. \_\_\_\_\_

Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division

Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County

07 Collin

State Well No.

1843203

Well No.

Date Collected

050563

By \_\_\_\_\_

Location \_\_\_\_\_

Source (type of well)

Sub Elec

Owner

Weston

Date Drilled

1950's

Depth

714

ft. WBF

Woodbine

Producing intervals

Water level

ft.

Sampled after pumping

hrs. Yield

GPM meas. est.

Temperature

°F °C

Point of collection

well

Appearance

☐ clear ☐ turbid ☐ colored ☐ other

Use

P.S.

Remarks

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_

Date Received \_\_\_\_\_

Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica . . . . .		
Calcium . . . . .	4	
Magnesium . . . . .	1	
Sodium . . . . .	579	
Total		
<input type="checkbox"/> Potassium . . . . .		
<input checked="" type="checkbox"/> Manganese . . . . .	05	%Na
<input type="checkbox"/> Boron . . . . .		SAR
<input checked="" type="checkbox"/> Total Iron . . . . .	5	RSC

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>)

2739

Diluted Conductance (micromhos/cm<sup>3</sup>)

X

" ☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

TWDBS-SI-27

	MG/L	ME/L
Carbonate . . . . .		
Bicarbonate . . . . .		
Sulfate . . . . .	348	
Chloride . . . . .	92	
Fluoride . . . . .	2.7	
Nitrate . . . . .	4.4	
pH . . . . .	9.2	Total
1/ Dissolved Solids (sum in MG/L) . . . . .		1780
Phenolphthalein Alkalinity as CaCO <sub>3</sub> . . . . .		
Total Alkalinity as CaCO <sub>3</sub> . . . . .		720
Total Hardness as CaCO <sub>3</sub> . . . . .		13
2/ Nitrogen Cycle		
Ammonia - N . . . . .		
Nitrite - N . . . . .		
Nitrate - N . . . . .		
Organic Nitrogen . . . . .		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



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(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Program No. \_\_\_\_\_ Lab No. 03

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County 043 COLLIN  
State Well No. 18-43-203  
Well No. \_\_\_\_\_  
Date Collected 10-26-61

Location \_\_\_\_\_ Sample No. \_\_\_\_\_ By \_\_\_\_\_

Source (type of well) \_\_\_\_\_ Owner Weston

Date Drilled \_\_\_\_\_ Depth 714 ft. WBF KGW (upper)

Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth \_\_\_\_\_ ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM mess. Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other

Use P Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L																												
Silica	<table><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>																	<table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>												
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☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 6900

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X

☐ " " items will be analyzed if checked.

1 The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2 Nitrogen cycle requires separate sample.

3 Total Iron requires separate sample.

	MG/L				ME/L				
Carbonate . . . . .									•
Bicarbonate . . . . .			622						•
Sulfate . . . . .			1353						•
Chloride . . . . .			700						•
Fluoride . . . . .			2.0						•
Nitrate . . . . .			< .4						•
pH . . . . .			8.0		Total				•

1 Dissolved Solids (sum in MG/L) 3728

Phenolphthalein Alkalinity as CaCO<sub>3</sub> \_\_\_\_\_

Total Alkalinity as CaCO<sub>3</sub> \_\_\_\_\_

Total Hardness as CaCO<sub>3</sub> 88

2 Nitrogen Cycle  
Ammonia - N \_\_\_\_\_

Nitrite - N \_\_\_\_\_

Nitrate - N \_\_\_\_\_

Organic Nitrogen \_\_\_\_\_

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_





**Texas Water Development Board  
Well Schedule**

groundwater resources



State Well Number: **18-43-204** Previous Well Number: County: **Collin** **85**

Latitude (dms): **332052** Longitude (dms): **964002** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **Weston WSC  
Well #1**

Driller: **J.L. Myers**

Aquifer ID: **Woodbine**

Aquifer Code: **212WDBN**

**WOODBINE  
SAND**

Depth (ft): **1216**

Elevation (ft): **762**

Source of Depth: **Driller's Log**

Source of Elevation: **Digital Elevation  
Model -DEM**

Date Drilled: **05/00/1963**

Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump**

Power: **Electric Motor**

Horsepower: **15.00**

Construction: **Hydraulic Rotary**

Completion: **Gravel Pack w/Screen**

Casing Material: **Steel**

Screen Material: **Stainless Steel**

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	11	0	26
C	7	0	1134
C	4	1094	1142
S	4	1142	1185
C	4	1185	1212

**WATER USE**

Primary: **Public  
Supply**

Secondary:

Tertiary:

Water Levels: **Historical Observation Well**

Water Quality: **Y**

**33 measurements**

**1971 to 2003**

**MIN -472 MAX -311.83**

Other Data:

Logs: **D**

**REMARKS:**

**Owners well #1. PWS ID #0430050A.  
Pump set at 495 feet. Cemented from  
0 to 1134 feet. Unreamed and  
gravel packed. Historical observa-  
tion well.**

Reporting Agency: **TWDB or Predecessor  
Agency**

Date Collected or Reported: **11/13/2003**

Recorded by:

**D.R. Jones**



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-43-204

Owner's Well No. \_\_\_\_\_

County COLLIN

Q-40

1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_ Survey \_\_\_\_\_

2. Owner: WESTON W.S.C. Address: \_\_\_\_\_

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: J.L. MYERS' SONS Address: \_\_\_\_\_

3. Elevation of LS is 750 ft. above msl, determined by TOPO

4. Drilled: 5 19 63; Dug, Cable Tool, Rotary

5. Depth: Rept. 1216 ft. Meas. \_\_\_\_\_ ft. 13-20

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfg. Red JACKET Type Subm

No. Stages \_\_\_\_\_, Bows Diam. \_\_\_\_\_ in., Setting 495 ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel ELEC Make & Model FRANKLIN HP. 15

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 325 ft. rept. 5 19 63 above which is \_\_\_\_\_ ft. above surface.  
312.83 ft. rept. 4-28 19 71 below e-line hole in base plate which is 1.0 ft. above surface.  
335.90 ft. rept. 11-19 19 74 below (do) which is 1.0 ft. above surface.  
336.0 ft. rept. 2-14 19 77 below AIRLINE 200-159' which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, \_\_\_\_\_

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 4-28-71 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, Myers

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: Nordstrom (Gene DAVIS) Date 2-14 19 77

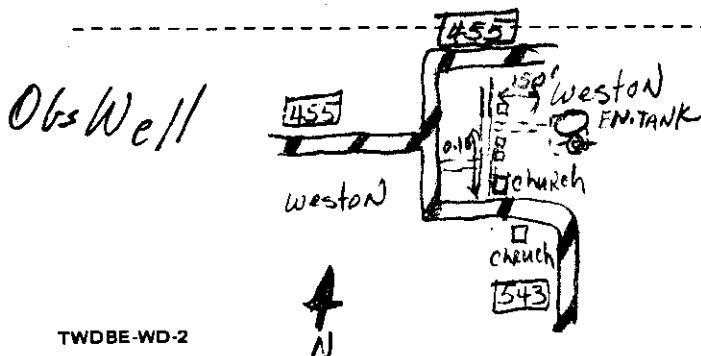
Source of Data J.L. MYERS CO., obs.

16. Remarks:

E-Log Picks / TOP EF @ 245'  
FP WB @ 675'  
Top W @ 1180'

CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)		Type	
		Setting, ft. from to	
10 3/4		Steel	0 26
7		"	+1.5 1134
3		Liner	1094 1212

WELL SCREEN			
Screen Openings		Setting, ft. from to	
Diam. (in.)		Type	
		Setting, ft. from to	
3		SS WOP screen	1142 1157
3		mill slot	1157 1164
3		SS WOP screen	1164 1185



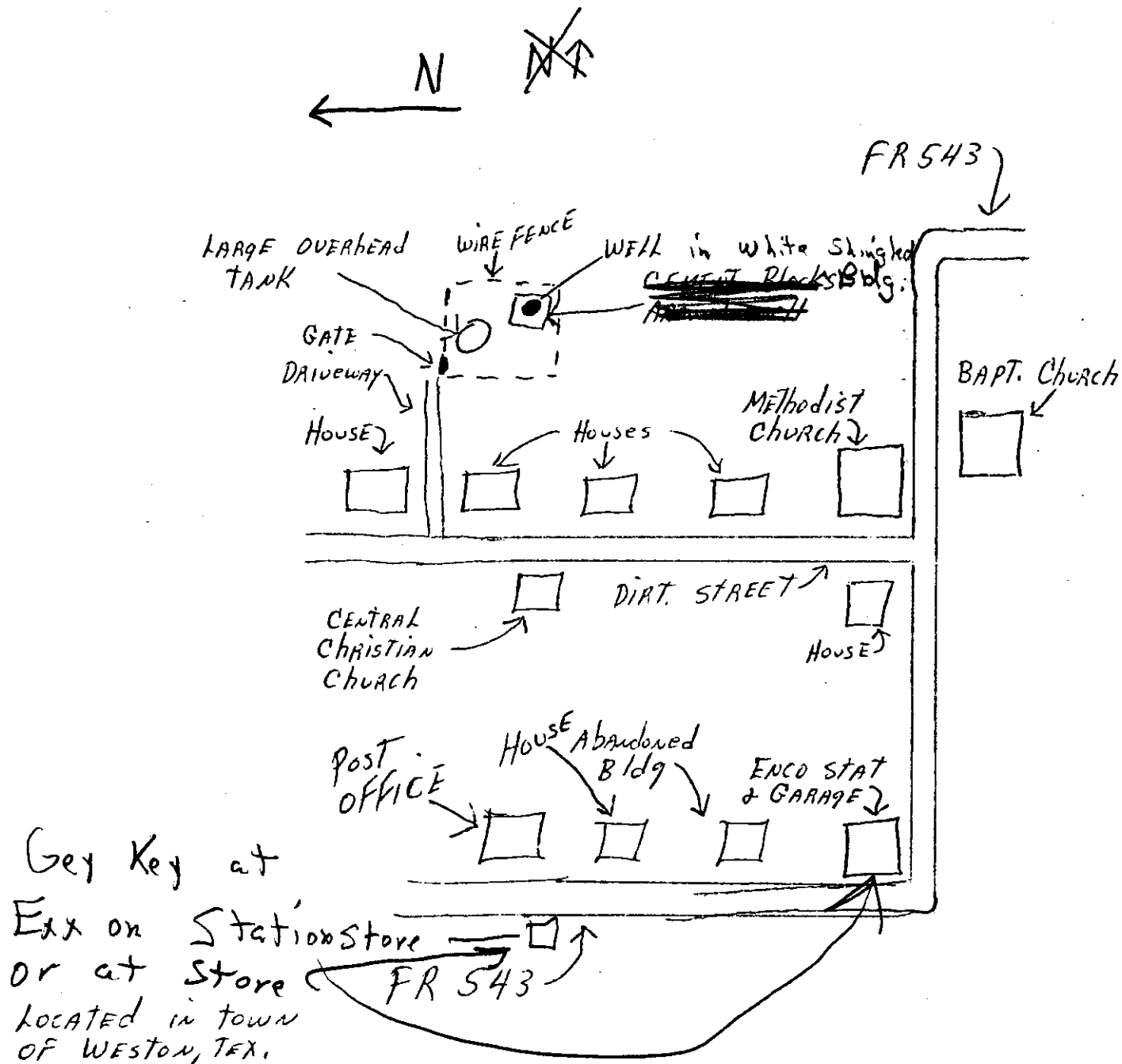
(Sketch)

obs

18-43-204



BY \_\_\_\_\_ DATE \_\_\_\_\_ DIVISION \_\_\_\_\_ SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_  
 CHKD \_\_\_\_\_ DATE \_\_\_\_\_ JOB NAME WESTON Water Supply Corp.  
18-43-204 JOB NO. \_\_\_\_\_ PROG. CODE \_\_\_\_\_



MP= HOLE FOR ELECT LINE  
 which is 1.0 ABOVE LSD



**TEXAS WATER DEVELOPMENT BOARD - WATER LEVEL MEASUREMENTS**

(IN FT.)

OLD WELL NUMBER \_\_\_\_\_ AS OF **02-24-87**  
 WELL LOCATION: LAT. **33-20-55N**  
 LONG. **096-40-00W**  
 YR. REC. BEGINS **71** LAST CHEMICAL ANALYSIS **08-76**

☐ Normal  
☒ Publ.  
☐ USGS

STATE WELL NUMBER DT-18-43-204						LAND SURFACE DATUM ELEVATION 750.00						
DEPTH OF WELL 1216						COMPLETION INTERVAL 1142-1185						
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LAND SURFACE	CHANGE IN LEVEL SINCE LAST STATIC MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	ELEVATION OF DEPTH TO WATER FROM MEAN SEA LEVEL	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
04	28	71	311.83			312.83	+438.17	01	1		1	
11	10	71	319.46	-7.63		320.46	+430.54	01	1		1	
11	15	72						01	1	15	1	
11	06	73						01		15	1	
11	19	74	335.90	-16.44		336.90	+414.10	01	1		1	
11	21	75						01		11	1	
11	19	76	335.00	+0.90		335.00	+415.00	01	3		1	
11	14	77	342.00	-7.00		342.00	+408.00	01	3		1	
10	03	78	365.00	-23.00		365.00	+385.00	01	3		1	
05	02	80						01		42	1	
10	14	80	387.00	-22.00		387.00	+363.00	01	3		1	
03	16	82	407.00	-20.00		407.00	+343.00	01	3		1	
03	17	83	361.45	+45.55		362.45	+388.55	01	1		1	
03	27	84	440.00			440.00	+310.00	01	3	02	1	
03	14	85	390.00	-28.55		390.00	+360.00	01	3		1	
03	06	86	403.00	-13.00		403.00	+347.00	01	3		1	
01	14	87	400.00	+3.00		400.00	+350.00	01	3		1	
01	14	88	397.00			397.00		01	3		1	

**200 - WOODBINE FORMATION**

AQUIFER

WATERSHED **08 - TRINITY RIVER BASIN**

COUNTY **043 - COLLIN**

WELL CLASS AND NUMBER

**CURRENT 18-43-204**

MEASURING POINT (MP)

**+0.00 AS OF 01/14/87**



Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

**TWDB ONLY**

Organization No. 422 Lab No. \_\_\_\_\_

Work No. 6042 (FAC (86-87)-1585)

## CHEMICAL WATER ANALYSIS REPORT

**Send Reply To:**

**Water Availability Data and Studies Section  
Texas Water Development Board  
Stephen F. Austin Building  
1700 Congress Ave.  
Austin, Texas 78711**

Attn: Robert A. Flores Rm. 304-G

County 043 Collin  
State Well No. 18 43 204  
Well No. \_\_\_\_\_  
Date Collected 07 30 87

Owner Weston Water Supply Company ☒ Send copy to owner Sample No. 1 By RAF

Address \_\_\_\_\_ Well Location \_\_\_\_\_

Date Drilled JUNE 1966 Depth 1240 ft. WBF woodbine

--	--	--	--

 Source (type of well) open  
hole

Producing intervals UNKNOWN Water level — ft. Sample depth 

1	2	4	0
---	---	---	---

 ft. 

--	--	--

--	--	--

Sampled after pumping 20 <sup>min.</sup>/<sub>hrs.</sub> Yield      GPM <sup>meas.</sup>/<sub>est.</sub> Temperature 80 °F      °C

Point of collection Faucet at well Appearance ☒ clear ☐ turbid ☐ colored ☐ other

Use P.S. Remarks disconnected chlorinator, ran 1,000 gallons through

(FOR LABORATORY USE ONLY)

## CHEMICAL ANALYSIS

Laboratory No.

Date Received **AUG 03 '87**

Date Reported Aug 24 '87

State No: 18-43-204

WATER ANALYSTS  
Date: 08/1987

Sample No: CB7-1950

	MG/L	ME/L		MG/L	ME/L
Silica:00955:	13		Carbonate:00445:	12	.40
Calcium:00915:	2	.13	Bicarbonate:00440:	759	12.44
Magnesium:00925:	(1	.07	Sulfate:00944:	391	8.15
Sodium:00930:	538	23.39	Chloride:00940:	79	2.23
Potassium:00935:	2	.05	Fluoride:00950:	3	.16
T.Cations		23.64	Nitrate as NO3:71851:	(0.04	0
Manganese:01055:		ZNa_____	T. Anions		23.37
			pH:00403:	8.5	
Boron:01020:		SAR_____			
Total Iron:01045:		RSC_____	TDS(Calc):70301:	1413	
mer_____			P. Alk.:00415:	10	
(Specific Cond.:00025:	1670		T. Alk.:00410:	647	
			T. Hardness:00900:	10	

Diluted Conductance (micromhos/cm<sup>3</sup>)
$$16 \times 157 = 2512$$

items will be analyzed if checked.

OrganicNj trogen:00605:



Texas Water Development Board  
**Chemical Water Analysis Report**

GWR- Rm - 1994 519  
(Anions)

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Attention: Phil Nordstrom

State Well Number: 43 18-38-204

County: Collin

Date & Time: 9-30-93 - 1350

Owner: Weston WSC

☒ Send Copy To Owner

Address: PO Box 158 Weston Tx 75097

Sampled After Pumping: 35 min - Hours

Date Drilled: 1963 Depth: 1216

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: Well Head pH 8.34

Use: PS Temperature: 26.3 °C

By: Ben Mohr

Specific Conductance: 2020

**Requested Chemical Analysis**

Laboratory No.: [REDACTED]

Date Received: OCT. 04 1993

Date Reported: OCT. 29 1993

THD-Sample No.	EB3 2855	Date Received	10/04/93	Date Reported	10/08/93
	MEQ/L	MG/L		MEQ/L	MG/L
Silica	(00955)	11			
			Sulfate	(00946)	8.21 394
			Chloride	(00941)	2.23 79
			Fluoride	(00950)	0.05 0.89
P.Akalinity	(00415)	0.22 11			
T.Akalinity	(00410)	12.92 646			
			Boron	(*****)	2.73
			Bromide	(71870)	0.10 -



Texas Water Development Board  
**Chemical Water Analysis Report**

HM- Rm - 1994. 519  
HM = Heavy Trace and Alkaline-Earth Metals

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Wordsfrom

State Well Number: 43 18-34-204

County: Collin

Date & Time: 9-30-93 1350

Owner: Weston WSC

☒ Send Copy To Owner

Address: \_\_\_\_\_ Sampled After Pumping: 35 min Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_ Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_ Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ron Mohr

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.: 

Date Received: OCT. 04 1993

Date Reported: MAR. 07 1994

Calcium (00915) 2.4 mg/l

Sodium (00930) 509 mg/l

Magnesium (00925) 0.98 mg/l

Potassium (00935) 2.9 mg/l

  \_\_\_\_\_          µg/l

Manganese (01056) <0.5 µg/l

Arsenic (01000) <6.0 µg/l

Mercury (71890) <0.13 µg/l

Barium (01005) 0.7 µg/l

  \_\_\_\_\_

Cadmium (01025) <2 µg/l

Selenium (01145) <4.0 µg/l

Chromium (01030) <4.0 µg/l

Silver (01075) <10 µg/l

Copper (01040) <2.0 µg/l

Strontium (01080) >82 µg/l

Iron (01046) <4.0 µg/l

  \_\_\_\_\_

Lead (01049) <5 µg/l

Zinc (01090) <5.0 µg/l



# Water Quality Sampling Run

\* SWN: 18-43-204  
 County: Collin  
 Aquifer(s): 212 WD.BN

Name: Ed Weston WSC Sample No. GW-Rm-1774-519  
 Address: PO Box 158 Date: 9-30-93  
Weston TX 75097 By: Ron Mohr

Bottle 1		Bottle 2		Bottle 3		Bottle 4		Bottle 5		Bottle 6		Bottle 7		Total	
1 liter		1 liter		1 liter		500 ml		1 Qt.(glass)						SUB-Samples <u>4</u>	
Anions		Cations		Radioactivity		Nitrate		(TOC)		Organics					
Preserve with:		2 ml		2 ml		1 ml								All filtered unless otherwise stipulated. All on ice.	
		HNO <sub>3</sub> (Nitric)		HNO <sub>3</sub> (Nitric)		H <sub>2</sub> SO <sub>4</sub> (Sulfuric)									
Water Level		LSD		Remark										Starting pH <u>8.38</u>	
Temperature (00010)		<u>26.3</u> c												<u>32.2</u> ml. of 0.02N to	
Specific Conductance (00094)		<u>8.34</u>												<u>50</u> ml. of Sample	
pH (00400)		<u>8.34</u>												Ending pH <u>4.51</u>	
Eh (00090)		<u>-117.4</u> mv.													
Phenol ALK (82244)		<u>-</u> mg/l													
Total ALK (39086)		<u>644</u> mg/l													
Carbonate (00452)		<u>meq/l</u>													
Bicarbonate (00453)		<u>meq/l</u>													
Total Cations(+)															
Total Anions (-)															
Total Hardness (46570)		<u>10</u>													
Dissolved Solids(70301)		<u>1390</u>													

Time	1325	1330	1335	1340	1345	1350	ml.	pH	ml.	pH	ml.	pH
pH:	8.41	8.38	8.37	8.35	8.34	8.34	.5	8.34	10	6.87	29	5.2
Temp:	26.0	26.1	26.1	26.3	26.3	26.3	.7	8.22	12	6.72	30	5.35
Eh:							.9	8.18	14	6.58	31	5.13
Cond.	2000	2000	1977	1992	2000	2020	1.1	8.12	16	6.45	32	4.68
other notes:												
1.3 8.07 18 6.35 32.1 4.61												
1.5 8.03 20 6.32 32.3 4.51												
2. 7.90 22 6.16												
4 7.46 24 5.96												
6 7.32 26 5.82												
8 7.04 28 5.63												



Texas Water Development Board  
**Chemical Water Analysis Report**

RAD - RM - 1994 - 519  
RAD = Radioactivity Sample

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom

State Well Number: 18-<sup>43</sup>~~34~~-204

County: Collin

Date & Time: 9-30-93 1350

Owner: Weston WSC

☒ Send Copy To Owner

Address: \_\_\_\_\_

Sampled After Pumping: 35 min Hours \_\_\_\_\_

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ken Mohr

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.: 

Date Received: OCT. 04 1993

Date Reported: DEC. 21 1993

Alpha (01503) < 4.0 pCi/l

Beta (03503) < 4.0 pCi/l



Texas Water Development Board  
**Chemical Water Analysis Report**

GWN- Rm 1994-519  
(Nitrogen Cycle)

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom

State Well Number: 43 18-34-204

County: Collin

Date & Time: 9-30-93 1350

Owner: Weston WSC

☒ Send Copy To Owner

Address: \_\_\_\_\_

Sampled After Pumping: 35 min Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ron Maher

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No. [REDACTED]

Date Received: OCT. 04 1993

Date Reported: OCT. 29 1993

THD-Sample No. EB3 2877

Date Received 10/04/93

Date Reported 10/29/93

00623-

1.8 TKN as N mg/L

00608-

1.70 Ammonia as N mg/L

00613-

0.01 Nitrite as N mg/L

00618-

0.01 Nitrate as N mg/L



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(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDBE-GW ONLY

Program No. \_\_\_\_\_

Proj. No. 6025

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18-43-204  
Well No. \_\_\_\_\_  
Date Collected 08-10-76  
By Gene Davis

Location \_\_\_\_\_  
Source (type of well) Sub-Elect Owner Weston W.S.C.  
Date Drilled June 1976 Depth 1240 ft. WBF Woodbine  
Producing intervals \_\_\_\_\_ Water level 335.90 ft. (1974)  
Sampled after pumping 2 hrs. Yield 50 GPM Mass est. Temperature 080 °F \_\_\_\_\_ °C  
Point of collection TAP AT Well Appearance ☒ clear ☐ turbid ☐ colored ☐ other  
Use P.S. Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

Laboratory No. 318561

Date Received 10/18/76

KEY PUNCHED

Date Reported OCT. 18. 1976

	MG/L	ME/L
Silica	<u>12</u>	
Calcium	<u>5</u>	<u>0.25</u>
Magnesium	<u>1</u>	<u>0.06</u>
Sodium	<u>530</u>	<u>23.07</u>
Total		<u>23.38</u>
<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		%Na _____
<input type="checkbox"/> Boron		SAR _____
<input checked="" type="checkbox"/> Total Iron	<u>0.4</u>	RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 2080

Diluted Conductance (micromhos/cm<sup>3</sup>) 16 x 156

☐ " " items will be analyzed if checked.

1 The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2 Nitrogen cycle requires separate sample.

3 Total Iron requires separate sample.

TWDBE-WD-1 (Rev. 2-17-76)

	MG/L	ME/L
Carbonate	<u>28</u>	<u>0.92</u>
368 Bicarbonate	<u>250</u>	<u>12.28</u>
Sulfate	<u>398</u>	<u>8.28</u>
Chloride	<u>79</u>	<u>2.22</u>
Fluoride	<u>3.0</u>	<u>0.16</u>
Nitrate	<u>40.4</u>	
pH	<u>8.2</u>	Total <u>23.86</u>
<u>1</u> Dissolved Solids (sum in MG/L)		<u>1430</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub>	<u>(0.46)</u>	<u>23</u>
Total Alkalinity as CaCO <sub>3</sub>	<u>(13.20)</u>	<u>660</u>
Total Hardness as CaCO <sub>3</sub>	<u>(10.31)</u>	<u>16</u>
<u>2</u> Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



TWD8E-GW ONLY

Program No. 7429

Proj. No. \_\_\_\_\_

## CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin 5, Texas

Send report to:

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County CollinState Well No. 18-43-204

Well No. \_\_\_\_\_

Date Collected 4-28-71By CUNNINGHAM FOR: WYATTLocation IN TOWN OF WESTONSource (type of well) SUBMERSIBLE Owner TOWN OF WESTONDate Drilled JUNE, 1966 Depth 1240 1216 ft. WEF WoodbineProducing intervals \_\_\_\_\_ Water level 311.83 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection FACET AT BAPT. CHURCH Appearance CLEAR

clear - turbid - colored

Use Public Supply Remarks Mail Copy to: MR. HERMAN HAYES, RT.1, COLINA, TEX. 75009

FOR LABORATORY USE ONLY

## CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. 1028001 Date Received MAY 6 1971 Date Reported MAY 14 1971

	MG/L	ME/L
Silica	<u>11</u>	
Calcium	<u>3</u>	<u>0.17</u>
Magnesium	<u>2</u>	<u>0.19</u>
Sodium	<u>530</u>	<u>23.10</u>
Total		<u>23.46</u>

☐ Potassium \_\_\_\_\_☐ Manganese \_\_\_\_\_ %Na \_\_\_\_\_☐ Boron \_\_\_\_\_ SAR \_\_\_\_\_☐ Total Iron \_\_\_\_\_ RSC \_\_\_\_\_☐ (other) \_\_\_\_\_Specific Conductance (micromhos/cm<sup>3</sup>) 2040Diluted Conductance (micromhos/cm<sup>3</sup>) 16 x 153"□" items will be analyzed if checked. 2448

Total Iron requires separate sample.

	MG/L	ME/L
Carbonate	<u>1</u>	<u>0.04</u>
Bicarbonate	<u>780</u>	<u>12.78</u>
Sulfate	<u>396</u>	<u>8.25</u>
Chloride	<u>80</u>	<u>2.25</u>
Fluoride	<u>3.1</u>	<u>0.16</u>
Nitrate	<u>&lt;0.4</u>	
pH	<u>8.4</u>	
Total		<u>23.48</u>

1/Dissolved Solids (sum) 1410Phenolphthalein Alkalinity as C aCO<sub>3</sub> (0.02) 1Total Alkalinity as C aCO<sub>3</sub> (12.82) 640Total Hardness as C aCO<sub>3</sub> (0.36) 18

Analyst \_\_\_\_\_

Checked by \_\_\_\_\_

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.



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(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY	
Program No. _____	Lab No. <u>03</u>
Work No. _____	

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

CATIONS  
/ ANIONS

County	<u>043</u> <u>COLLIN</u>
State Well No.	<u>18</u> <u>43</u> <u>204</u>
Well No.	_____
Date Collected	<u>05</u> <u>06</u> <u>63</u>

Location	_____	Sample No.	<u>  </u>	By	_____
Source (type of well)	_____	Owner	<u>Weston</u>	_____	
Date Drilled	<u>5-63</u>	Depth	<u>1216</u>	ft. WBF	<u>KGW</u>
Producing intervals	_____	Water level	_____	ft. Sample depth	<u>  </u> <u>  </u> <u>  </u>
Sampled after pumping	_____	hrs. Yield	_____	GPM <sup>meas.</sup> <sub>est.</sub>	<u>  </u> <u>  </u> <u>  </u>
Point of collection	<u>well</u>	Appearance	<input type="checkbox"/> clear <input type="checkbox"/> turbid <input type="checkbox"/> colored <input type="checkbox"/> other	Temperature	<u>  </u> <u>  </u> <u>  </u> °F <u>  </u> <u>  </u> <u>  </u> °C
Use	<u>P</u>	Remarks	_____		

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

### KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Calcium	<u>  </u> <u>  </u> <u>  </u> <u>4</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Magnesium	<u>  </u> <u>  </u> <u>  </u> <u>1</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Sodium	<u>  </u> <u>5</u> <u>7</u> <u>0</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Total	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
<input type="checkbox"/> Potassium	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
<input type="checkbox"/> Manganese	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
<input type="checkbox"/> Boron	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
<input checked="" type="checkbox"/> Total Iron	<u>  </u> <u>  </u> <u>  </u> <u>5</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>

<input type="checkbox"/> (other) _____	MG/L
Specific Conductance (micromhos/cm <sup>3</sup> )	<u>2739</u>
Diluted Conductance (micromhos/cm <sup>3</sup> )	<u>  </u> <u>  </u> <u>  </u> <u>  </u>

☐ " " items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron requires separate sample.

	MG/L	ME/L
Carbonate	<u>  </u> <u>1</u> <u>1</u> <u>8</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Bicarbonate	<u>  </u> <u>6</u> <u>4</u> <u>0</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Sulfate	<u>  </u> <u>3</u> <u>4</u> <u>8</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Chloride	<u>  </u> <u>  </u> <u>9</u> <u>2</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Fluoride	<u>  </u> <u>2</u> <u>  </u> <u>7</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Nitrate	<u>&lt;</u> <u>  </u> <u>  </u> <u>4</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
pH	<u>9</u> <u>  </u> <u>  </u> <u>2</u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Total	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
<sup>1</sup> Dissolved Solids (sum in MG/L)	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>1450</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>98</u>
Total Alkalinity as CaCO <sub>3</sub>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>720</u>
Total Hardness as CaCO <sub>3</sub>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>13</u>
<sup>2</sup> Nitrogen Cycle	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Ammonia - N	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Nitrite - N	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Nitrate - N	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>
Organic Nitrogen	<u>  </u> <u>  </u> <u>  </u> <u>  </u>	<u>  </u> <u>  </u> <u>  </u> <u>  </u>



**SWN:** 18-43-204

County: Collins

**Aquifer(s):** 212 WOBN

Sample No. 20-1998-818

Date: 10-23-97

By: Robert Orment

Name: City of Weston

Address: P.O. BX 158

Weston, TX 75097

## owner's well #

Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total SUB-Samples
500 ml Anions	1 liter Cations	250 ml Nitrate	1 liter <del>Nitrate</del>				
	2 ml HNO <sub>3</sub> (Nitric)	0.5 ml H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	2 ml HNO <sub>3</sub> (Nitric)				All filtered unless otherwise stipulated
	LSD	Remark	Time in	Sample time	well use	Starting pH	
Water Level			Time out	15:50	15:45	20.2 ml. of 0.02N to	
Temperature (00010)	25.6 °C		Weather	Rainy	P	50 ml. of Sample	
Specific Conductance (00094)	1880 umhos/cm		Outside Temp	65°		Ending pH	4.53
pH (00400)	8.07		Sampling point	FACU			
Eh (00090)	59.2 mv.		Time:	15:15	15:20	15:25	
Phenol ALK (82244)		mg/l	pH:	8.03	8.06	8.07	
Total ALK (39086)		mg/l	Temp:	25.4	25.6	25.6	
Carbonate (00452)		meq/l	Eh:		59.2		
Bicarbonate (00453)		meq/l	Cond.	19.0	18.90	18.80	
Total Cations(+)			other notes:				
Total Anions (-)							
Total Hardness (00900)							
Dissolved Solids							



# FINAL ANALYSIS REPORT

LAB ID: 9802453

FACILITY: TWDB

ACCT NO:

TX Water Dev. Board

SAMPLE DESCRIPTION: Groundwater

SAMPLE DATE: 10/23/97

SAMPLE TIME: 1545

DATE RECEIVED: 10/24/97

REPORT DATE: 01/02/98

LOCATION ID: 18-43-204

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Alkalinity, Phenol.	12	mg/L	00415	0	11/05/97
Alkalinity, Total	611	mg/L	00410	1	11/05/97
Bromide	<0.50	mg/L	71870	0.05	10/29/97
Chloride	69.6	mg/L	00941	1.0	10/29/97
Fluoride	3.10	mg/L	00950	0.03	10/29/97
Nit., Nitrate/Nitrite	<0.060	mg/L	00630	0.060	10/31/97
Nitrogen, Kjeldahl	1.190	mg/L	00623	0.100	11/10/97
Nitrogen, ammonia	0.210	mg/L	00608	0.050	11/13/97
Phosphorus, Total	0.160	mg/L	00665	0.100	11/18/97
Silica	9.57	mg/L	00955	1.00	11/17/97
Sulfate	374.00	mg/L	00946	0.05	10/29/97
Aluminum, Dis. ICPMS	3.0	ug/L	01106	1.0	11/12/97
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	11/12/97
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	11/12/97
Barium, Diss. ICPMS	12.6	ug/L	01005	1.0	11/12/97
Beryllium, Dis ICPMS	<2.0	ug/L	01010	1.0	11/12/97
Boron, Diss. ICPMS	3423.0	ug/L	01020	5.0	11/12/97
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	11/12/97
Calcium, Dissolved	2.37	mg/L	00915	0.50	11/06/97
Chromium, Diss ICPMS	12.1	ug/L	01030	1.0	11/12/97
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	11/12/97
Copper, Diss. ICPMS	12.2	ug/L	01040	1.0	11/12/97
Iron, Dissolved	57.00	ug/L	01046	0.01	11/06/97
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	11/12/97
Lithium, Diss. ICPMS	34.3	ug/L	01130	2.0	11/12/97
Magnesium, Dissolved	<1.00	mg/L	00925	0.05	11/06/97
Manganese, Dis ICPMS	5.4	ug/L	01056	1.0	11/12/97
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	11/12/97
Nickel, Diss. ICPMS	<1.0	ug/L	01065	1.0	11/12/97



# FINAL ANALYSIS REPORT

LAB ID: 9802453      SAMPLE DESCRIPTION: Groundwater  
 FACILITY: TWDB      SAMPLE DATE: 10/23/97  
 ACCT NO:      SAMPLE TIME: 1545  
          TX Water Dev. Board  
                  DATE RECEIVED: 10/24/97  
                  REPORT DATE: 01/02/98

LOCATION ID: 18-43-204

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Potassium, Dissolved	1.93	mg/L	00935	1.00	11/06/97
Selenium, Dis. ICPMS	<5.0	ug/L	01145	5.0	11/12/97
Sodium, Dissolved	532.00	mg/L	00930	0.10	11/06/97
Strontium, Dis ICPMS	259.4	ug/L	01080	1.0	11/12/97
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	11/12/97
Vanadium, Diss ICPMS	2.7	ug/L	01085	1.0	11/12/97
Zinc, Diss. ICPMS	2.4	ug/L	01090	2.0	11/12/97

COMMENTS: See attached subcontracted analyses.



# TEXAS DEPARTMENT OF WATER RESOURCES—WATER LEVEL MEASUREMENTS (IN FT.)

AS OF 05-01-84

OLD WELL NUMBER

COORDINATES 33-20-55N  
096-40-00W

☒ Normal  
☐ Publ.  
☐ USGS

YR. REC. BEGINS 71

LAST CHEMICAL ANALYSIS 08-76

STATE WELL NUMBER DT-18-43-204						LAND SURFACE DATUM ELEVATION 750.00						
DEPTH OF WELL 1216						COMPLETION INTERVAL 1142-1185						
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LSD	CHANGE IN LEVEL SINCE THE LAST MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	MP	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
04	28	71	311.83			312.83	+1.00	01	1		1	
11	10	71	319.46	-7.63		320.46	+1.00	01	1		1	
11	15	72					+1.00	01	1	15	1	
11	06	73					+1.00	01		15	1	
11	19	74	335.90			336.90	+1.00	01	1		1	
11	21	75					+1.00	01		11	1	
11	19	76	335.00			335.00	+0.00	01	3		1	
11	14	77	342.00	-7.00		342.00	+0.00	01	3		1	
10	03	78	365.00	-23.00		365.00	+0.00	01	3		1	
05	02	80					+0.00	01		42	1	
10	14	80	387.00			387.00	+0.00	01	3		1	
03	16	82	407.00	-20.00		407.00	+0.00	01	3		1	
03	17	83	361.45	+45.55		362.45	+1.00	01	1		1	
03	27	84	440.00	-78.55		440.00	+0.00	01	3	02	1	
5	14	87	390.00			390.00	0.00	1	3		1	
3	6	87	403.00			403.00	0.00	1	3		1	
1	14	87	400.00			400.00						
1	14	88	397.00									
1	18	88	401.00			401.00	0.00		3		1	
1	22	90					+0.00	01	3	48	1	A.L. Leaking
1	9	91					+0.00			63		Dennis Watson

AQUIFER 200 - WOODBINE FORMATION

WATERSHED 08 - TRINITY RIVER BASIN

COUNTY 043 - COLLIN

CURRENT 18-43-204

with Myers gave  
mp a removable  
fitting.



TRAVIS  
972 631 3493

8-42-2011





Texas Water Development Board  
Well Schedule

groundwater resources  
division

State Well Number: **18-44-203** Previous Well Number: County: **Collin** **85**

Latitude (dms): **332054** Longitude (dms): **963253** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Anna**  
**Old well #1**

Driller:

Aquifer ID: **Woodbine**

Aquifer Code: **212WDBN**

Depth (ft): **1065**

Elevation (ft): **711**

**WOODBINE  
SAND**

Source of Depth: **Memory of  
Owner**

Source of Elevation: **Digital Elevation  
Model -DEM**

Date Drilled: **00/00/1911**

Well Type: **Withdrawal of Water**

Type of Lift: **None**

Power:

Horsepower:

Construction:

Completion:

Casing Material: **Steel**

Screen Material:

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
--	---------------	--------------	-----------------

C	6		
---	---	--	--

WATER USE

Primary: **Plugged or  
Destroyed**

Secondary:

Tertiary:

Water Levels: **Miscellaneous Measurements**

Water Quality: **Y**

**1 measurement**

**1943**

**-148.7**

Other Data:

Logs:

REMARKS:

Reported yield 50 gpm. Owners old  
well #1. Plugged PS well.

Reporting Agency: **TWDB or Predecessor  
Agency**

Date Collected or Reported: **10/27/1976**

Recorded by:

D.R. Jones



TEXAS WATER DEVELOPMENT BOARD  
WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-44-203

Owner's Well No. \_\_\_\_\_

County COLLIN

1. Location: 1/4, 1/4 Sec. Block \_\_\_\_\_ Survey \_\_\_\_\_

at general store E of RR in center of Anna

2. Owner: CITY OF ANNA Address: \_\_\_\_\_

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: \_\_\_\_\_ Address: \_\_\_\_\_

3. Elevation of Top is 710 ft. above msl, determined by Topo

4. Drilled: 19 11; Dug, Cable Tool, Rotary, \_\_\_\_\_

5. Depth: Rept. 1065 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed \_\_\_\_\_

7. Pump: Mfr. Peerless Type Hi-Lift

No. Stages \_\_\_\_\_, Bows Diam. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel Electric Make & Model \_\_\_\_\_ HP. 7 1/2

9. Yield: Flow \_\_\_\_\_ gpm, Pump 50 gpm, Meas., (Rept.) 1943

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 149.70 ft. rept. 3-21 1943 above pump base

ft. rept. 19 above surface. which is 1 ft. above surface.  
ft. rept. 19 below surface. which is \_\_\_\_\_ ft. above surface.  
ft. rept. 19 below surface. which is \_\_\_\_\_ ft. above surface.  
ft. rept. 19 below surface. which is \_\_\_\_\_ ft. above surface.  
ft. rept. 19 below surface. which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, plugged

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 2-19-43 Laboratory USGS

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: P. NORDSTROM Date 10-27 1976

Source of Data CITY, obs, Mrs. Shirley

16. Remarks: \_\_\_\_\_


CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
<u>6</u>	<u>Steel</u>		

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	
		to	

see -201



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Program No. \_\_\_\_\_ Lab No. 03

Work No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18-44-203  
Well No. \_\_\_\_\_  
Date Collected 07-29-46

Location \_\_\_\_\_ Sample No.      By \_\_\_\_\_  
Source (type of well) \_\_\_\_\_ Owner Anna  
Date Drilled 1941 Depth 1065 ft. WBF KGW  
Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth      ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM <sup>meas.</sup><sub>est.</sub> Temperature      °F      °C  
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other  
Use P Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<u>40</u>	
Calcium	<u>52</u>	
Magnesium	<u>35</u>	
Sodium	<u>1224</u>	
Total		
<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		
<input type="checkbox"/> Boron		
<input checked="" type="checkbox"/> Total Iron	<u>1.2</u>	

☐ (other) \_\_\_\_\_ MG/L  
Specific Conductance (micromhos/cm<sup>3</sup>)       
Diluted Conductance (micromhos/cm<sup>3</sup>)      X

☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

	MG/L	ME/L
Carbonate		
Bicarbonate	<u>738</u>	
Sulfate	<u>796</u>	
Chloride	<u>1065</u>	
Fluoride	<u>2.3</u>	
Nitrate	<u>4</u>	
pH	<u>7.8</u>	
Total		

1/ Dissolved Solids (sum in MG/L)	<u>3578</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub>	<u>6</u>
Total Alkalinity as CaCO <sub>3</sub>	<u>605</u>
Total Hardness as CaCO <sub>3</sub>	<u>274</u>
2/ Nitrogen Cycle	
Ammonia - N	
Nitrite - N	
Nitrate - N	
Organic Nitrogen	



~~Texas State Department of Health Laboratories~~  
~~1400 West 40th Street~~  
~~Austin, Texas 78756~~  
~~U.S.G.S.~~

Program No. \_\_\_\_\_  
Proj. No. \_\_\_\_\_

0 43 COLLIN  
County  
18-44-203  
State Well No.  
Well No. 1a  
02-19-43  
Date Collected  
By U.S.G.S.

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



## TEXAS DEPARTMENT OF WATER RESOURCES

## WELL SCHEDULE

Aquifer(s) Woodbine Project No. \_\_\_\_\_ State Well No. 18-44-702Field No./Owner's Well No. \_\_\_\_\_ County Collin

1. Location: \_\_\_\_\_, Section \_\_\_\_\_, Block \_\_\_\_\_, Survey \_\_\_\_\_, Longitude \_\_\_\_\_, Latitude \_\_\_\_\_

2. Owner: Crump's Gardens Inc. Address: Rt. 4, McKinney, TX. 75069Tenant (other): (Tom Crump) Address: \_\_\_\_\_Driller: J. L. Meyers & Sons Address: Dallas3. Land Surface Elevation: 610 ft. above msl determined by Topo4. Drilled: 8-1 19 64; Dug, Cable Tool, Rotary Air, \_\_\_\_\_5. Depth: Rept. 1136 ft. Meas. \_\_\_\_\_ ft.6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed7. Pump: Mfr. Reda Type Subm.No. Stages \_\_\_\_\_, Bwls Diam. \_\_\_\_\_ in., Setting 447 ft.Column Diam. 1 1/4 in., Length Tailpipe \_\_\_\_\_ ft.8. Motor: Mfr. \_\_\_\_\_ Fuel Elec. HP. 2

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_ Date \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Analyses \_\_\_\_\_

Date \_\_\_\_\_ Laboratory \_\_\_\_\_ TDS \_\_\_\_\_ Sp Cond \_\_\_\_\_

Date \_\_\_\_\_ Laboratory \_\_\_\_\_ TDS \_\_\_\_\_ Sp Cond \_\_\_\_\_

12. Other data available as circled: Pumping test, Power & Yield Test, DrillersLogs, Formation Samples, Geophysical Log(s) \_\_\_\_\_ (type) \_\_\_\_\_

13. Water Level(s): \_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ which is \_\_\_\_\_ ft. above \_\_\_\_\_

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ below \_\_\_\_\_ which is \_\_\_\_\_ ft. below \_\_\_\_\_

14. Use: Dom., Stock, Public Supply, Ind., Irr., Observation, Other (Test Hole, Oil Test, etc.) \_\_\_\_\_15. Recorded by: J. Denton Source of data: TWDB sched. + obs. Date: 11-2-78

16. Remarks: \_\_\_\_\_

17. Location or Sketch: \_\_\_\_\_

MP = E-line Hole  
+ 0.50'

Hist

W/L Obs. Well \_\_\_\_\_ W/Q Obs. Well \_\_\_\_\_

State Well No. 18-44-702



TEXAS DEPARTMENT OF WATER RESOURCES—WATER LEVEL MEASUREMENTS (IN FT.)

AS OF 05-01-84

OLD WELL NUMBER

COORDINATES 33-15-30N  
096-37-15W

☒ Normal  
☐ Publ.  
☐ USGS

YR. REC. BEGINS 71

LAST CHEMICAL ANALYSIS 03-83

STATE WELL NUMBER 07-18-44-702						LAND SURFACE DATUM ELEVATION 610.00						
DEPTH OF WELL 1136						COMPLETION INTERVAL 1102-1112						
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LSD	CHANGE IN LEVEL SINCE THE LAST MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	MP	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
04	28	71	304.46			304.96	+0.50	01	1		4	
11	10	71	306.96	-2.50		307.46	+0.50	01	1		4	
11	16	72	310.96	-4.00		311.46	+0.50	01	1		4	
11	07	73	321.70	-10.74		322.20	+0.50	01	1	02	4	
11	19	74	318.17	+3.53		318.67	+0.50	01	1		4	
11	21	75	321.20	-3.03		321.70	+0.50	01	1		4	
11	19	76	320.02	+1.18		320.52	+0.50	01	1		4	
11	18	77	332.10	-12.08		332.60	+0.50	01	1		4	
10	10	78					+0.50	01		11	4	
05	02	80					+0.50	01		42	4	
10	14	80	342.30			342.80	+0.50	01	1		4	
03	19	82	345.64	-3.34		346.14	+0.50	01	1		4	
03	18	83	352.91	-7.27		353.41	+0.50	01	1		4	
03	27	84					+0.50	01		14	4	
03	14	85	365.50			366.00	0.50	01	1		4	
3	6	86	367.00			367.50	.50	1	1		4	
1	14	87	369.49			369.99	.50	1	1		4	
3	21	88	369.44			369.94	.50	1	1		4	
3	1	89					.50	1		44	4	
<del>LP</del>												
<del>7-26-94 369.50</del>												

AQUIFER 200 - WOODBINE FORMATION

WATERSHED 08 - TRINITY RIVER BASIN

COUNTY 043 - COLLIN

071 I

Hist.

CURRENT 18-44-702



# TEXAS DEPARTMENT OF WATER RESOURCES—WATER LEVEL MEASUREMENTS

AS OF

OLD WELL NUMBER

COORDINATES

YR. REC. BEGINS

LAST CHEMICAL ANALYSIS

- ☐ Normal
- ☐ Publ.
- ☐ USGS

STATE WELL NUMBER DEPTH OF WELL				LAND SURFACE DATUM ELEVATION COMPLETION INTERVAL								
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LSD	CHANGE IN LEVEL SINCE THE LAST MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	MP	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
1	25	90	372.00	✓		372.50	.50	01	1			
1	24	91	374.30	✓		374.80	.50					
2	13	92	369.70			370.20	.50					
2	3	93	369.10			370.60	.50					
<del>1</del>	<del>27</del>	<del>94</del>										
11	8	93	374.10			374.60	.50					
1	27	94	372.30			372.80	.50	01	1	I		
11	10	95	—			—	.50	01				owner helped could not get tape in past 10
11	07	96	387.05			387.55	.50	01	11	✓		
11	17	97	385.40	✓		385.90	.50	01	1	25/20 T		
11	19	98	—		RF	—		01		62		FIREANTS
11	9	99	—		BS	—		01		62		11
11	16	00	X		JA			01		62		

AQUIFER

WATERSHED

COUNTY

Hgt.  
18-44-702



TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-44-702

Owner's Well No. \_\_\_\_\_

County COLLIN

1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_, Survey \_\_\_\_\_

5 miles N. of McKinney

2. Owner: CRUMP'S GARDENS Inc. Address: Rt. 4, McKinney 75069

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: J.L. MYERS' SONS Address: Dallas

3. Elevation of LS is 610 ft. above msl, determined by TOPO

4. Drilled: 8-1 19 64; Dug, Cable Tool, Rotary

5. Depth: Rept. 1136 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. Reda Type Submersible

No. Stages \_\_\_\_\_, Bowls Diam. \_\_\_\_\_ in., Setting 447 ft.

Column Diam. 1 1/4 in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel electric Make & Model \_\_\_\_\_ HP. 2

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 308 ft. rept. 8-1 19 64 above ground level which is \_\_\_\_\_ ft. above surface.

304.96 ft. rept. 4-28 19 71 below re-line hole which is 0.5 ft. below surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ below surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ below surface.

12. Use: Dom., Stock, Public Supply, Ind. Irr. Waterflooding, Observation, Not Used, \_\_\_\_\_

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 4-28-71 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis 11-10-71 Laboratory "

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: D. Cunningham Gene Davis Date 4-28 19 71

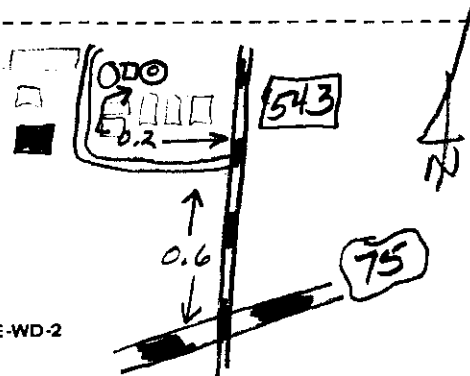
Source of Data 3-4-77

16. Remarks: \_\_\_\_\_

CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
8	steel	0	29
4 1/2	"	0	1136

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
4 1/2	10 shots gun perf.	1102	1112

Obs Well



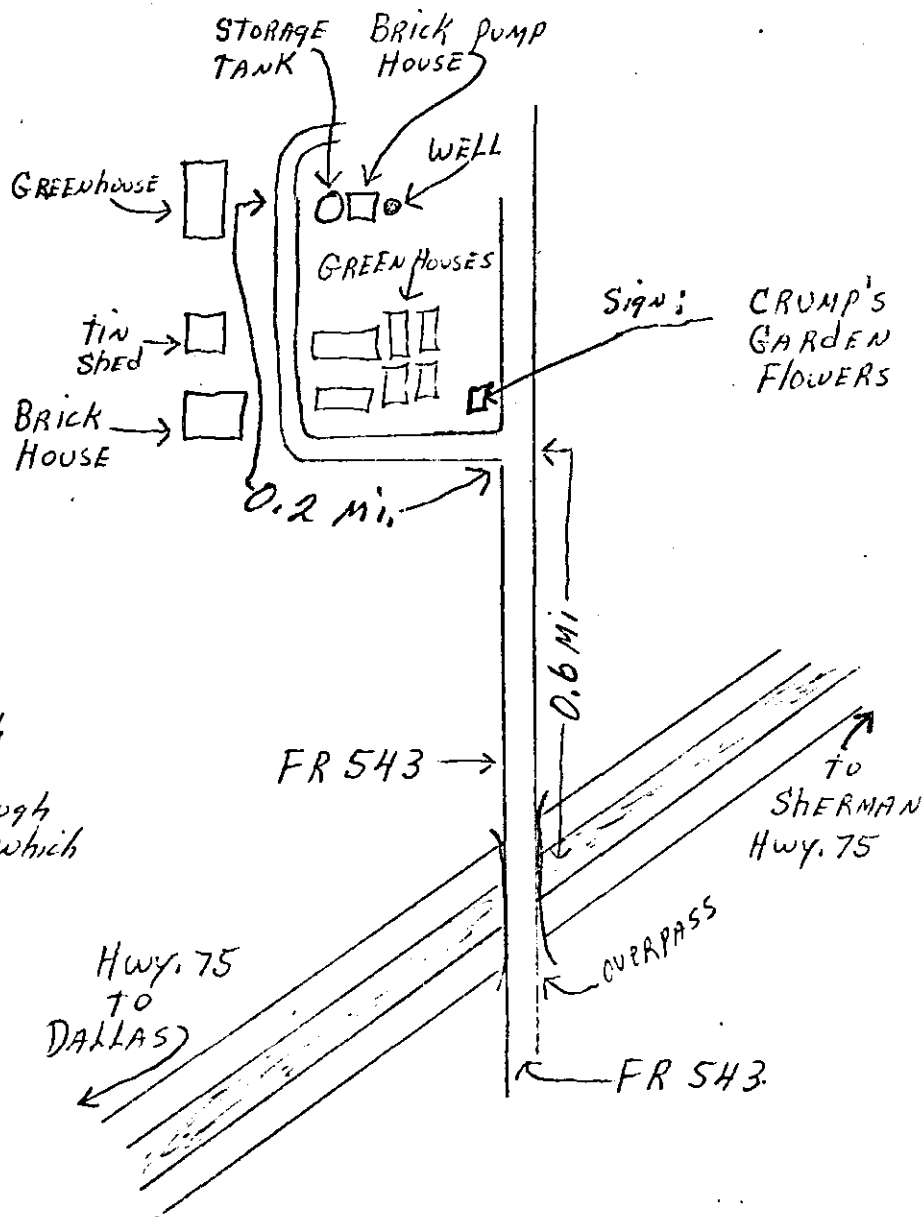
obs

18-44-702



BY \_\_\_\_\_ DATE \_\_\_\_\_ DIVISION \_\_\_\_\_ SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_  
 CHKD \_\_\_\_\_ DATE \_\_\_\_\_ JOB NAME CRUMPS GARDENS INC.  
18-44-702 JOB NO. \_\_\_\_\_ PROG. CODE \_\_\_\_\_

N ↑



WELL IS COVERED WITH  
 IRON COVER. REMOVE  
 COVER & MEASURE THROUGH  
 HOLE FOR ELECT. LINE WHICH  
 IS 0.5 ABOVE LSD



18-44-702



WATER IS OUR BUSINESS . . . OVER SIXTY YEARS

1909 HIGHLAND • DENTON, TEXAS • DUPONT 2-4196

**DRILLER'S LOG**

Well Owner: Crump's Gardens  
Well Location: Approx. 5 miles N. of McKinney, Collin County, Texas  
Well Drilled By: J. L. Myers Sons Denton & Dallas, Texas  
Well Completed: 8/1/64 Driller: J. L. Madewell

Depth of Strata	Thickness	Formation
0-3	3	Surface Soil
3-27	24	Clay
27-350	323	Chalk
350-871	521	Shale
871-923	52	Sandy Shale
923-954	31	Sand
954-1076	122	Shale-Streaks Sand
1076-1110	34	Sand
1110-1136	26	Shale

**Casing Record:**

0-29 29' Of Surface Pipe Cemented in place  
0-1136 1136' Of 4½" O. D. Pipe cemented with 100 sacks cement

Well Gun Perforated from 1102' to 1112' with 10 shots

**Pump Record:**

1 - Model 42361 - Serial #23C24 - 2 HP Reda Submersible Pump  
447' Of 1½" Galv. Pipe  
457' Of #6-3C Cable  
1 - 220 Gallon Pressure Tank

Water Level 308'

DT 18-44-702



Deep Well Turbine



Pumps & Windmills



Fairbanks Morse  
Domestic & Centrifugal



Submersible



Jensen Jacks



Byron Jackson  
Submersible



Floless Controls



Texas Water Development Board  
**Chemical Water Analysis Report**

GWR- Rm - 1994 517  
(Anions)

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom State Well Number: 18-44-702  
County: Collin Date & Time: 9-29-93 1050  
Owner: Crumps Gardens Inc ☒ Send Copy To Owner  
Address: Rt 4 McKinney Tx 75070 Sampled After Pumping: 40 min Hours  
Date Drilled: 1969 Depth: 1136 Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated  
Collection Point: Faucet pH 8.55 Use: House-Irr Temperature: 26.0 °C  
By: Ron Mohr Specific Conductance: 884

**Requested Chemical Analysis**

Laboratory No.: [REDACTED] Date Received: OCT. 29 1993 Date Reported: OCT. 29 1993

THD-Sample No.	EB3 2853	Date Received	10/04/93	Date Reported	10/22/93
		MEQ/L	MG/L	MEQ/L	MG/L
Silica	(00955)		13		
			Sulfate (00946)	2.35	113
			Chloride (00941)	0.85	30
			Fluoride (00950)	0.06	1.18

P. Alkalinity(00415) 0.08 4  
T. Alkalinity(00410) 6.02 301

Boron (\*\*\*\*\*) 0.96  
Bromide (71870) 0.14



Texas Water Development Board  
**Chemical Water Analysis Report**

HM- Rm - 1994 517

HM = Heavy Trace and Alkaline-Earth Metals

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom

State Well Number: 18-44-702

County: Collin

Date & Time: 9-29-93 1050

Owner: Crump's Gardens Inc

☒ Send Copy To Owner

Address: \_\_\_\_\_ Sampled After Pumping: 40 min Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_ Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_ Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ron Mohr Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No. [REDACTED]

Date Received: OCT. 04 1993

Date Reported: MAR. 07 1994

Calcium	(00915)	<u>0.56</u> mg/l	Sodium	(00930)	<u>221</u> mg/l
Magnesium	(00925)	<u>0.17</u> mg/l	Potassium	(00935)	<u>1.2</u> mg/l
<u>[REDACTED]</u>	<u>[REDACTED]</u>	<u>_____</u> µg/l	Manganese	(01056)	<u>&lt;0.5</u> µg/l
Arsenic	(01000)	<u>&lt;2.0</u> µg/l	Mercury	(71890)	<u>&lt;0.13</u> µg/l
Barium	(01005)	<u>1.0</u> µg/l	<u>[REDACTED]</u>	<u>[REDACTED]</u>	<u>_____</u> µg/l
Cadmium	(01025)	<u>&lt;2</u> µg/l	Selenium	(01145)	<u>&lt;4.0</u> µg/l
Chromium	(01030)	<u>&lt;4.0</u> µg/l	Silver	(01075)	<u>&lt;10</u> µg/l
Copper	(01040)	<u>2.2</u> µg/l	Strontium	(01080)	<u>46</u> µg/l
Iron	(01046)	<u>141</u> µg/l	<u>[REDACTED]</u>	<u>[REDACTED]</u>	<u>_____</u> µg/l
Lead	(01049)	<u>&lt;5</u> µg/l	Zinc	(01090)	<u>10.9</u> µg/l



# Water Quality Sampling Run

SWN: 18-44-702  
 County: Collin  
 Aquifer(s): 212 WDBN

Name: Crump's Gardens Inc.  
 Address: Rt. 4 McKinney  
TX 75070

Sample No. GLW-Rm-1994-517  
 Date: 9-30-93  
 By: Ron Mohr

Bottle 1		Bottle 2		Bottle 3		Bottle 4		Bottle 5		Bottle 6		Bottle 7		Total	
1 liter		1 liter		1 liter		500 ml		1 Qt.(glass)						SUB-Samples <u>4</u>	
Anions		Cations		Radioactivity		Nitrate		(TOC)Organics							
Preserve with:		2 ml		2 ml		1 ml								All filtered unless otherwise stipulated. All on ice.	
		HNO <sub>3</sub> (Nitric)		HNO <sub>3</sub> (Nitric)		H <sub>2</sub> SO <sub>4</sub> (Sulfuric)									
Water Level	_____	LSD	_____	Remark											
Temperature (00010)	_____	26.0	c	_____											
Specific Conductance (00094)	_____	8.55	_____	_____											
pH (00400)	_____	_____	_____	_____											
Eh (00090)	_____	-11.9	mv.	_____											
Phenol ALK (82244)	_____	_____	mg/l	_____											
Total ALK (39086)	_____	308	mg/l	_____											
Carbonate (00452)	_____	_____	meq/l	_____											
Bicarbonate (00453)	_____	_____	meq/l	_____											
Total Cations(+)	_____	_____	_____	_____											
Total Anions (-)	_____	_____	_____	_____											
Total Hardness (46570)	_____	_____	_____	_____											
Dissolved Solids(70301)	_____	_____	_____	_____											

Time in:	1010	Time out:	1130	Weather	Clear	Outside Temp:	80°	Sampling point:	Face of			
Time:	1025	1030	1035	1040	1045	1050	ml.	pH	ml.	pH	ml.	pH
pH:	8.61	8.59	8.61	8.58	8.56	8.55	.5	8.16	15	4.96		
Temp:	25.7	25.8	25.9	26.0	26.0	26.0	.6	8.11	15.2	4.71		
Eh:							.7	8.08	15.3	4.60		
Cond.	873	869	880	883	883	884	2.0	7.54	15.4	4.48		
other notes:												
4 7.18												
6 6.90												
8 6.63												
10 6.57												
12 6.05												
14 5.46												

Starting pH	8.65	15.4 ml. of 0.02N to	50 ml. of Sample	Ending pH	4.48



Texas Water Development Board  
**Chemical Water Analysis Report**

RAD - RM - 1994. 517  
RAD = Radioactivity Sample

TWDB Use Only

Work No. 320 / 11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom

State Well Number: 18-44-702

County: Collin

Date & Time: 9-29-93 1050

Owner: Crump's Gardens Inc.

☒ Send Copy To Owner

Address: \_\_\_\_\_

Sampled After Pumping: 40 min Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ron Mohr

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.: 

Date Received: OCT. 04 1993

Date Reported: DEC. 21 1993

Alpha (01503) < 3.0 pCi/l

Beta (03503) < 5.0 pCi/l



Texas Water Development Board  
**Chemical Water Analysis Report**

GWN- Rm .1994.517  
(Nitrogen Cycle)

TWDB Use Only

Work No. 320/11220

IAC No. \_\_\_\_\_

Send Reply To:  
Ground Water Unit  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711

Attention: Phil Nordstrom

State Well Number: 18-44-702

County: Collin

Date & Time: 9-29-93 1050

Owner: Crump's Gardens Inc.

☒ Send Copy To Owner

Address: \_\_\_\_\_

Sampled After Pumping: 40 min Hours

Date Drilled: \_\_\_\_\_ Depth: \_\_\_\_\_

Yield: \_\_\_\_\_ GPM ☐ Measured ☐ Estimated

Collection Point: \_\_\_\_\_ pH \_\_\_\_\_

Use: \_\_\_\_\_ Temperature: \_\_\_\_\_ °C

By: Ron Mohr

Specific Conductance: \_\_\_\_\_

**Requested Chemical Analysis**

Laboratory No.: \_\_\_\_\_

Date Received: OCT. 04 1993

Date Reported: OCT. 29 1993

mml

THD-Sample No. EB3 2875

Date Received 10/04/93

Date Reported 10/25/93

00623-

0.1 TKN as N mg/L

00608-

0.07 Ammonia as N mg/L

00613-

< 0.01 Nitrite as N mg/L

00618-

0.40 Nitrate as N mg/L



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Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. 410 Lab No. 01

Work No. 6040

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18 44 702  
Well No. 03 18 83  
Date Collected 03 18 83

Owner Crump's Gardens, INC. ☐ Send copy to owner Sample No. ☐ By F. Bilberry  
Address RT. 4 MCKINNEY, TEXAS 75069 Well Location \_\_\_\_\_  
Date Drilled 8-1-64 Depth 1136 ft. WBF Woodbine Source (type of well) \_\_\_\_\_  
Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth \_\_\_\_\_ ft.  
Sampled after pumping Recently hrs. Yield \_\_\_\_\_ GPM meas. Temperature 064 °F 15 °C  
Point of collection Faucet on pressure tank Appearance ☒ clear ☐ turbid ☐ colored ☐ other  
Use IRR Remarks WLOW

FOR LABORATORY USE ONLY

### CHEMICAL ANALYSIS

**MAR 28 1983**

KEY PUNCHED

Date Reported **MAY 05 1983**

Laboratory No. [REDACTED]

Date Received \_\_\_\_\_

Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica . . . 00955 . . .	<u>13</u>	
Calcium . . . 00910 . . .	<u>&lt;1</u>	<u>0.02</u>
Magnesium . . . 00920 . . .	<u>&lt;1</u>	<u>0.02</u>
Sodium . . . 00929 . . .	<u>216</u>	<u>9.39</u>
Total		<u>9.43</u>
<input type="checkbox"/> Potassium . . . 00937 . . .		
<input checked="" type="checkbox"/> Manganese . . . 01055 . . .		%Na _____
<input type="checkbox"/> Boron . . . 01022 . . .		SAR _____
<input checked="" type="checkbox"/> Total Iron . . . 01045 . . .		RSC _____
<input type="checkbox"/> (other) _____	MG/L	
Specific Conductance (micromhos/cm <sup>3</sup> ) . . . 00095 . . .	<u>848</u>	
Diluted Conductance (micromhos/cm <sup>3</sup> ) <u>8 x 119</u>		

952

	MG/L	ME/L
Carbonate . . . 00445 . . .	<u>8</u>	<u>0.28</u>
Bicarbonate <sup>175</sup> . . . 00440 . . .	<u>356</u>	<u>5.84</u>
Sulfate . . . 00945 . . .	<u>111</u>	<u>2.31</u>
Chloride . . . 00940 . . .	<u>31</u>	<u>0.87</u>
Fluoride . . . 00951 . . .	<u>1.2</u>	<u>0.06</u>
Nitrate . . . 71850 . . .	<u>1.82</u>	<u>0.03</u>
pH . . . 00403 . . .	<u>8.6</u>	Total <u>9.40</u>
<sup>1</sup> Dissolved Solids (residue at 180°C) . . . 70300 . . .		<u>554</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub> . . . 00415 . . .	<u>(0.14)</u>	<u>7</u>
Total Alkalinity as CaCO <sub>3</sub> . . . 00410 . . .	<u>(6.12)</u>	<u>306</u>
Total Hardness as CaCO <sub>3</sub> . . . 00900 . . .	<u>(0.04)</u>	<u>2</u>
<sup>2</sup> Nitrogen Cycle		
Ammonia - N . . . 00610 . . .		
Nitrite - N . . . 00615 . . .		
Nitrate - N . . . 00620 . . .		
Organic Nitrogen . . . 00605 . . .		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.



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Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDBE-GW ONLY

Program No. \_\_\_\_\_

Proj. No. 6025

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18-44-702  
Well No. \_\_\_\_\_  
Date Collected 08-09-76  
By Gene Davis

Location \_\_\_\_\_  
Source (type of well) Sub-Elect Owner GRUMP'S GARDENS, INC.  
Date Drilled 8-1-64 Depth 1136 ft. WBF Non-Sive  
Producing intervals 102'-1112' Water level \_\_\_\_\_ ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield 10 GPM <sup>meas.</sup> 10 Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C  
Point of collection PRESSURE TANK Appearance ☒ clear ☐ turbid ☐ colored ☐ other  
Use Drinking Water Remarks Send Copy To: GRUMP'S GARDENS, INC., Rt. 4, McKinney, Tex.

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

AUG 17 1976

KEY PUNCHED

OCT. 18. 1976

Laboratory No. 318568

Date Received \_\_\_\_\_

Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<div><div></div><div></div><div></div><div></div></div> 13	
Calcium	<div><div></div><div></div><div></div><div></div></div> 2	<div><div></div><div></div><div></div><div></div></div> 0.09
Magnesium	<div><div></div><div></div><div></div><div></div></div> 41	<div><div></div><div></div><div></div><div></div></div> —
Sodium	<div><div></div><div></div><div></div><div></div></div> 213	<div><div></div><div></div><div></div><div></div></div> 9.26
Total		<div><div></div><div></div><div></div><div></div></div> 9.35
<input type="checkbox"/> Potassium	<div><div></div><div></div><div></div><div></div></div>	
<input type="checkbox"/> Manganese	<div><div></div><div></div><div></div><div></div></div>	%Na _____
<input type="checkbox"/> Boron	<div><div></div><div></div><div></div><div></div></div>	SAR _____
<input checked="" type="checkbox"/> Total Iron	<div><div></div><div></div><div></div><div></div></div> 0.2	RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) 877

Diluted Conductance (micromhos/cm<sup>3</sup>) 7 x 137

☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

TWDBE-WD-1 (Rev. 2-17-76)

	MG/L	ME/L
Carbonate	<div><div></div><div></div><div></div><div></div></div> 185	<div><div></div><div></div><div></div><div></div></div> 0
Bicarbonate	<div><div></div><div></div><div></div><div></div></div> 376	<div><div></div><div></div><div></div><div></div></div> 6.16
Sulfate	<div><div></div><div></div><div></div><div></div></div> 109	<div><div></div><div></div><div></div><div></div></div> 2.27
Chloride	<div><div></div><div></div><div></div><div></div></div> 30	<div><div></div><div></div><div></div><div></div></div> 0.85
Fluoride	<div><div></div><div></div><div></div><div></div></div> 1.3	
Nitrate	<div><div></div><div></div><div></div><div></div></div> 0.5	
pH	<div><div></div><div></div><div></div><div></div></div> 8.2	Total <div><div></div><div></div><div></div><div></div></div> 9.28
1/ Dissolved Solids (sum in MG/L)		<div><div></div><div></div><div></div><div></div></div> 550
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		<div><div></div><div></div><div></div><div></div></div> 0
Total Alkalinity as CaCO <sub>3</sub>	<u>(616)</u>	<div><div></div><div></div><div></div><div></div></div> 308
Total Hardness as CaCO <sub>3</sub>	<u>(1009)</u>	<div><div></div><div></div><div></div><div></div></div> 5
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



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Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDBE-GW ONLY  
Program No. **429**  
Proj. No. \_\_\_\_\_

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County **DT COLLIN**  
State Well No. **18-44-702**  
Well No. \_\_\_\_\_  
Date Collected **11-10-71**  
By **CORNELIS (FOR WYATT)**

Location \_\_\_\_\_  
Source (type of well) **SUBM** Owner **CRUMP'S GARDENS INC. RTE 4**  
Date Drilled **8-1-64** Depth **1136** ft. WBF **WOODRINE** **MCKINNEY, TEX. 75069**  
Producing intervals **1102-1112** Water level **307** ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C  
Point of collection **TAP AT GREENHOUSE** Appearance ☒ Clear ☐ turbid ☐ colored ☐ other  
Use **IRRIGATION** Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

Laboratory No. **210153** Date Recd **NOV 18 1971** KEY PUNCHED Date Reported **NOV 30 1971**

	MG/L	ME/L
Silica	12	
Calcium	1	0.05
Magnesium	1	0.12
Sodium	212	9.23
Total		9.40
<input type="checkbox"/> Potassium		
<input type="checkbox"/> Manganese		
<input type="checkbox"/> Boron		
<input checked="" type="checkbox"/> Total Iron		
<input type="checkbox"/> (other)	MG/L	
Specific Conductance (micromhos/cm <sup>3</sup> )		883
Diluted Conductance (micromhos/cm <sup>3</sup> )	8 x 120	960

☐ " items will be analyzed if checked.

	MG/L	ME/L
Carbonate		0
Bicarbonate	185	
Sulfate	376	6.16
Chloride	115	2.39
Fluoride	32	0.90
Nitrate	1.3	
pH	4.5	
Total	7.9	9.45
1/ Dissolved Solids (sum in MG/L)		560
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		0
Total Alkalinity as CaCO <sub>3</sub>	(6.16)	3.08
Total Hardness as CaCO <sub>3</sub>	(0.17)	9
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.



TWDGE-GW ONLY

Program No. 7429

Proj. No. \_\_\_\_\_

## CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin 5, Texas

Send report to:

County CollinState Well No. 18-44-702

Ground Water Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

Well No. \_\_\_\_\_

Date Collected 4-28-71By CUNNINGHAM FOR: WYATT

Location \_\_\_\_\_

Source (type of well) SUBMERSIBLE Owner CRUMPS GARDENS INC., RT. 4, MCKINNEY, TEX.Date Drilled 8-1-64 Depth 1136 ft. WBF WOODBINE 75069Producing intervals 1102-1112 Water level 304.46 ft.

Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C

Point of collection FAUCET IN GREENHOUSE Appearance CLEAR  
clear - turbid - coloredUse ERR. Remarks \_\_\_\_\_

FOR LABORATORY USE ONLY

KEY PUNCHED

## CHEMICAL ANALYSIS

Laboratory No. 1923100Date Received MAY 6 1971Date Reported MAY 14 1971

	MG/L	ME/L
Silica	<u>12</u>	
Calcium	<u>1</u>	<u>0.07</u>
Magnesium	<u>1</u>	<u>0.10</u>
Sodium	<u>211</u>	<u>9.18</u>
Total		<u>9.35</u>

☐ Potassium \_\_\_\_\_☐ Manganese \_\_\_\_\_ %Na \_\_\_\_\_☐ Boron \_\_\_\_\_ SAR \_\_\_\_\_☐ Total Iron \_\_\_\_\_ REC \_\_\_\_\_☐ (other) \_\_\_\_\_Specific Conductance (micromhos/cm<sup>3</sup>) 872Diluted Conductance (micromhos/cm<sup>3</sup>) 7 x 137☐ " items will be analyzed if checked. 959

Total Iron requires separate sample.

	MG/L	ME/L
Carbonate	<u>186</u>	<u>0</u>
Bicarbonate	<u>378</u>	<u>6.20</u>
Sulfate	<u>112</u>	<u>2.33</u>
Chloride	<u>31</u>	<u>0.86</u>
Fluoride	<u>1.2</u>	
Nitrate	<u>1.9</u>	
pH	<u>8.3</u>	Total <u>9.39</u>

1/Dissolved Solids (sum) 560 +Phenolphthalein Alkalinity as C aCO<sub>3</sub> 0Total Alkalinity as C aCO<sub>3</sub> (6.20) 310Total Hardness as C aCO<sub>3</sub> (0.17) 9

Analyst \_\_\_\_\_

Checked by \_\_\_\_\_

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.





Texas Water Development Board  
Well Schedule



State Well Number: **18-44-802** Previous Well Number: County: **Collin** **85**

Latitude (dms): **331704** Longitude (dms): **963422** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Melissa** Driller: Aquifer ID: **Woodbine**  
**Old well #1** Aquifer Code: **212WDBN**

Depth (ft): **1462** Elevation (ft): **674** **WOODBINE SAND**

Source of Depth: **Memory of Owner** Source of Elevation: **Digital Elevation Model -DEM**

Date Drilled: **00/00/1911** Well Type: **Withdrawal of Water**

Type of Lift: **None** Power: Horsepower:

Construction: Completion:

Casing Material: **Steel** Screen Material:

CASING INTERVALS:		
Casing/Blank Pipe (C)		
Well Screen/Slotted Zone (S)		
Open Hole (O)		
Dia. (in.)	Top (ft.)	Bottom (ft.)
C	4	

WATER USE

Primary: **Unused** Secondary: Tertiary:

Water Levels: **Miscellaneous Measurements** Water Quality: **Y**

1 measurement  
1940  
-146

Other Data: Logs:

REMARKS:

Reported yield 30 gpm in 1943.  
Owners old well #1.

Reporting Agency: **TWDB or Predecessor Agency**

Date Collected or Reported: **10/27/1976**

Recorded by: D.R. Jones



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-44-802Owner's Well No. 1County COLLIN1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_, Survey \_\_\_\_\_old well was located @ the Gin2. Owner: CITY OF MELISSA Address: \_\_\_\_\_Tenant: (Ray Craft, owner) Address: \_\_\_\_\_

Driller: \_\_\_\_\_ Address: \_\_\_\_\_

3. Elevation of 2nd is 675 ft. above msl, determined by Topo4. Drilled: 19 11; Dug, Cable Tool, Rotary, \_\_\_\_\_5. Depth: Rept. 1462 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed \_\_\_\_\_

7. Pump: Mfg. \_\_\_\_\_ Type AIR

No. Stages \_\_\_\_\_, Bows Diam. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel \_\_\_\_\_ Make &amp; Model \_\_\_\_\_ HP \_\_\_\_\_

9. Yield: Flow \_\_\_\_\_ gpm, Pump 30 gpm, Meas., Rept. Est. 1943

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 146 ft. rept. 2-22-40 above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 above \_\_\_\_\_ which is \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock Public Supply Ind., Irr., Waterflooding, Observation Not Used.

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 2-19-43 Laboratory USGSTemp. \_\_\_\_\_ °F, Date sampled for analysis 5-5-52 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: P. NOROSTROM Date 10-27-76Source of Data obs, Mr Doyle

16. Remarks: \_\_\_\_\_

CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.		Setting, ft.	
Diam. (in.)	Type	from	to
<u>4</u>			

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to

black south of -801 @  
 old gin.  
 (Sketch)



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY			
Organization No. _____	Lab No. <table border="1"><tr><td></td><td></td></tr></table>		
Work No. _____			

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

Analysis copied from  
Texas Department of  
Health Files

County 

0	4	3
---	---	---

 COLLIN  
State Well No. 

1	8	-	4	4	-	8	0	2
---	---	---	---	---	---	---	---	---

  
Well No. \_\_\_\_\_  
Date Collected 

0	1	-	1	9	-	4	8
---	---	---	---	---	---	---	---

Owner CITY OF MELISSA Send copy to owner Sample No. 

--

 By CSP  
Address \_\_\_\_\_ Well Location \_\_\_\_\_  
Date Drilled 1911 Depth 1460 ft. WBF \_\_\_\_\_ Source (type of well) \_\_\_\_\_  
Producing intervals \_\_\_\_\_ Water level \_\_\_\_\_ ft. Sample depth 

--	--	--

 ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield \_\_\_\_\_ GPM meas. est. Temperature 

--	--	--

 °F 

--	--	--

 °C  
Point of collection \_\_\_\_\_ Appearance ☐ clear ☐ turbid ☐ colored ☐ other  
Use \_\_\_\_\_ Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

KEY PUNCHED  
Laboratory No. \_\_\_\_\_

Date Received 1-22-48

Date Reported \_\_\_\_\_

	MG/L	ME/L																																										
Silica . . . 00955 . . .	<table border="1"><tr><td></td><td></td><td></td><td>1</td><td>8</td></tr><tr><td></td><td></td><td></td><td>2</td><td>0</td></tr><tr><td></td><td></td><td></td><td>8</td><td></td></tr><tr><td></td><td></td><td></td><td>1</td><td>1</td><td>4</td><td>2</td></tr></table>				1	8				2	0				8					1	1	4	2	<table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>																				
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Specific Conductance (micromhos/cm<sup>3</sup>) 00095 \_\_\_\_\_  
Diluted Conductance (micromhos/cm<sup>3</sup>): \_\_\_\_\_ = 

--	--	--	--	--

☐ items will be analyzed if checked.

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TWDB USE ONLY

Program No. \_\_\_\_\_

Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division

Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County 43 Collin  
State Well No. 18 44 802  
Well No. 1  
Date Collected 05 05 52  
By \_\_\_\_\_

Location \_\_\_\_\_  
Source (type of well) AIR PUMP Owner MELISSA  
Date Drilled 1911 Depth 1462 ft. WBF Woodbine  
Producing intervals \_\_\_\_\_ Water level 146 ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield 30 GPM <sup>meas.</sup><sub>est.</sub> Temperature      °F      °C  
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other  
Use P.S. Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	<u>23</u>	
Calcium	<u>50</u>	<u>2.50</u>
Magnesium	<u>35</u>	<u>2.88</u>
Sodium	<u>1060</u>	<u>46.11</u>
Total		<u>51.49</u>
<input type="checkbox"/> Potassium	<u>    </u>	
<input type="checkbox"/> Manganese	<u>    </u>	
<input type="checkbox"/> Boron	<u>    </u>	
<u>3/4</u> Total Iron	<u>1.5</u>	

%Na \_\_\_\_\_  
SAR \_\_\_\_\_  
RSC \_\_\_\_\_

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>)                    

Diluted Conductance (micromhos/cm<sup>3</sup>) \_\_\_\_\_ X

☐ " " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.

TWDBS-SI-27

	MG/L	ME/L
Carbonate	<u>495</u>	
Bicarbonate	<u>1007</u>	<u>16.50</u>
Sulfate	<u>101</u>	<u>2.10</u>
Chloride	<u>1264</u>	<u>35.64</u>
Fluoride	<u>2.2</u>	<u>.11</u>
Nitrate	<u>2.7</u>	<u>.04</u>
pH	<u>8.1</u>	
Total		<u>54.39</u>
<u>1/</u> Dissolved Solids (sum in MG/L)		<u>3010</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		
Total Alkalinity as CaCO <sub>3</sub>		<u>685</u>
Total Hardness as CaCO <sub>3</sub>		<u>269</u>
<u>2/</u> Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

~~Texas State Department of Health Laboratories~~  
~~1400 West 40th Street~~  
~~Austin, Texas 78756~~  
**USGS**

TWDBE-GW ONLY

Program No. \_\_\_\_\_  
Proj. No. \_\_\_\_\_

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division  
Texas Water Development Board  
P.O. Box 13087  
Austin, Texas 78711

County **43 COLLIN**  
State Well No. **18-44-802**  
Well No. **1**  
Date Collected **02-19-43**  
By **USGS**

Location \_\_\_\_\_  
Source (type of well) **AIR** Owner **TOWN OF MELISSA**  
Date Drilled **1911** Depth **1462** ft. WBF **Woodbine**  
Producing intervals \_\_\_\_\_ Water level **146** ft.  
Sampled after pumping \_\_\_\_\_ hrs. Yield **30** GPM <sup>meas.</sup> <sub>est.</sub> Temperature \_\_\_\_\_ °F \_\_\_\_\_ °C  
Point of collection **well** Appearance ☐ clear ☐ turbid ☐ colored ☐ other  
Use **P.S.** Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. \_\_\_\_\_ Date Received \_\_\_\_\_ Date Reported \_\_\_\_\_

	MG/L	ME/L
Silica	11	
Calcium	84	
Magnesium	4.5	
Sodium	1120	
Total		
<input checked="" type="checkbox"/> Potassium	6.2	
<input type="checkbox"/> Manganese	.	%Na
<input type="checkbox"/> Boron	.	SAR
<input checked="" type="checkbox"/> Total Iron	0.4	RSC
<input type="checkbox"/> (other)	MG/L	
Specific Conductance (micromhos/cm <sup>3</sup> )		
Diluted Conductance (micromhos/cm <sup>3</sup> )		X

	MG/L	ME/L
Carbonate		
Bicarbonate	826	
Sulfate	13	
Chloride	1260	
Fluoride	2.2	
Nitrate	10.0	
pH	8.4	Total
1/ Dissolved Solids (sum in MG/L)		2850
Phenolphthalein Alkalinity as CaCO <sub>3</sub>		
Total Alkalinity as CaCO <sub>3</sub>		
Total Hardness as CaCO <sub>3</sub>		40
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

☐ " " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

2/ Nitrogen cycle requires separate sample.

3/ Total Iron requires separate sample.





Texas Water Development Board  
Well Schedule

groundwater resources  
division

State Well Number: **18-44-805** Previous Well Number: County: **Collin** **85**

Latitude (dms): **391710** Longitude (dms): **963448** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Melissa**  
**Country Ridge Well #2**

Driller: **J.L. Myers Company**

Aquifer ID: **Woodbine**

Aquifer Code: **212WDBN**

Depth (ft): **1450**

Elevation (ft): **670**

**WOODBINE**  
**SAND**

Source of Depth: **Driller's Log**

Source of Elevation: **Digital Elevation**  
**Model -DEM**

Date Drilled: **03/00/1999**

Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump**

Power: **Electric Motor**

Horsepower:

Construction: **Hydraulic Rotary**

Completion: **Gravel Pack w/Screen**

Casing Material: **Steel**

Screen Material: **Stainless Steel**

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	16	0	20
C	9	0	1350
C	5	1250	1360
S	5	1360	1450

WATER USE

Primary: **Public**  
**Supply**

Secondary:

Tertiary:

Water Levels: **Miscellaneous Measurements**

Water Quality: **Y**

**1 measurement**  
**1999**  
**-603**

Other Data: **C**

Logs: **D**

**REMARKS:**

Owners well #2. PWS ID 0430070B.  
Reported yield 104 GPM with 283  
feet drawdown after pumping 36  
hours in 1999. Specific capacity  
0.65 gpm/ft. Pumping level 886  
feet. Pump set at 931 feet. Cement-  
ed from 0 to 1350 feet. Underreamed  
and gravel packed from 1350 to 1450  
feet. Country Ridge Water was  
bought by the City of Melissa on  
6/15/2006.

Reporting Agency: **TWC/TNRCC/TCEQ**

Date Collected or Reported: **02/07/2011**

Recorded by:

*D.R. Jones*



**ATTENTION OWNER: Confidentiality**  
 Privilege Notice on on reverse side  
 of Well Owner's copy (pink)

# State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council  
 MC 177  
 P.O. Box 13087  
 Austin, TX 78711-3087  
 512-239-0530

1) **OWNER** Country Ridge Water Company **ADDRESS** No.1 Country Ridge Rd. Melissa, TX 75454  
 (Name) (Street or RFD) (City) (State) (Zip)

2) **ADDRESS OF WELL:**  
 County Collin Melissa Rd. Melissa TX 75454 **GRID #** 18-44-8  
 (Street, RFD or other) (City) (State) (Zip)

3) **TYPE OF WORK (Check):**  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☐ Domestic  
☐ Industrial ☐ Irrigation ☐ Injection ☒ Public Supply ☐ De-watering ☐ Testwell  
 If Public Supply well, were plans submitted to the TNRCC? ☒ Yes ☐ No

6) **WELL LOG:**  
 Date Drilling:  
 Started Sept. 19 98  
 Completed March 19 99

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
12-1/4	Surface	1350
14	1350	1450

7) **DRILLING METHOD (Check):** ☐ Driven  
☐ Air Rotary ☒ Mud Rotary ☐ Bored  
☐ Air Hammer ☐ Cable Tool ☐ Jetted  
☐ Other \_\_\_\_\_

From (ft.) To (ft.) Description and color of formation material  
See attached

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall  
☒ Underreamed ☒ Gravel Packed ☐ Other \_\_\_\_\_  
 If Gravel Packed give interval ... from 1350 ft. to 1450 ft.

## CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
16	N	Steel	0	20	
8-5/8	N	Steel	+2	1350	
4 1/2	N	Steel	1250	1360	
4 1/2	N	SSWW screen	1360	1450	

9) **CEMENTING DATA** [Rule 338.44(1)]  
 Cemented from 0 ft. to 1350 ft. No. of sacks used 350  
 \_\_\_\_\_ ft. to \_\_\_\_\_ ft. No. of sacks used \_\_\_\_\_  
 Method used Pump down plug  
 Cemented by Jet Star  
 Distance to septic system field lines or other concentrated contamination \_\_\_\_\_ ft.  
 Method of verification of above distance \_\_\_\_\_

13) **TYPE PUMP:**  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
 Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

14) **WELL TESTS:**  
 Type test: ☒ Pump ☐ Bailer ☐ Jetted ☐ Estimated  
 Yield: 104 gpm with 283 ft. drawdown after 36 hrs.

15) **WATER QUALITY:**  
 Did you knowingly penetrate any strata which contained undesirable constituents?  
☐ Yes ☒ No If yes, submit "REPORT OF UNDESIRABLE WATER"  
 Type of water? \_\_\_\_\_ Depth of strata \_\_\_\_\_  
 Was a chemical analysis made? ☒ Yes ☐ No

10) **SURFACE COMPLETION**  
☒ Specified Surface Slab Installed [Rule 338.44(2)(A)]  
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]  
☐ Pitless Adapter Used [Rule 338.44(3)(b)]  
☐ Approved Alternative Procedure Used [Rule 338.71]

**WATER LEVEL:**  
 Static level 603 ft. below land surface Date 3/23/99  
 Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

12) **PACKERS:** Type Depth  
N/a

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME J. L. MYERS COMPANY  
 (Type or print)

WELL DRILLER'S LICENSE NO. 1752WPKT

ADDRESS 8325 FORNEY ROAD  
 (Street or RFD)

DALLAS  
 (City)

TX 75227  
 (State) (Zip)

(Signed) C.A. Williams #1752WPKT  
 (Licensed Well Driller)

(Signed) \_\_\_\_\_  
 (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.



RECORD OF DEEP WELL AND PUMP  
FOR

COUNTRY RIDGE WATER COMPANY  
WELL NO. 2

DRILLED BY: J. L. MYERS COMPANY  
8325 FORNEY ROAD  
DALLAS, TX 75227

214 388-7407

FILE ID		SEQ #
EMP #	APR 15 1999	DESC CO
COMMENT		CB

18-44,805



DRILLER'S LOG

OWNER : COUNTRY RIDGE WATER COMPANY  
NO. 1 COUNTRY RIDGE ROAD  
MELISSA, TX 75454

WELL NO. 2

LOCATION: APPROXIMATELY ½ MILE EAST OF U.S. 75 ON MELISSA ROAD,  
MELISSA, COLLIN COUNTY, TEXAS

DATE : NOVEMBER 1998

DRILLER : C. WILLIAMS

DEPTH OF STRATA		EACH STRATUM	DESCRIPTION
From	To	Feet	
0	8	8	Soil and clay
8	498	490	Austin chalk
498	940	442	Shale
940	980	40	Sand
980	1400	420	Shale with broken sand
1400	1450	50	Sand
1450	1500	50	Shale

FILE ID		REQ #
EMP #	APR 15 1999	
COMMENT		DESC CO
		CB

J. L. MYERS COMPANY  
8325 FORNEY ROAD  
DALLAS, TX 75227

18-44-805



### MATERIAL SETTING

OWNER : COUNTRY RIDGE WATER COMPANY  
NO. 1 COUNTRY RIDGE ROAD  
MELISSA, TX 75454

WELL NO. 2

LOCATION : APPROXIMATELY ½ MILE EAST OF U.S. 75 ON MELISSA ROAD,  
MELISSA, COLLIN COUNTY, TEXAS

DATE : NOVEMBER 1998

FROM	TO (ft)	AMOUNT (ft)	DESCRIPTION
0	20	20	16"OD cemented in place
+2	1300	1352	8-5/8"OD 28#/ft ST&C casing in 12-1/4" hole with float collar and centralizer. Cemented by Jet-Star with 350 sacks Class H with 8% gel
1250	1360	110	4-1/2"OD Schedule 40 steel blank liner with R&L coupling
1360	1374	14	4-1/2"OD SS wire wrapped under-bar plus WESCO screen. .020" opening
1374	1398	24	4-1/2" blank with centralizer
1450	1450	52	4-1/2" screen
1450	1470	20	4-1/2" blank T.D.
1350	1450	100	Underreamed gravel packed hole

FILE ID		SEQ #
EMP #	APR 1 1999	
J. L. MYERS COMPANY		
8325 FORNEY ROAD		
DALLAS, TX 75227		
COMMENT		

18-44-805



Cementer: Fill in shaded areas.  
Operator: Fill in other items.

Form W-15  
Cementing Report  
Rev. 4/1/83  
483-045

RAILROAD COMMISSION OF TEXAS  
Oil and Gas Division

1. Operator's Name (As shown on Form P-5, Organization Report)	2. RRC Operator No.	3. RRC District No.	4. County of Well Site
5. Field Name (Wildcat or exactly as shown on RRC records)	6. API No. 42-		7. Drilling Permit No.
8. Lease Name Country Ridge	9. Rule 37 Case No.	10. Oil Lease/Gas ID No.	11. Well No. 1363-98

CASING CEMENTING DATA:		SURFACE CASING	INTER-MEDIATE CASING	PRODUCTION CASING		MULTI-STAGE CEMENTING PROCESS	
				Single String	Multiple Parallel Strings	Tool	Shoe
12. Cementing Date				10-5-48			
13. •Drilled hole size				12 1/4			
•Est. % wash or hole enlargement				1590			
14. Size of casing (in. O.D.)				8 5/8			
15. Top of liner (ft.)							
16. Setting depth (ft.)				1325			
17. Number of centralizers used				5			
18. Hrs. waiting on cement before drill-out							
1st Slurry	19. API cement used: No. of sacks ▶			350			
	Class ▶			H			
	Additives ▶			89060LL			
2nd Slurry	No. of sacks ▶						
	Class ▶						
	Additives ▶						
3rd Slurry	No. of sacks ▶						
	Class ▶						
	Additives ▶						
1st	20. Slurry pumped: Volume (cu. ft.) ▶			637			
	Height (ft.) ▶			1325			
2nd	Volume (cu. ft.) ▶						
	Height (ft.) ▶						
3rd	Volume (cu. ft.) ▶						
	Height (ft.) ▶						
Total	Volume (cu. ft.) ▶			637			
	Height (ft.) ▶			1325			
21. Was cement circulated to ground surface (or bottom of cellar) outside casing?				Yes			
22. Remarks							

OVER ►

18. 44-805



CEMENTING TO PLUG AND ABANDON	PLUG # 1	PLUG # 2	PLUG # 3	PLUG # 4	PLUG # 5	PLUG # 6	PLUG # 7	PLUG # 8
23. Cementing date								
24. Size of hole or pipe plugged (in.)								
25. Depth to bottom of tubing or drill pipe (ft.)								
26. Sacks of cement used (each plug)								
27. Slurry volume pumped (cu. ft.)								
28. Calculated top of plug (ft.)								
29. Measured top of plug, if tagged (ft.)								
30. Slurry wt. (lbs/gal)								
31. Type cement								

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

Tom Seeling, Cementer      Jet-Star CO      Tom Seeling  
Name and title of cementer's representative      Cementing Company      Signature

2400 Alabama, Groinsville, TX 76240      940-665-1316      10-10-98  
Address      City, State, Zip Code      Tel.: Area Code Number      Date: mo. day yr.

OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that I have knowledge of the well data and information presented in this report, and that data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers all well data.

\_\_\_\_\_  
Typed or printed name of operator's representative      Title      Signature

\_\_\_\_\_  
Address      City, State, Zip Code      Tel.: Area Code Number      Date: mo. day yr.

### Instructions to Form W-15, Cementing Report

**IMPORTANT:** Operators and cementing companies must comply with the requirements of the Commission's Statewide Rules 8 (Water Protection), 13 (Casing, Cementing, Drilling, and Completion), and 14 (Well Plugging). For offshore operations, see the requirements of Rule 13 (c).

**A. What to file.** An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form. Form W-15 should be filed with the following:

- An initial oil or gas completion report, Form W-2 or G-1, as required by Statewide or special field rules;
- Form W-4, Application for Multiple Completion, if the well is a multiple parallel casing completion; and
- Form W-3, Plugging Record, unless the W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing cemented in the hole.

**B. Where to file.** The appropriate Commission District Office for the county in which the well is located.

**C. Surface casing.** An operator must set and cement sufficient surface casing to protect all usable-quality water strata, as defined by the Texas Department of Water Resources, Austin. Before drilling a well in any field or area in which no field rules are in effect or in which surface casing requirements are not specified in the applicable rules, an operator must obtain a letter from the Department of Water Resources stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.

**D. Centralizers.** Surface casing must be centralized at the shoe, above and below a stage collar or diverting tool, if run, and through usable-quality water zones. In nondeviated holes, a centralizer must be placed every fourth joint from the cement shoe to the ground surface or to the bottom of the cellar. All centralizers must meet API specifications.

**E. Exceptions and alternative casing programs.** The District Director may grant an exception to the requirements of Statewide Rule 13. In a written application, an operator must state the reason for the requested exception and outline an alternate program for casing and cementing through the protection depth for strata containing usable-quality water. The District Director may approve, modify, or reject a proposed program. An operator must obtain approval of any exception before beginning casing and cementing operations.

**F. Intermediate and production casing.** For specific technical requirements, operators should consult Statewide Rule 13 (b) (3) and (4).

**G. Plugging and abandoning.** Cement plugs must be placed in the wellbore as required by Statewide Rule 14. The District Director may require additional cement plugs. For onshore or inland wells, a 10-foot cement plug must be placed in the top of the well, and the casing must be cut off three feet below the ground surface. All cement plugs, except the top plug, must have sufficient slurry volume to fill 100 feet of hole, plus ten percent for each 1,000 feet of depth from the ground surface to the bottom of the plug.

To plug and abandon a well, operators must use only cementers approved by the Director of Field Operations. Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.

18-44-805



PUMPING TEST

OWNER : COUNTRY RIDGE WATER COMPANY  
NO. 1 COUNTRY RIDGE ROAD  
MELISSA, TX 75454

WELL NO. 2

LOCATION: APPROXIMATELY ½ MILE EAST OF U.S. 75 ON MELISSA ROAD,  
MELISSA, COLLIN COUNTY, TEXAS

DATE : MARCH 1999

4"X2-1/2"ORIFICE - 50HP SUBMERSIBLE PUMP SET 931'

DATE & TIME	ORIFICE	GPM	AIRLINE READING (ft)	WATER LEVEL (ft)	REMARKS
<u>03-23-99</u>					
11:00 AM				603	Static
12:00 PM	22	120	80	851	
01:00	19.5	112	72	859	
02:00	18.5	108	70	861	
03:00	18	108	67	864	
04:00	18	108	64	867	
05:00	17.5	106	62	869	
06:00	17	104	61	870	
07:00	17	104	60	871	
08:00	16.5	104	59	872	
09:00	16.5	104	58	873	
10:00	16.5	104	57	874	
11:00	16.5	104	56	875	
<u>03-24-99</u>					
12:00 AM	16.5	104	55	876	
01:00	16.5	104	55	876	
02:00	16.5	104	54	877	
03:00	16.5	104	53	878	
04:00	16.5	104	53	878	
05:00	16.5	104	52	879	
06:00	16.5	104	52	879	

18.44-805



COUNTRY RIDGE WATER COMPANY  
PUMPING TEST CONTINUED - PAGE 2

DATE & TIME	ORIFICE	GPM	AIRLINE READING	WATER LEVEL	REMARKS
<u>03-24-99</u>					
07:00 AM	16.5	104	51	880	
08:00	16.5	104	51	880	
09:00	16.5	104	50	881	
10:00	16.5	104	50	881	
11:00	16.5	104	50	881	
12:00 PM	16.5	104	49	882	
01:00	16.5	104	48	883	
02:00	16.5	104	48	883	
03:00	16.5	104	48	883	
04:00	16.5	104	47	884	
05:00	16.5	104	47	884	
06:00	16.5	104	47	884	
07:00	16.5	104	46	885	
08:00	16.5	104	46	885	
09:00	16.5	104	46	885	
10:00	16.5	104	45	886	
11:00	16.5	104	45	886	

J. L. MYERS COMPANY  
8325 FORNEY ROAD SEC  
DALLAS, TX 75227

FILE #

EMP # APR 15 1999

COMMENT

18-44-805



# POPE *Testing* LABORATORIES, Inc.

CONSULTING ANALYTICAL CHEMISTS  
AND TESTING ENGINEERS

FOODS, FEEDS, DAIRY PRODS.  
WATER, MISCL. ANALYSES  
COTTON SEED PRODUCTS  
PACKING HOUSE PRODUCTS

P. O. BOX 903

DALLAS, TEXAS 75221

AC 214 742-8491

FAX 214 748-5817

April 1, 1999

OFFICIAL CHEMISTS  
WEIGHERS AND INSPECTORS  
NATL. COTTONSEED PRODUCTS ASS'N.  
REFEREE CHEMISTS  
AMERICAN OIL CHEMISTS SOCIETY

Date Rec'd: 3-25-99

To: J L Myers Company  
8325 Forney Road  
Dallas, TX 75227

## Report of Tests on Water

Identification Marks: Country Ridge Estates Well #2 Sampled 3-25-99 after 36 hrs  
pumping

Values reported are for minerals in solution

	<u>mg/L</u>
Calcium .....	0.8
Magnesium .....	0.2
Iron .....	0.21
Manganese .....	0.0
Sodium .....	222.0
Carbonate .....	7.2
Bicarbonate .....	407.5
Sulfate .....	85.4
Chloride .....	36.0
Fluoride .....	1.3
Nitrate .....	0.0
Phenolphthalein Alkalinity as CaCO <sub>3</sub> .....	6.0
Total Alkalinity as CaCO <sub>3</sub> .....	346.0
Total Hardness as CaCO <sub>3</sub> .....	2.9
Dissolved Residue (TS) Calculated .....	760.6
Total Iron .....	0.32
Arsenic .....	< 0.005
Barium .....	< 0.01
Beryllium .....	< 0.004
Chromium .....	< 0.005
Nickel .....	< 0.01
Selenium .....	< 0.05
Aluminum .....	0.09
Copper .....	< 0.005
Silver .....	< 0.005
Zinc .....	0.01
Nitrite (as N) .....	< 0.005

Continued

18.44.805



Page -2-  
Water

Specific Conductance Micromhos/cm .... 1000  
pH ..... 8.4

\* \* \* \* \*

Respectfully submitted

POPE TESTING LABORATORIES, INC.



Leon Hunter

Lab No. 43576

18-44-805



# CITY OF SHERMAN LABORATORY - WATER BACTERIOLOGY

Countryside Est. Collin  
Name of Water System County

Well # 2 K.D.V. 3/25/19 3:34 AM/PM  
Point of Collection Collected By Date Time  
(Mo/Day/Yr)

Send Report To: NAME J.L. Meyers Co.  
STREET 8325 Forney Rd.  
CITY Dallas TEXAS 75227  
TELEPHONE (214) 388-7467 (Zip Code)

Water System Identification Number \_\_\_\_\_

TYPE OF SYSTEM: ☐ Public ☐ Individual ☐ Other \_\_\_\_\_

SAMPLE IS: ☐ Distribution ☐ Special ☒ Construction  
☐ Repeat for sample # \_\_\_\_\_  
☐ Recheck for sample # \_\_\_\_\_  
☐ Other \_\_\_\_\_

WATER SOURCE: ☐ River ☐ Lake ☐ Well  
Well depth \_\_\_\_\_ Chlorine Residual \_\_\_\_\_

ANALYTICAL METHOD AND RESULTS:  
MF: Presumptive \_\_\_\_\_/100 ml Verified \_\_\_\_\_/100 ml  
Confluent Growth TNTC Noncoliform  
P/A Present Absent  
Fecal Coliform: Present Absent  
Fecal Coliform: 1st dil \_\_\_\_\_/\_\_\_\_\_ ml 3rd dil \_\_\_\_\_/\_\_\_\_\_ ml  
2nd dil \_\_\_\_\_/\_\_\_\_\_ ml Avg = \_\_\_\_\_/100 ml

## Unsuitable For Analysis:

- ☐ Form incomplete (see encircled item)
- ☐ Sample too old, not received within 30 hours of collection
- ☐ Excessive chlorine present in sample
- ☐ Unsuitable container
- ☐ Heavy, non coliform bacteria/silt present, possibly obscuring and compromising test results
- ☐ Quantity too great to permit agitation
- ☐ Quantity insufficient for analysis (100 ml minimum)
- ☐ Other

Analyzed by Sharon Blansett

Water of satisfactory bacteriological quality should be free from Coliform Organisms.

723-021  
1-95

Sample Number: <u>7915</u>	Laboratory ID Number: 48164	Comments:
Date and Time Sample Received: <u>22 MAR 19 02 21 PM '66</u>	Laboratory Name: City of Sherman	Date and Time Analysis Began: <u>22 MAR 19 02 21 PM '66</u>
		Date and Time Reported: <u>25 MAR 19 02 21 PM '66</u>



18-44-805



# TARRANT COUNTY PUBLIC HEALTH LABORATORY

## WATER BACTERIOLOGY

1800 University Dr., Ft. Worth, TX 76107  
Lab No. 48010 (817)871-7245

Date and Time Rec'd.  
Sample No.

Date  
Reported

Do Not Mark Above This Line - Please Print Below with BALLPOINT PEN OR TYPEWRITER:

COUNTRY RIDGE ESTATES  
NAME OF WATER SYSTEM

WELL DISCHARGE No 2  
POINT OF COLLECTION/SAMPLE DESCRIPTION

--	--	--	--	--	--

Water System I.D. No.

J. L. MYERS Co.  
NAME

SEND RESULTS TO: 8325 FORNEY RD.  
STREET ADDRESS (P.O. Box)

DALLAS TX 75211  
CITY (Zip Code)

214-398-7407 COLLIN  
PHONE # COUNTY

Date and Time of Collection: 3 23 99 3 30 PM Collected By: KDW

<b>TYPE OF SYSTEM</b> <input checked="" type="checkbox"/> Public <input type="checkbox"/> Dairy <input type="checkbox"/> Individual <input type="checkbox"/> Bottled <input type="checkbox"/> School <input type="checkbox"/> Vended	<b>SAMPLE IS</b> <input type="checkbox"/> Distribution <input checked="" type="checkbox"/> Raw <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Repeat <input type="checkbox"/> Glycol/Sweet/Chill Water <input type="checkbox"/> Other: _____	<b>WATER SOURCE</b> <input type="checkbox"/> River <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Well Well Depth: <u>140</u> Chlorine Residual: _____
---	---	---

Additional Information: \_\_\_\_\_

### LABORATORY REPORT (Do not write below)

-TECH

MMO-MUG Presence/Absence	Membrane Filtration (MF)	MMO-MUG Most Probable Number (MPN)
Coliform Organisms	Coliform Organisms	Coliform Organisms
<input type="checkbox"/> Not Found	<input type="checkbox"/> Not Found	<input type="checkbox"/> Not Found
<input type="checkbox"/> Found	<input type="checkbox"/> Found	<input type="checkbox"/> Found
<input type="checkbox"/> Total Coliform group <input type="checkbox"/> <i>Escherichia coli</i> <input type="checkbox"/> Repeat samples required <input type="checkbox"/> Unsuitable - See below	Total Coliform/100 ml <i>E. coli</i> /100 ml Fecal Coliforms/100 ml <input type="checkbox"/> Unsuitable - See below	Total Coliform: _____ MPN/100ml <i>E. coli</i> : _____ MPN/100ml <input type="checkbox"/> Unsuitable - See below

### UNSUITABLE FOR ANALYSIS-PLEASE RESUBMIT

- |  |   |
|--|---|
| <input type="checkbox"/> Sample too old. Sample not received within 30 hours of collection<br><input type="checkbox"/> Date discrepancy or form incomplete (See encircled item)<br><input type="checkbox"/> Leaked in transit<br><input type="checkbox"/> Quantity too great to permit agitation<br><input type="checkbox"/> Excessive chlorine residual: _____ mg/l | <input type="checkbox"/> Quantity insufficient for analysis (100 ml. required)<br><input type="checkbox"/> Heavy (silt/bacterial growth) present, possibly compromising test results<br><input type="checkbox"/> Sample received on Friday<br><input type="checkbox"/> Other: _____ |
|--|---|

H-220 GPC-2190 REV. 6-97

18-44-805



## CITY OF SHERMAN LABORATORY - WATER BACTERIOLOGY

Cunningham Road Est. Collin  
 Name of Water System County  
WPA #2 3/24/91 10:30 AM/PM  
 Point of Collection Collected By Date Time  
 (Mo/Day/Yr)

Send  
 Report  
 To:

NAME J.L. Meyers Co  
 STREET 8325 Turner  
 CITY Dallas TEXAS 75227  
 TELEPHONE (214) 388-7467 (Zip Code)

Water System Identification Number \_\_\_\_\_

TYPE ☒ Public ☐ Individual  
 OF ☐ Other  
 SYSTEM:

SAMPLE ☐ Distribution ☐ Special ☒ Construction  
 IS: ☐ Repeat for sample # \_\_\_\_\_  
☐ Recheck for sample # \_\_\_\_\_  
☐ Other \_\_\_\_\_

WATER ☐ River ☐ Lake ☒ Well  
 SOURCE: Well depth 1470' Chlorine Residual \_\_\_\_\_

## ANALYTICAL METHOD AND RESULTS:

MF: Presumptive \_\_\_\_\_ /100 ml Verified \_\_\_\_\_ /100 ml  
 Confluent Growth TNTC Noncoliform  
☒ Present ☒ Absent  
 Fecal Coliform: Present Absent  
 Fecal Coliform: 1st dil \_\_\_\_\_ ml 3rd dil \_\_\_\_\_ ml  
 2nd dil \_\_\_\_\_ ml Avg = \_\_\_\_\_ /100 ml

## Unsuitable For Analysis:

- ☐ Form incomplete (see encircled item)  
☐ Sample too old, not received within 30 hours of collection  
☐ Excessive chlorine present in sample  
☐ Unsuitable container  
☐ Heavy, non coliform bacteria/silt present, possibly obscuring and compromising test results  
☐ Quantity too great to permit agitation  
☐ Quantity insufficient for analysis (100 ml minimum)  
☐ Other

Analyzed by John A. Hansen

Water of satisfactory bacteriological quality should be free from Coliform Organisms.

723-021  
 1-85

Sample Number: <u>7011</u>	Laboratory ID Number: 48164	Comments:
Date and Time Sample Received: <u>3/24/91 10:30 AM</u>	Laboratory Name: City of Sherman	
Date and Time Analysis Began: <u>4/2/91 12:00 PM</u>	Date and Time Reported: <u>4/2/91 5:28 PM</u>	

18-44-805



# TARRANT COUNTY PUBLIC HEALTH LABORATORY

## WATER BACTERIOLOGY

1800 University Dr., Ft. Worth, TX 76107  
Lab No. 48010 (817)871-7245

Date and Time Rec'd.  
Sample No.

Date  
Reported

Do Not Mark Above This Line — Please Print Below with BALLPOINT PEN OR TYPEWRITER:

COUNTRY RIDGE ESTATES  
NAME OF WATER SYSTEM

WELL No 2 DISCHARGE  
POINT OF COLLECTION/SAMPLE DESCRIPTION

--	--	--	--	--	--	--	--

Water System I.D. No.

J. L. MYERS Co.  
NAME

SEND 8325 FURNACE  
RESULTS STREET ADDRESS (P.O. Box)

TO: DALLAS TX 75227  
CITY (Zip Code)  
214-384-7407 COLLIN  
PHONE # COUNTY

Date and Time of Collection: 3 24 99 10:30 AM KDW  
Month Day Year TIME AM/PM Collected By

<b>TYPE OF SYSTEM</b>		<b>SAMPLE IS</b>		<b>WATER SOURCE</b>	
<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Dairy	<input type="checkbox"/> Distribution	<input checked="" type="checkbox"/> Raw	<input type="checkbox"/> River	<input type="checkbox"/> Lake
<input type="checkbox"/> Individual	<input type="checkbox"/> Bottled	<input checked="" type="checkbox"/> Construction	<input type="checkbox"/> Repeat	<input checked="" type="checkbox"/> Well	
<input type="checkbox"/> School	<input type="checkbox"/> Vended	<input type="checkbox"/> Glycol/Sweet/Chill Water		Well Depth: <u>1470</u>	
		<input type="checkbox"/> Other		Chlorine Residual	

Additional Information:

LABORATORY REPORT (Do not write below)		TECH
<b>MMO-MUG</b> <b>Presence/Absence</b> Coliform Organisms <input type="checkbox"/> Not Found <input type="checkbox"/> Found <input type="checkbox"/> Total Coliform group <input type="checkbox"/> <i>Escherichia coli</i> <input type="checkbox"/> Repeat samples required <input type="checkbox"/> Unsuitable -- See below	<b>Membrane Filtration (MF)</b> Coliform Organisms <input type="checkbox"/> Not Found <input type="checkbox"/> Found Total Coliform/100 ml <i>E.coli</i> /100 ml Fecal Coliforms/100 ml <input type="checkbox"/> Unsuitable -- See below	<b>MMO-MUG</b> <b>Most Probable Number (MPN)</b> Coliform Organisms <input type="checkbox"/> Not Found <input type="checkbox"/> Found Total Coliform: _____ MPN/100ml <i>E.coli</i> : _____ MPN/100ml <input type="checkbox"/> Unsuitable -- See below

### UNSUITABLE FOR ANALYSIS—PLEASE RESUBMIT

- |  |   |
|--|---|
| <input type="checkbox"/> Sample too old. Sample not received within 30 hours of collection<br><input type="checkbox"/> Date discrepancy or form incomplete (See encircled item)<br><input type="checkbox"/> Leaked in transit<br><input type="checkbox"/> Quantity too great to permit agitation<br><input type="checkbox"/> Excessive chlorine residual: _____ mg/L | <input type="checkbox"/> Quantity insufficient for analysis (100 ml. required)<br><input type="checkbox"/> Heavy (silt/bacterial growth) present, possibly compromising test results.<br><input type="checkbox"/> Sample received on Friday<br><input type="checkbox"/> Other _____ |
|--|---|

H-220 GPC-2190 REV. 6-97

18-44-805



# CITY OF SHERMAN LABORATORY - WATER BACTERIOLOGY

Country Ridge Estates Collins  
Name of Water System County  
Well #2 Discharge KDW 3/25/99 AM/PM  
Point of Collection Collected By Date Time  
(Mo/Day/Yr)

Send Report To: NAME J.L. Myers Co.  
STREET 8325 Forney Rd.  
CITY Dallas TEXAS 75237  
TELEPHONE (214) 388-7107 (Zip Code)

Water System Identification Number

TYPE OF SYSTEM: ☒ Public ☐ Individual ☐ Other

SAMPLE IS: ☐ Distribution ☐ Special ☒ Construction  
☐ Repeat for sample #  
☐ Recheck for sample #  
☐ Other

WATER SOURCE: ☐ River ☐ Lake ☐ Well  
Well depth 1470 Chlorine Residual

ANALYTICAL METHOD AND RESULTS:  
MF: Presumptive /100 ml Verified /100 ml  
Confluent Growth TNTC Noncoliform  
Fecal Coliform: Present Absent  
Fecal Coliform: 1st dil / ml 3rd dil / ml  
2nd dil / ml Avg = /100 ml

## Unsuitable For Analysis:

- ☐ Form Incomplete (see encircled item)
- ☐ Sample too old, not received within 30 hours of collection
- ☐ Excessive chlorine present in sample
- ☐ Unsuitable container
- ☐ Heavy, non coliform bacteria/silt present, possibly obscuring and compromising test results
- ☐ Quantity too great to permit agitation
- ☐ Quantity insufficient for analysis (100 ml minimum)
- ☐ Other

Analyzed by *[Signature]*

Water of satisfactory bacteriological quality should be free from Coliform Organisms.

723-021  
1-95

Sample Number: # 7329	Laboratory ID Number: 48164	Comments:
Date and Time Sample Received: 3-25-99 10:42 AM	Laboratory Name: City of Sherman	
Date and Time Analysis Began: 3-25-99 11:02 AM	Date and Time Reported: 3-25-99 11:02 AM	

18-44-805





Texas Water Development Board  
Well Schedule

groundwater resources  
division

State Well Number: **18-50-301** Previous Well Number: County: **Collin** **85**

Latitude (dms): **331441** Longitude (dms): **964659** Coordinate Accuracy: **Global Positioning System - GPS**

River Basin: **Trinity River** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **City of Prosper**  
**Well #2**

Driller: **R.D. Caraway**

Aquifer ID: **Woodbine**

Aquifer Code: **212WDBN**

Depth (ft): **958**

Elevation (ft): **795**

**WOODBINE**  
**SAND**

Source of Depth: **Driller's Log**

Source of Elevation: **Digital Elevation  
Model -DEM**

Date Drilled: **06/21/1976**

Well Type: **Withdrawal of Water**

Type of Lift: **Submersible Pump**

Power: **Electric Motor**

Horsepower: **20.00**

Construction: **Hydraulic Rotary**

Completion: **Gravel Pack w/Screen**

Casing Material: **Steel**

Screen Material: **Stainless Steel**

CASING INTERVALS:  
Casing/Blank Pipe (C)  
Well Screen/Slotted Zone (S)  
Open Hole (O)

	Dia. (in.)	Top (ft.)	Bottom (ft.)
C	12	0	20
C	8	0	906
C	4	906	916
S	4	916	946
C	4	946	958

WATER USE

Primary: **Public  
Supply**

Secondary:

Tertiary:

Water Levels: **TWDB Current Observation Well**

Water Quality: **Y**

20 measurements

1993 to 2010

MIN -655 MAX -447

Other Data: **C**

Logs: **DE**

REMARKS:

Owners well #2 (Dodson). PWS ID #0430009B. Measured yield 73 GPM with 10 feet drawdown after pumping 48 hours in 1976. Specific capacity 7.3 gpm/ft. Pumping level 510 feet. Pump set at 685 feet. Cemented from 0 to 906 feet. Gravel packed from 906 to 958 feet. Current water level observation well.

Reporting Agency: **TWDB or Predecessor  
Agency**

Date Collected or Reported: **06/15/2006**

Recorded by: D.R. Jones



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-50-301Owner's Well No. 1County COLLIN1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_ Survey \_\_\_\_\_1 mi. E. of Prosper2. Owner: DAVID DODSON Address: Prosper

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: R.D. CARAWAY & SONS Address: 507 E. Walnut, Decatur3. Elevation of LSD is 782 ft. above msl, determined by TQPO4. Drilled: 6-21 19 76; Dug, Cable Tool, (Rotary)5. Depth: Rept. 958 ft. Meas. \_\_\_\_\_ ft.6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed7. Pump: Mfg. TRW - Reda Type SUBM.No. Stages \_\_\_\_\_, Bore Diam. \_\_\_\_\_ in., Setting 685 ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel Elect. Make & Model \_\_\_\_\_ HP. 20

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date 6-21-76 Length of Test 48 hr Made by drillerStatic Level 500 ft. Pumping Level 510 ft. Drawdown 10 ft.Production 73 gpm Specific Capacity 7.3 gpm/ft.11. Water Level: 760.5 ft. rept. 2-14 19 77 above 225-140 AIRLINE which is \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, (Public Supply) Ind., Irr., Waterflooding, Observation, Not Used, \_\_\_\_\_

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 6-30-76 Laboratory TED H

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

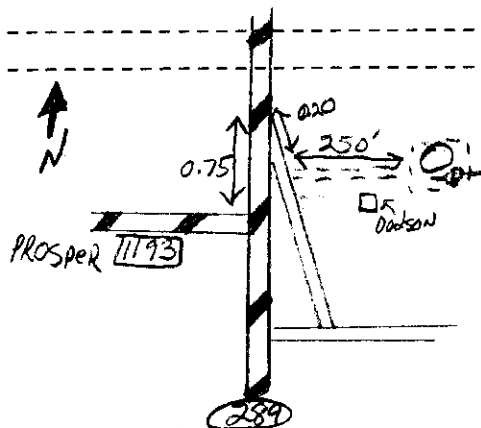
14. Other data available as circled: (Driller's Log), Radioactivity Log (Electric Log)

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: GONE DAVIS Date 2-14 19 77Source of Data DL, MR. Dodson & obs16. Remarks: Top Wb @ 660

CASING & BLANK PIPE			
Cemented From		ft. to	
Diam. (in.)	Type	Setting, ft.	
		from	to
12	steel	0	20
7	"	0	906
3	Liner	906	958

WELL SCREEN			
Screen Openings		Setting, ft.	
Diam. (in.)	Type	from	to
3	S.S. screen	916	946



Q-31



Send original copy by  
certified mail to the  
Texas Water Development Board  
P. O. Box 13087  
Austin, Texas 78711

State of Texas

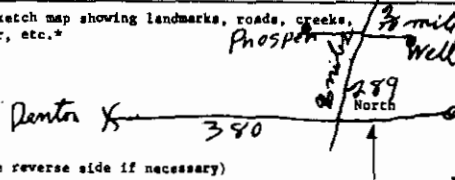
WATER WELL REPORT

For TWDB use only  
Well No. 18-50-28  
Located on map yes  
Received: 7-6-76  
dl

1) OWNER:  
Person having well drilled D. L. Dodson Address Prosper, Texas  
(Name) (Street or RFD) (City) (State)  
Landowner D. L. Dodson Address \_\_\_\_\_  
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:  
County Collins \_\_\_\_\_ miles in E direction from Prosper  
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks,  
highway number, etc.\*



Give legal location with distances and directions from  
adjacent sections or survey lines.

Labor \_\_\_\_\_ League \_\_\_\_\_

Block \_\_\_\_\_ Survey \_\_\_\_\_

Abstract No. \_\_\_\_\_

(NW 1/4 NE 1/4 SW 1/4 SE 1/4) of Section \_\_\_\_\_

3) TYPE OF WORK (Check):  
New Well ☒ Deepening \_\_\_\_\_  
Reconditioning \_\_\_\_\_ Plugging \_\_\_\_\_  
4) PROPOSED USE (Check):  
Domestic \_\_\_\_\_ Industrial \_\_\_\_\_ Municipal ☒  
Irrigation \_\_\_\_\_ Test Well \_\_\_\_\_ Other \_\_\_\_\_  
5) TYPE OF WELL (Check):  
Rotary ☒ Driven \_\_\_\_\_ Dug \_\_\_\_\_  
Cable \_\_\_\_\_ Jetted \_\_\_\_\_ Bored \_\_\_\_\_

6) WELL LOG:  
Diameter of hole 11 in. Depth drilled 958 ft. Depth of completed well 958 ft. Date drilled 6-21-76  
All measurements made from \_\_\_\_\_ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0'	5'	surface
5'	100'	lime
100'	520'	broken shale
520'	530'	lime
530'	660'	shale
660'	680'	lime
680'	820'	limey shale
820'	840'	sand
840'	845'	shale
845'	860'	sand
860'	905'	limey shale
905'	958'	sand

9) CASING:  
Type: Old ☒ New \_\_\_\_\_ Steel \_\_\_\_\_ Plastic \_\_\_\_\_ Other \_\_\_\_\_  
Cemented from 906' ft. to 0 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Cage Size
12"	0'	70'	30"
7"	0'	906'	20"

10) SCREEN:  
Type stainless steel  
Perforated \_\_\_\_\_ Slotted \_\_\_\_\_  
Diameter (inches) \_\_\_\_\_ Setting From (ft.) \_\_\_\_\_ To (ft.) \_\_\_\_\_ Slot Size \_\_\_\_\_

7) COMPLETION (Check):  
Straight wall \_\_\_\_\_ Gravel packed ☒ Other \_\_\_\_\_  
Under reamed \_\_\_\_\_ Open Hole \_\_\_\_\_

11) WELL TESTS:  
Was a pump test made? Yes ☒ No \_\_\_\_\_ If yes, by whom? \_\_\_\_\_  
Yield: 73 gpm with 10 ft. drawdown after 48 hrs.  
Sailer test \_\_\_\_\_ gpm with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.  
Artesian flow \_\_\_\_\_ gpm  
Temperature of water \_\_\_\_\_

8) WATER LEVEL:  
Static level 500 ft. below land surface Date 6-21-76  
Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 685 ft.  
below land surface.

12) WATER QUALITY:  
Was a chemical analysis made? Yes \_\_\_\_\_ No ☒  
Did any strata contain undesirable water? Yes \_\_\_\_\_ No ☒  
Type of water? \_\_\_\_\_ depth of strata \_\_\_\_\_

I hereby certify that this well was drilled by me (or under my supervision) and that  
each and all of the statements herein are true to the best of my knowledge and belief.

NAME R.D. Caraway Water Well Drillers Registration No. 1282  
(Type or Print)  
ADDRESS 507 E. Walnut Decatur Texas 76234  
(Street or RFD) (City) (State)  
(Signed) R.D. Caraway R.D. Caraway & Sons  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available. 18-50-301

\*Additional instructions on reverse side.

TWDB-WD-8

Q-31



Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas Department of Health Laboratories  
1100 West 49th Street  
Austin, Texas 78756

TDWR ONLY

Organization No. 410 Lab No. 01

Work No. 6040

### CHEMICAL WATER ANALYSIS REPORT

Send report to:

Data Collection and Evaluation Section  
Texas Department of Water Resources  
P.O. Box 13087  
Austin, Texas 78711

County 043 Collin  
State Well No. 18 50 301  
city Well No. 2  
Date Collected 03 12 83

Owner City of Prosper



Send copy to owner

Sample No.



By S. MOORE  
M. Michon

Address P.O. BOX 279, Prosper, TEX., 75078

Well Location

Date Drilled 6-21-76 Depth 958 ft. WBF WOODBINE 201

Producing intervals 916' TO 946' Water level \_\_\_\_\_ ft. Sample depth \_\_\_\_\_ ft.

Sampled after pumping POA hrs. Yield \_\_\_\_\_

GPM mess.  
est.

Temperature 074°F \_\_\_\_\_°C

Point of collection Faucet in well house

Appearance

☒ clear ☐ turbid ☐ colored ☐ other

Use public supply Remarks \_\_\_\_\_

(FOR LABORATORY USE ONLY)

### CHEMICAL ANALYSIS

### KEY PUNCHED

Laboratory No. [REDACTED]

Date Received MAR 21 1983

Date Reported MAY 05 1983

	MG/L	ME/L
Silica . . . 00955 . . .	<u>12</u>	
Calcium . . . 00910 . . .	<u>&lt;1</u>	<u>0.02</u>
Magnesium . . . 00920 . . .	<u>&lt;1</u>	<u>0.02</u>
Sodium . . . 00929 . . .	<u>170</u>	<u>7.39</u>
Total		<u>7.43</u>

<input type="checkbox"/> Potassium . . . 00937 . . .		
<input type="checkbox"/> Manganese . . . 01055 . . .		%Na _____
<input type="checkbox"/> Boron . . . 01022 . . .		SAR _____
<input type="checkbox"/> Total Iron . . . 01045 . . .		RSC _____

☐ (other) \_\_\_\_\_ MG/L

Specific Conductance (micromhos/cm<sup>3</sup>) . . . 00095 . . . 680

Diluted Conductance (micromhos/cm<sup>3</sup>) 5.5 x 136

☐ " items will be analyzed if checked.

748

<sup>1</sup> The bicarbonate reported in this analysis can be converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure used in the computation of dissolved solids.

<sup>2</sup> Nitrogen cycle requires separate sample.

<sup>3</sup> Total Iron and Manganese require separate sample.

	MG/L	ME/L
Carbonate . . . 00445 . . .	<u>10</u>	<u>0.36</u>
<sup>175</sup> Bicarbonate . . . 00440 . . .	<u>357</u>	<u>5.86</u>
Sulfate . . . 00945 . . .	<u>46</u>	<u>0.96</u>
Chloride . . . 00940 . . .	<u>16</u>	<u>0.45</u>
Fluoride . . . 00951 . . .	<u>0.3</u>	<u>0.01</u>
Nitrate . . . 71850 . . .	<u>0.04</u>	<u>0.</u>
pH . . . . . 00403 . . .	<u>8.4</u>	Total <u>7.64</u>
<sup>1</sup> Dissolved Solids (residue at 180°C) . . . 70300 . . .		<u>434</u>
Phenolphthalein Alkalinity as CaCO <sub>3</sub> . . . 00415 . . .	<u>(0.18)</u>	<u>9</u>
Total Alkalinity as CaCO <sub>3</sub> . . . . . 00410 . . .	<u>(6.22)</u>	<u>311</u>
Total Hardness as CaCO <sub>3</sub> . . . . . 00900 . . .	<u>(0.04)</u>	<u>2</u>
<sup>2</sup> Nitrogen Cycle		
Ammonia - N . . . . . 00610 . . .		
Nitrite - N . . . . . 00615 . . .		
Nitrate - N . . . . . 00620 . . .		
Organic Nitrogen . . . . . 00605 . . .		

Analyst \_\_\_\_\_ Checked By \_\_\_\_\_

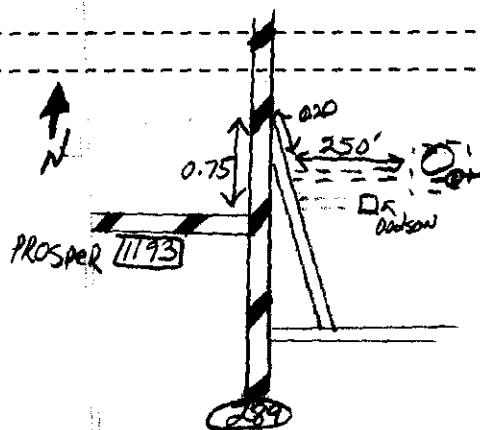


## WELL SCHEDULE

County COLLIN

16. Remarks: *Too WB @ 660*

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		from	to
3	S.S. screen	916	946



Q-31

**TWDBE-WD-2**

18-50-301



# Water Quality Field Data

SWN: 18-50-301  
 County: Collin  
 Aquifer(s): Z12WDBN

Name: City of Prosper  
 Address: BX 297  
Prosper, TX 75078  
 owner's well # #2

Sample No. 20-1998-817  
 Date: 10-22-97  
 By: Robert Azmen

Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total SUB-Samples																																																																																																					
500 ml Anions	1 liter Cations	250 ml Nitrate	1 liter Radioactivity																																																																																																									
	2 ml HNO <sub>3</sub> (Nitric)	0.5 ml H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	2 ml HNO <sub>3</sub> (Nitric)				All filtered unless otherwise stipulated																																																																																																					
Water Level _____ LSD _____ Remark _____ Temperature (00010) <u>25.8</u> c Specific Conductance (00094) <u>659</u> umhos/cm pH (00400) <u>8.02</u> Eh (00090) <u>86.2</u> mv. Phenol ALK (82244) <u>0</u> mg/l Total ALK (39086) <u>308.0</u> mg/l Carbonate (00452) <u>0</u> meq/l <u>0</u> mg/l Bicarbonate (00453) <u>6.16</u> meq/l <u>375.9</u> mg/l Total Cations(+) <u>0</u> Total Anions (-) <u>0</u> Total Hardness (00900) <u>3</u> Dissolved Solids <u>445</u>			Time in <u>11:00</u> Time out <u>12:00</u> Sample time <u>11:35</u> Weather <u>Nice</u> well use <u>P</u> Outside Temp <u>65°</u> Sampling point <u>FRW</u> <u>P.O. 11:15</u> Starting pH <u>8.11</u> <u>15.4</u> ml. of 0.02N to <u>50</u> ml. of Sample Ending pH <u>4.49</u>																																																																																																									
			<table border="1"> <thead> <tr> <th>Time:</th> <th>11:25</th> <th>11:30</th> <th>11:35</th> <th></th> <th></th> <th></th> <th>ml.</th> <th>pH</th> <th>ml.</th> <th>pH</th> <th>ml.</th> <th>pH</th> </tr> </thead> <tbody> <tr> <td>pH:</td> <td>7.92</td> <td>8.02</td> <td>8.02</td> <td></td> <td></td> <td></td> <td>2</td> <td>6.85</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Temp:</td> <td>26.1</td> <td>25.9</td> <td>25.8</td> <td></td> <td></td> <td></td> <td>4</td> <td>6.46</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Eh:</td> <td></td> <td></td> <td>86.2</td> <td></td> <td></td> <td></td> <td>6</td> <td>6.22</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cond.</td> <td>670</td> <td>662</td> <td>659</td> <td></td> <td></td> <td></td> <td>8</td> <td>6.02</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7" rowspan="5">other notes:</td> <td>10</td> <td>5.82</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12</td> <td>5.61</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>14</td> <td>5.19</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>15</td> <td>4.79</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>15.4</td> <td>4.49</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Time:	11:25	11:30	11:35				ml.	pH	ml.	pH	ml.	pH	pH:	7.92	8.02	8.02				2	6.85					Temp:	26.1	25.9	25.8				4	6.46					Eh:			86.2				6	6.22					Cond.	670	662	659				8	6.02					other notes:							10	5.82					12	5.61					14	5.19					15	4.79					15.4	4.49				
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# FINAL ANALYSIS REPORT

LAB ID: 9802452

SAMPLE DESCRIPTION: Groundwater

FACILITY: TWDB

SAMPLE DATE: 10/22/97

ACCT NO:

SAMPLE TIME: 1135

TX Water Dev. Board

DATE RECEIVED: 10/24/97

REPORT DATE: 01/02/98

LOCATION ID: 18-50-301

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Alkalinity, Phenol.	5	mg/L	00415	0	11/04/97
Alkalinity, Total	294	mg/L	00410	1	11/04/97
Bromide	<0.50	mg/L	71870	0.05	10/29/97
Chloride	14.0	mg/L	00941	1.0	12/29/97
Fluoride	0.78	mg/L	00950	0.03	10/29/97
Nit., Nitrate/Nitrite	<0.060	mg/L	00630	0.060	10/31/97
Nitrogen, Kjeldahl	<0.500	mg/L	00623	0.100	11/10/97
Nitrogen, ammonia	0.590	mg/L	00608	0.050	11/13/97
Phosphorus, Total	0.650	mg/L	00665	0.100	11/18/97
Silica	11.30	mg/L	00955	1.00	11/17/97
Sulfate	52.80	mg/L	00946	0.05	12/29/97
Aluminum, Dis. ICPMS	4.6	ug/L	01106	1.0	11/12/97
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	11/12/97
Arsenic, Diss. ICPMS	<2.0	ug/L	01000	2.0	11/12/97
Barium, Diss. ICPMS	1.2	ug/L	01005	1.0	11/12/97
Beryllium, Dis ICPMS	<2.0	ug/L	01010	1.0	11/12/97
Boron, Diss. ICPMS	972.6	ug/L	01020	5.0	11/12/97
Cadmium, Diss. ICPMS	<1.0	ug/L	01025	1.0	11/12/97
Calcium, Dissolved	<0.50	mg/L	00915	0.50	12/02/97
Chromium, Diss ICPMS	9.9	ug/L	01030	1.0	11/12/97
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	11/12/97
Copper, Diss. ICPMS	4.5	ug/L	01040	1.0	11/12/97
Iron, Dissolved	28.00	ug/L	01046	0.01	11/06/97
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	11/12/97
Lithium, Diss. ICPMS	13.6	ug/L	01130	2.0	11/12/97
Magnesium, Dissolved	<0.50	mg/L	00925	0.05	11/06/97
Manganese, Dis ICPMS	3.2	ug/L	01056	1.0	11/12/97
Molybdenum Dis ICPMS	<1.0	ug/L	01060	1.0	11/12/97
Nickel, Diss. ICPMS	<1.0	ug/L	01065	1.0	11/12/97



# FINAL ANALYSIS REPORT

LAB ID: 9802452      SAMPLE DESCRIPTION: Groundwater  
 FACILITY: TWDB      SAMPLE DATE: 10/22/97  
 ACCT NO:      SAMPLE TIME: 1135  
             TX Water Dev. Board

DATE RECEIVED: 10/24/97  
 REPORT DATE: 01/02/98

LOCATION ID: 18-50-301

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Potassium, Dissolved	<1.00	mg/L	00935	1.00	11/06/97
Selenium, Dis. ICPMS	<5.0	ug/L	01145	5.0	11/12/97
Sodium, Dissolved	179.76	mg/L	00930	0.10	12/02/97
Strontium, Dis ICPMS	30.0	ug/L	01080	1.0	11/12/97
Thallium, Diss ICPMS	<1.0	ug/L	01057	1.0	11/12/97
Vanadium, Diss ICPMS	2.1	ug/L	01085	1.0	11/12/97
Zinc, Diss. ICPMS	<2.0	ug/L	01090	2.0	11/12/97

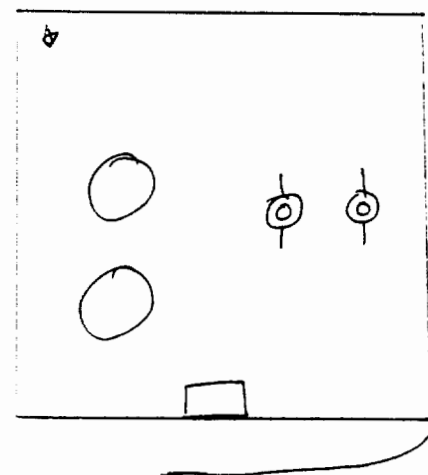
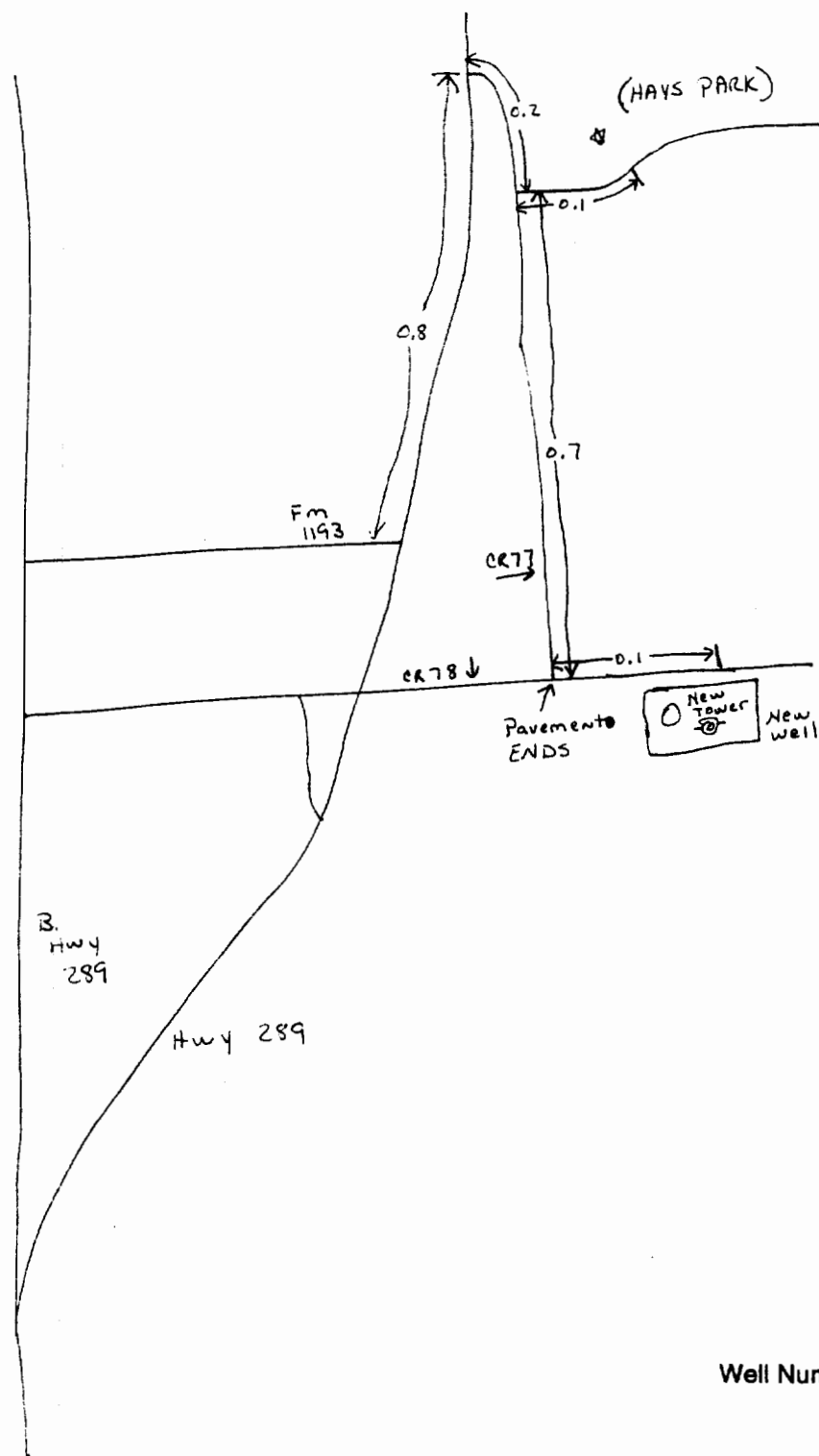
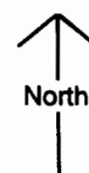
COMMENTS: See attached subcontracted analyses.



# Texas Water Development Board

By Bryan Smith  
County Collin  
Well Number 18-50-301

Date 10/6/99



Well Number 18-50-301



2002FY

## TWDB Water Qual. Field Data Sheet

State Well Number: 1850301  
 County: Collin  
 County Code: 085  
 Aquifer Code: 212WDBN  
 Aquifer ID: 29

Name: City of Prosper  
 Address: P.O. Box 307  
Prosper, TX 75078  
 Phone Number: 469-371-8948 or 972-346-2640  
 Attention: C. Co  
 Well Name or #: 2

Sample ID Number: 609  
 Date: 9/13/01  
 Sampler(s): D. Rau

## Calibration Verification Readings

pH 7.00 7.00  
 4 or 10 10.01  
 SLP = 57.0  
 Conductivity 500 499  
 1000 1002  
 2000  $1.96 \times 10^3$   
 5000  $4.95 \times 10^3$

CIRCLE EACH SAMPLE FRACTION COLLECTED:

①	②	③	4	⑤
500ml (filtered)	500ml (filtered)	250ml (filtered)	40 ml (unfiltered)	1L (unfiltered)
<b>Anions / Total Alk.</b>	<b>Cations</b>	<b>Nitrate</b>	<b>Atrazine</b>	<b>Radioactivity</b>
Ice	Nitric (HNO <sub>3</sub> )	Ice + H <sub>2</sub> SO <sub>4</sub>	Ice and in dark	Nitric (HNO <sub>3</sub> )

Proper preservation requires adding enough of the correct acid to each sample fraction to bring the pH below 2.0.

Time In: 14:00Time Out: 14:45W. L. depth from LSD (ft.): —W.L. remark: 42 M.P. = —Pumping Since: 14:07Sampling Point: Faust after WHWell Use: P

## FIELD G.P.S. readings

Lift: SLatitude: 33 14 40Power: ELongitude: 096 46 58Sample Time: 14:27Filter pressure: hand pump line

## Field Alkalinity Titration:

8.45 Start pH 4.50 End pH  
50.0 mL Sample Size  
0.3 mL Acid added for Phenol (> 8.3)  
15.8 mL Acid added for Total (8.3 - 4.5)

Items below calculated from: mL acid added x 20 = Alkalinity

Phenol Alkalinity (82244): 6.0 mg/L  
 Total Alkalinity (39086): 316.0 mg/L

Items Below Calculated Later From Results:

Dissolved Solids (mg/L): 435  
 Hardness (as CaCO<sub>3</sub>): 1  
 Balanced: B

## Water Quality Stabilization Parameters Table

(at least 3 readings at five minute intervals)

Time:	<u>14:10</u>	<u>14:15</u>	<u>14:20</u>	<u>14:25</u>			
pH:	<u>8.56</u>	<u>8.52</u>	<u>8.54</u>	<u>8.54</u>			
Celsius Temp. (00010)	<u>25.7</u>	<u>26.3</u>	<u>26.3</u>	<u>26.3</u>			
Conductivity (uS/cm):	<u>733</u>	<u>750</u>	<u>735</u>	<u>733</u>			

Notes: 97WQ = 25/8.0/659

Data Entered By Sampler Into Database:

yes / no



# LCRA Environmental Laboratory Services

Date: 09-Oct-01

CLIENT: Texas Water Development Board  
 Lab Order: 0109142 File No: 17307  
 Project: TWDB FY02  
 Lab ID: 0109142-09

Client Sample ID: 18-50-301  
 Collection Date: 09/13/2001 2:27:00 PM  
 Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		Analyst: <b>SW</b>				
Calcium	00915	0.367	0.204		mg/L	1.02	R10737A	09/20/2001 12:29:31 PM
Magnesium	00925	ND	0.204		mg/L	1.02	R10737A	09/20/2001 12:29:31 PM
Potassium	00935	0.750	0.204		mg/L	1.02	R10737A	09/20/2001 12:29:31 PM
Sodium	00930	164	0.714		mg/L	1.02	R10737A	09/20/2001 12:29:31 PM
<b>ICP METALS DISSOLVED</b>		<b>E200.7</b>		Analyst: <b>SW</b>				
Boron	01020	607	51.0		µg/L	1.02	R10739A	09/20/2001 12:29:31 PM
Iron	01046	ND	51.0		µg/L	1.02	R10739A	09/20/2001 12:29:31 PM
Strontium	01080	ND	20.4		µg/L	1.02	R10739A	09/20/2001 12:29:31 PM
<b>ICPMS DISSOLVED METALS</b>		<b>E200.8</b>		Analyst: <b>PJM</b>				
Aluminum	01106	ND	4.00		µg/L	1	R10686A	09/19/2001
Antimony	01095	ND	1.00		µg/L	1	R10686A	09/19/2001
Arsenic	01000	ND	2.00		µg/L	1	R10686A	09/19/2001
Barium	01005	1.17	1.00		µg/L	1	R10686A	09/19/2001
Beryllium	01010	ND	1.00		µg/L	1	R10700A	09/20/2001
Cadmium	01025	ND	1.00		µg/L	1	R10686A	09/19/2001
Chromium	01030	1.47	1.00		µg/L	1	R10686A	09/19/2001
Cobalt	01035	ND	1.00		µg/L	1	R10686A	09/19/2001
Copper	01040	1.18	1.00		µg/L	1	R10686A	09/19/2001
Lead	01049	ND	1.00		µg/L	1	R10686A	09/19/2001
Lithium	01130	10.1	2.00		µg/L	1	R10700A	09/20/2001
Manganese	01056	3.88	1.00		µg/L	1	R10686A	09/19/2001
Molybdenum	01060	ND	1.00		µg/L	1	R10686A	09/19/2001
Nickel	01065	ND	1.00		µg/L	1	R10686A	09/19/2001
Selenium	01145	ND	4.00		µg/L	1	R10686A	09/19/2001
Thallium	01057	ND	1.00		µg/L	1	R10686A	09/19/2001
Vanadium	01085	ND	1.00		µg/L	1	R10686A	09/19/2001
Zinc	01090	ND	4.00		µg/L	1	R10686A	09/19/2001
<b>CATION/ANION BALANCES</b>		<b>CALCULATION</b>		Analyst: <b>AMJ</b>				
Cation/Anion Balance		Balanced		Date		1	R10905	10/05/2001
<b>RADIOLOGICALS</b>		<b>RADIOCHEM</b>		Analyst: <b>SB</b>				
ALPHA, Gross		1.5		pci/L		1	R10847	09/20/2001
BETA, Gross		2.4		pci/L		1	R10847	09/20/2001

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 \* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 E - Value above quantitation range



**LCRA Environmental Laboratory Services**

Date: 09-Oct-01

CLIENT: Texas Water Development Board

Client Sample ID: 18-50-301

Lab Order: 0109142 File No: 17307

Project: TWDB FY02

Collection Date: 09/13/2001 2:27:00 PM

Lab ID: 0109142-09

Matrix: GROUNDWATER

Analyses	Storet	Result	PQL	Qual	Units	DF	BatchID	Date Analyzed
<b>ANIONS BY ION CHROMATOGRAPHY</b>			<b>E300</b>					Analyst: <b>AMJ</b>
Bromide Dissolved	71870	0.0696	0.0200		mg/L	1	R10826A	09/26/2001
Chloride Dissolved	00941	14.8	1.00		mg/L	1	R10826A	09/26/2001
Fluoride Dissolved	00950	0.933	0.0100		mg/L	1	R10826A	09/26/2001
Sulfate Dissolved	00946	50.2	1.00		mg/L	1	R10826A	09/26/2001
<b>ALKALINITY</b>			<b>M2320 B</b>					Analyst: <b>CMM</b>
Alkalinity, Phenolphthalein	00415	12.0			mg/L CaCO	1	R10656	09/18/2001
Alkalinity, Total (As CaCO3)	00410	318	2.00		mg/L CaCO	1	R10656	09/18/2001
<b>NITRATE AND NITRITE</b>			<b>E353.2</b>					Analyst: <b>WR</b>
Nitrogen, Nitrate & Nitrite	00631	ND	0.0200		mg/L	1	R10902J	10/04/2001
<b>SILICA</b>			<b>E370.1</b>					Analyst: <b>WR</b>
Silica, Dissolved (as SiO2)	00995	13.5	0.500		mg/L	1	R10860B	10/02/2001

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
B - Analyte detected in the associated Method Blank  
\* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range



# **TWDB Water Quality Field Data Sheet**

SWN: 18-50-301  
 County: COLLIN  
 County Code: 085  
 Aquifer Code: 212 WDBN  
 Aquifer Id: 29

Name: CITY OF PROSPER  
 Address: PO BOX 301  
PROSPER 75078  
 Phone Number: 972-346-2640  
 Attention: \_\_\_\_\_  
 Well Name or #: 2

Newly Invented Well \_\_\_\_\_  
 ID Number: 663  
 Date: 6-15-06  
 Sampler(s): MB

CIRCLE EACH SAMPLE FRACTION COLLECTED:									
1	2	3	4	5	6	7	8	9	10
500ml filtered Anions/T. Alk. Ice	2 L filtered Radio/Cation (HNO3)	500ml filtered Nitrate Ice + H2SO4	40ml unfiltered Atrazine Ice & in dark	<del>1 L unfiltered Tri-n-butyl phosphate</del>					

All acidified samples pH <2.0. (\*) If natural pH <7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.

Calibration Verification Readings	
pH	7 = <u>7.00</u>
	4 or 10 = <u>4.02</u>
SLP = <u>100.1</u>	7.38 = _____
Conductivity	500 = <u>508</u>
	1000 = <u>994</u>
	2000 = <u>1967</u>
	5000 = <u>477</u>

Time In: 1000 Time Out: 1050  
 Water Level: \_\_\_\_\_ W.L. remark: \_\_\_\_\_ M.P.: \_\_\_\_\_  
 Pumping time: POA Sampling Point: FAW  
 Well Use: P FIELD G.P.S. readings  
 Lift: S Latitude: 33° 14' 40.6"  
 Power: E Longitude: 96° 46' 58.1"  
 Casing Type: \_\_\_\_\_ Casing Size: \_\_\_\_\_  
 Sample Time: 1030 Filter pressure: hand pump / line / spring

**Field Alkalinity Titration:**  
8.73 Start pH 4.48 End pH  
50.0 mL Sample Size  
0.85 mL Acid added for Phenol (> 8.3)  
26.60 mL Acid added for Total (to pH 4.5)  
 Items below calculated from: mL acid added x 20 = Alkalinity  
 Phenol Alkalinity (82244): 17 mg/L  
 Total Alkalinity (39086): 532 mg/L

Items Below Calculated Later From Results:  
 Dissolved Solids (mg/L): 709  
 Hardness (as CaCO3): 6  
 Balanced: B

Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)										Notes:
Time	<u>1010</u>	<u>1020</u>	<u>1025</u>							
pH	<u>8.68</u>	<u>8.67</u>	<u>8.67</u>							
Celsius Temp.	<u>31.8</u>	<u>31.8</u>	<u>31.8</u>							
Conductivity	<u>1226</u>	<u>1226</u>	<u>1226</u>							

Data Entered By Sampler Into Database: yes / no



# LABORATORY ANALYTICAL REPORT

**Client:** Texas Water Development Board  
**Project:** TWDB  
**Lab ID:** C06060935-010  
**Client Sample ID:** 1850301 (663)

**Revised Date:** 08/09/06  
**Report Date:** 07/12/06  
**Collection Date:** 06/15/06 10:30  
**Date Received:** 06/17/06  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Alkalinity, Phenolphthalein as CaCO <sub>3</sub>	37	mg/L		1		A2320 B	07/10/06 16:37 / th
Alkalinity, Total as CaCO <sub>3</sub>	494	mg/L		1		A2320 B	07/10/06 16:37 / th
Bromide	0.11	mg/L		0.05		E300.0	06/27/06 20:02 / eli-b
Calcium	1.4	mg/L		0.5		E200.7	06/23/06 17:14 / ts
Chloride	21	mg/L		1		A4500-Cl B	06/21/06 11:28 / jl
Fluoride	1.6	mg/L		0.1		E300.0	06/27/06 20:02 / eli-b
Magnesium	ND	mg/L		0.5		E200.7	06/23/06 17:14 / ts
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	06/21/06 10:48 / jal
Potassium	1.0	mg/L		0.5		E200.7	06/23/06 17:14 / ts
Silica	13.2	mg/L		0.1		E200.7	06/23/06 17:14 / ts
Sodium	287	mg/L		0.5		E200.7	06/23/06 17:14 / ts
Sulfate	88	mg/L	D	3		A4500-SO <sub>4</sub> E	06/23/06 14:37 / bm
<b>METALS - DISSOLVED</b>							
Aluminum	6	ug/L		1		E200.8	06/20/06 04:09 / sml
Antimony	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Arsenic	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Barium	3	ug/L		1		E200.8	06/20/06 04:09 / sml
Beryllium	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Boron	1020	ug/L		100		E200.7	06/23/06 17:14 / ts
Cadmium	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Chromium	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Cobalt	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Copper	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Iron	ND	ug/L		30		E200.7	06/23/06 17:14 / ts
Lead	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Lithium	31	ug/L		1		E200.8	06/26/06 16:57 / bws
Manganese	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Molybdenum	1	ug/L		1		E200.8	06/20/06 04:09 / sml
Selenium	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Strontium	67	ug/L		1		E200.8	06/20/06 04:09 / sml
Thallium	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
Vanadium	1	ug/L		1		E200.8	06/20/06 04:09 / sml
Zinc	ND	ug/L		1		E200.8	06/20/06 04:09 / sml
<b>DATA QUALITY</b>							
A/C Balance (± 5)	0.954	%				Calculation	07/11/06 12:26 / cp
Anions	12.4	meq/L				Calculation	07/11/06 12:26 / cp
Cations	12.6	meq/L				Calculation	07/11/06 12:26 / cp

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
 D - RL increased due to sample matrix interference.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



## TEXAS WATER DEVELOPMENT BOARD

## WELL SCHEDULE

Aquifer Woodbine

Field No. \_\_\_\_\_

State Well No. 18-50-301Owner's Well No. 1County COLLIN1. Location: 1/4, 1/4 Sec., Block \_\_\_\_\_, Survey City of Prosper Well # 22. Owner: DAVID DODSON Address: Prosper

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: R.D. CARAWAY & SONS Address: 507 E. Walnut, Decatur3. Elevation of LSD is 782 ft. above msl, determined by TOPO4. Drilled: 6-21 1976; Dug, Cable Tool, (Rotary)5. Depth: Rept. 958 ft. Meas. \_\_\_\_\_ ft.6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed7. Pump: Mfr. TRW - Reda Type Subm.No. Stages \_\_\_\_\_, Bowls Diam. \_\_\_\_\_ in., Setting 685 ft.

Column Diam. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel Elect. Make & Model \_\_\_\_\_ HP. 20

9. Yield: Flow \_\_\_\_\_ gpm, Pump \_\_\_\_\_ gpm, Meas., Rept., Est. \_\_\_\_\_

10. Performance Test: Date 6-21-76 Length of Test 48 hr Made by drillerStatic Level 500 ft. Pumping Level 510 ft. Drawdown 10 ft.Production 73 gpm Specific Capacity 7.3 gpm/ft.11. Water Level: 460.3 ft. rept. 2-14 1977 above 225-140 AIRLINE which is \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. rept. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

\_\_\_\_\_ ft. meas. \_\_\_\_\_ 19 \_\_\_\_\_ above \_\_\_\_\_ ft. above surface.

12. Use: Dom., Stock, (Public Supply) Ind., Irr., Waterflooding, Observation, Not Used, \_\_\_\_\_

13. Quality: (Remarks on taste, odor, color, etc.) \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis 6-30-76 Laboratory TSDH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

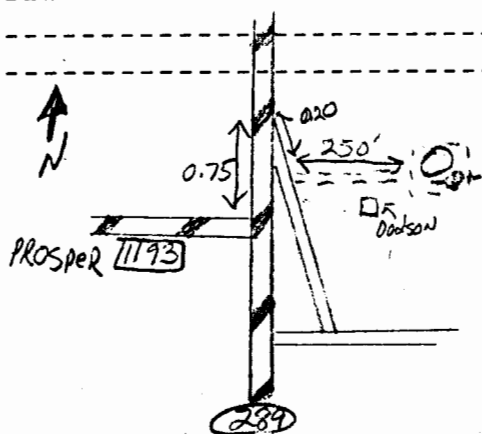
14. Other data available as circled: (Driller's Log), Radioactivity Log, (Electric Log)

Formation Samples, Pumping Test, \_\_\_\_\_

15. Record by: GENE DAVIS Date 2-14 1977Source of Data DL, MR. DODSON & OBS16. Remarks: Top Wb @ 660

CASING & BLANK PIPE			
Cemented From <u>0</u> ft. to <u>906</u> ft.			
Diam. (in.)	Type	Setting, ft. from to	
<u>12</u>	<u>steel</u>	<u>0</u>	<u>20</u>
<u>7</u>	<u>"</u>	<u>0</u>	<u>906</u>
<u>3</u>	<u>Liner</u>	<u>906</u>	<u>958</u>

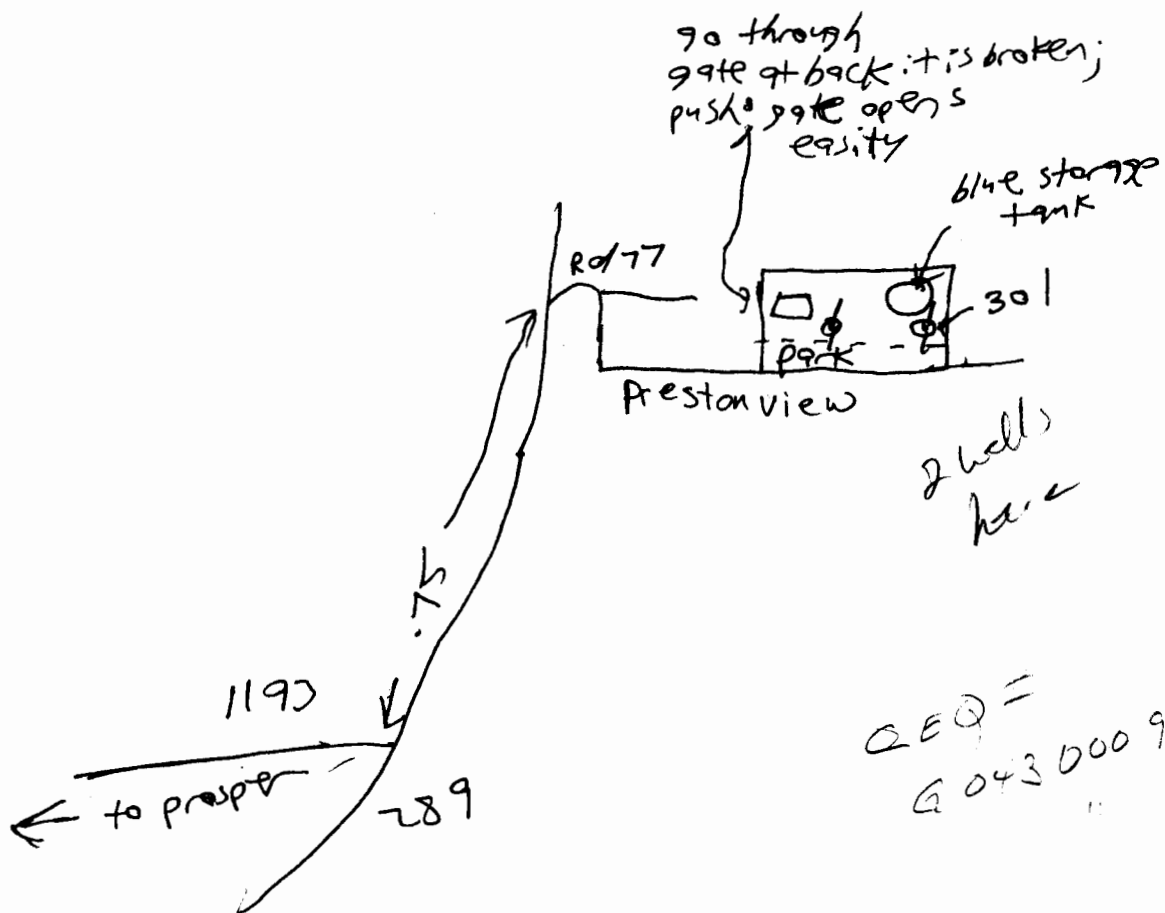
WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft. from to	
<u>3</u>	<u>S.S. SCREEN</u>	<u>916</u>	<u>946</u>



(Sketch)

Q-31





QEQ =  
 Q 043 000 98  
 " 90

don't need to  
 measure in 1993.  
 18/93-3/94. C.U.

18-50-301



# TEXAS WATER DEVELOPMENT BOARD — WATER LEVEL MEASUREMENTS

OLD WELL NUMBER \_\_\_\_\_ AS OF \_\_\_\_\_ WELL LOCATION: LAT. \_\_\_\_\_  
 YR. REC. BEGINS \_\_\_\_\_ LONG. \_\_\_\_\_  
 LAST CHEMICAL ANALYSIS \_\_\_\_\_

☐ Normal  
☐ Publ.  
☐ USGS

STATE WELL NUMBER				LAND SURFACE DATUM ELEVATION								
DEPTH OF WELL				COMPLETION INTERVAL								
DATE OF CURRENT MEASUREMENT			CURRENT DEPTH TO WATER FROM LAND SURFACE	CHANGE IN LEVEL SINCE LAST STATIC MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	ELEVATION OF DEPTH TO WATER FROM MEAN SEA LEVEL	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
MO.	DAY	YR.										
10	12	93	-655.00					01	3		P	
2	8	95	X		X			01	3	48	P	air line leak down hole
11	10	95	—							41		overflowing tank
11	07	96	465.55					01	3	04	P	
11	17	97	477.10					01	3		P	90 PSI
11	20	98	458.62		<del>MB</del>		+0.0	01	3	22	P	98 psi
11	9	99	495.58					01	3		P	82 psi
11	17	00	-447.0		<del>MB</del>		0	01	3		P	103 LB
12	4	01	472.48		CH			01	3	04	P	off 10 min 92 PSI
11	12	02	472		CH			01	3		P	92
11	13	03	520		MB			01	3	04		165 FT
12	8	04	486.34		DC.			01	3			86"
12	14	05	-535					01	3			81
9	20	06	604.82					01	3			78 PSI
2	27	07	-549.38		HL			01	3		P	33 14 40.0 102 PSI 96 46 58.9
11	15	07	-556.31		DA			01	3		P	33 14 40.1 96 46 58.9 99 PSI
11	14	08	-597.2		AF			01	3	04	P	
11	19	09	—		SSS			01	3	48	P	Airline <del>not</del> in accessible
11	30	11	—		LS			01	3		P	No Airline
11	12	12	—		LS			01				" "
1	16	14	—		AF			01			P	" "

AQUIFER 212 Goodbine

2/2.52

WATERSHED

COUNTY Collin

Pump Set  
 785-2006

WELL CLASS AND NUMBER 18-50-301

MEASURING POINT (MP) + 0.0



# TEXAS WATER DEVELOPMENT BOARD - WATER LEVEL MEASUREMENTS

[illegible]

AQUIFER woodbine

STATE WELL NUMBER (SWN)

COUNTY Collier

MEASURING POINT (M.P.)

18-50-301





**Texas Water Development Board  
Well Schedule**



State Well Number: **18-50-301** Previous Well Number: County: **Collin**  
Latitude (dms): **33° 14' 41" N** Longitude (dms): **096° 46' 59" W** Coordinate Accuracy: **Global Positioning System - GPS**  
River Basin: **Trinity** GMA: **8** RWPA: **C** GCD: **North Texas GCD**

Owner: **Town of Prosper Well #2** Driller: **R.D. Caraway** Aquifer ID: **Woodbine**  
Depth (ft): **958** Elevation (ft): **795** Aquifer Code: **Woodbine Sand**  
Source of Depth: **Driller's Log** Source of Elevation: **Digital Elevation Model -DEM**

Date Drilled: **6/21/1976** Well Type: **Withdrawal of Water**  
Type of Lift: **None** Pump Depth: **685** Power:  
Construction: **Mud (Hydraulic) Rotary** Completion: **Gravel Pack w/Screen**  
Water Use: **Unused** Reporting Agency: **Texas Water Development Board**  
Other Data: **Drillers Log; Electric Log; Specific Capacity** Date Created: **6/15/2006** Created By: **DCoker**  
Water Quality: **Yes** Water Levels: **Historical Observation Well** 15 measurements between 1993 and 2015

REMARKS: **Measured yield 73 GPM with 10 feet drawdown after pumping 48 hours in 1976. Specific capacity 7.3 gpm/ft. Pumping level 510 feet. Cemented from 0 to 906 feet. Gravel packed from 906 to 958 feet.**

WELL NUMBERS:	Well Report Tracking	Plug Report Tracking	USGS Site Number	TCEQ Source ID	GCD Number	Owner Number
				<b>0430009B</b>		<b>#2 (Dodson)</b>

**CASING:**

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
<b>12</b>	<b>Blank</b>	<b>Steel</b>		<b>0</b>	<b>20</b>
<b>8</b>	<b>Blank</b>	<b>Steel</b>		<b>0</b>	<b>906</b>
<b>4</b>	<b>Blank</b>	<b>Steel</b>		<b>906</b>	<b>916</b>
<b>4</b>	<b>Screen</b>	<b>Stainless Steel</b>		<b>916</b>	<b>946</b>
<b>4</b>	<b>Blank</b>	<b>Steel</b>		<b>946</b>	<b>958</b>



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-27-804**

[GWDB Reports and Downloads](#)

**Well Basic Details**

[Scanned Documents](#)

<b>State Well Number</b>	1827804
<b>County</b>	Grayson
<b>River Basin</b>	Trinity
<b>Groundwater Management Area</b>	8
<b>Regional Water Planning Area</b>	C - Region C
<b>Groundwater Conservation District</b>	Red River GCD
<b>Latitude (decimal degrees)</b>	33.525
<b>Latitude (degrees minutes seconds)</b>	33° 31' 30" N
<b>Longitude (decimal degrees)</b>	-96.6725
<b>Longitude (degrees minutes seconds)</b>	096° 40' 21" W
<b>Coordinate Source</b>	+/- 1 Second
<b>Aquifer Code</b>	212WDBN - Woodbine Sand
<b>Aquifer</b>	Woodbine
<b>Aquifer Pick Method</b>	
<b>Land Surface Elevation (feet above sea level)</b>	855
<b>Land Surface Elevation Method</b>	Interpolated From Topo Map
<b>Well Depth (feet below land surface)</b>	1061
<b>Well Depth Source</b>	Driller's Log
<b>Drilling Start Date</b>	
<b>Drilling End Date</b>	2/16/1979
<b>Drilling Method</b>	Mud (Hydraulic) Rotary
<b>Borehole Completion</b>	Gravel Pack w/Screen

<b>Well Type</b>	Withdrawal of Water
<b>Well Use</b>	Public Supply
<b>Water Level Observation</b>	PWS or Other Current Site Visit
<b>Water Quality Available</b>	Yes
<b>Pump</b>	Turbine
<b>Pump Depth (feet below land surface)</b>	
<b>Power Type</b>	Electric Motor
<b>Annular Seal Method</b>	
<b>Surface Completion</b>	
<b>Owner</b>	City of Sherman W-9 (Dorchester)
<b>Driller</b>	Layne Texas, Inc.
<b>Other Data Available</b>	Drillers Log; Electric Log; Specific Capacity
<b>Well Report Tracking Number</b>	
<b>Plugging Report Tracking Number</b>	
<b>U.S. Geological Survey Site Number</b>	
<b>Texas Commission on Environmental Quality Source Id</b>	G0910006M
<b>Groundwater Conservation District Well Number</b>	RR-4053
<b>Owner Well Number</b>	
<b>Other Well Number</b>	
<b>Previous State Well Number</b>	
<b>Reporting Agency</b>	Texas Water Development Board
<b>Created Date</b>	1/8/1993
<b>Last Update Date</b>	6/16/2023

<b>Remarks</b>	Cemented from 720 ft. to surface. Underreamed and gravel packed from 720 to 1061 ft. Pumping level 802 ft. at 200 gpm on June 5, 1979. Specific Capacity of 0.89 gal/ft.
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### **Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
16	Screen	Stainless Steel			0	720
10	Blank	Steel			0	730
10	Screen	Stainless Steel			730	783
10	Blank	Steel			783	830
10	Screen	Stainless Steel			830	858
10	Blank	Steel			858	863
10	Screen	Stainless Steel			863	870
10	Blank	Steel			870	876
10	Screen	Stainless Steel			876	883
10	Blank	Steel			883	896
10	Screen	Stainless Steel			896	950
10	Blank	Steel			950	966
10	Screen	Stainless Steel			966	974
10	Blank	Steel			974	1018
10	Screen	Stainless Steel			1018	1040

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

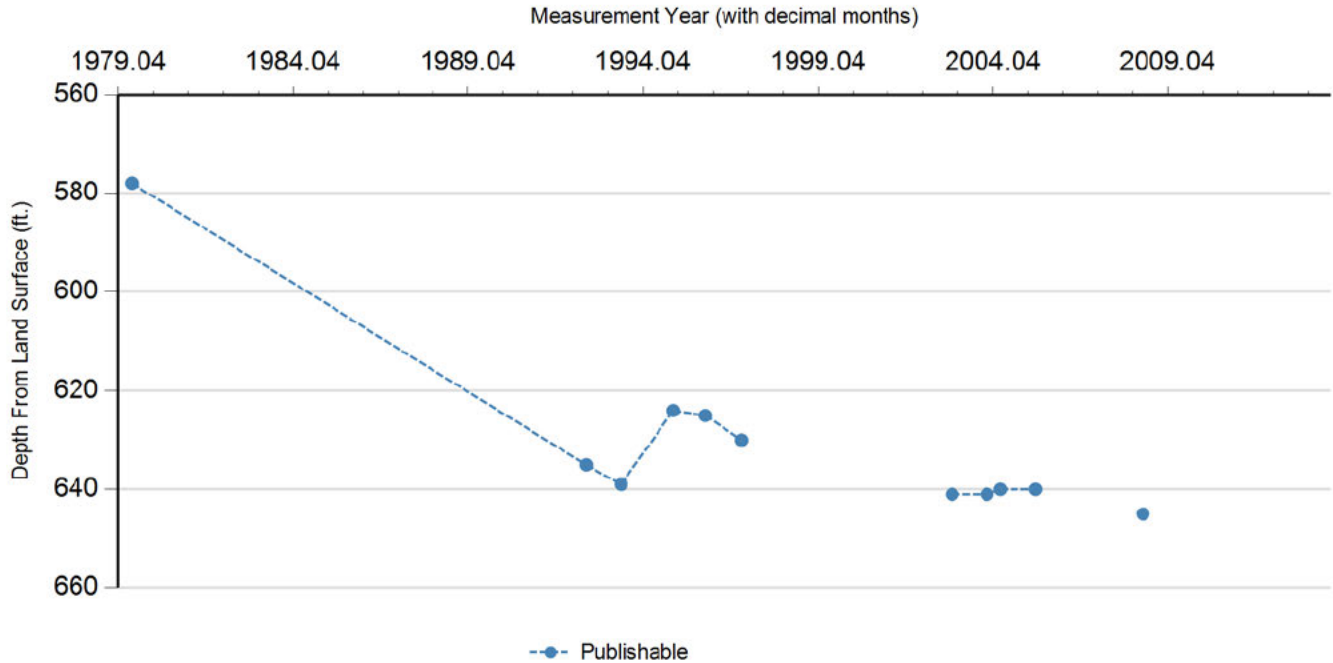
**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	6/4/1979		578		277	1	Registered Water Well Driller	Unknown		
P	4/0/1992		635	57.00	220	1	Municipal Water Agency or PWS Corporation	Air Line		
P	4/0/1993		639	4.00	216	1	Municipal Water Agency or PWS Corporation	Air Line		
P	10/0/1994		624	(15.00)	231	1	Municipal Water Agency or PWS Corporation	Air Line		
P	9/0/1995		625	1.00	230	1	Municipal Water Agency or PWS Corporation	Air Line		
P	11/11/1996		630	5.00	225	1	Municipal Water Agency or PWS Corporation	Air Line		
X	12/17/2001					1	Municipal Water Agency or PWS Corporation		28	
P	11/18/2002		641		214	1	Municipal Water Agency or PWS Corporation	Air Line		
P	11/16/2003		641	0.00	214	1	Municipal Water Agency or PWS Corporation	Air Line		
P	4/1/2004		640	(1.00)	215	1	Municipal Water Agency or PWS Corporation	Air Line		
P	4/1/2005		640	0.00	215	1	Municipal Water Agency or PWS Corporation	Air Line		
X	7/11/2006					1	Municipal Water Agency or PWS Corporation		28	
P	3/0/2008		645		210	1	Municipal Water Agency or PWS Corporation	Air Line		
X	4/20/2013					1	Municipal Water Agency or PWS Corporation	Air Line	28	



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**Code Descriptions**

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Status Code	Status Description
P	Publishable
X	No Measurement

Remark ID	Remark Description
28	Uncertain of reason for no measurement



### Water Quality Analysis

**Sample Date:** 6/5/1979    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Registered Water Well Driller

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Edna Wood Lab

**Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		12	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		502	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		583.33	mg/L	
00910	CALCIUM (MG/L)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		14.4	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		13	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.8	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		4	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		580	ug/L	
00920	MAGNESIUM (MG/L)		0.4	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)		70	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		0.4	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.41	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		9.96		
00955	SILICA, DISSOLVED (MG/L AS SiO <sub>2</sub> )		13	mg/L as SiO <sub>2</sub>	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		58.36		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)	calculated	273	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1100	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		72	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		674	mg/L	



### Water Quality Analysis

Sample Date: 9/25/1979    Sample Time: 0000    Sample Number: 1    Collection Entity: Municipal Water Agency or Public Water Supply Corp

Sampled Aquifer: Woodbine Sand

Analyzed Lab: Texas Department of Health

Reliability:

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		19	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		458	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		512.55	mg/L	
00910	CALCIUM (MG/L)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		22.8	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		6	mg/L as CaCO3	
01045	IRON, TOTAL (UG/L AS FE)		70	ug/L	
00920	MAGNESIUM (MG/L)	<	1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	20	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.9	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		9.03		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		46.02		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		272	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1200	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		122	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		685	mg/L	



### Water Quality Analysis

**Sample Date:** 6/18/1987    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board  
**Sampled Aquifer:** Woodbine Sand  
**Analyzed Lab:** Texas Department of Health    **Reliability:** Collected from pumped well, but not filtered or preserved  
**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		380	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		463.73	mg/L	
00910	CALCIUM (MG/L)		0.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		1	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		0.12	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.3	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		1	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.56		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		72.14		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		234	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1029	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		106	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		595	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

**GWDB DISCLAIMER:** Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdb.rpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at [GroundwaterData@twdb.texas.gov](mailto:GroundwaterData@twdb.texas.gov).



**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

State Well Number	1828703
County	Grayson
River Basin	Red
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	Red River GCD
Latitude (decimal degrees)	33.5105556
Latitude (degrees minutes seconds)	33° 30' 38" N
Longitude (decimal degrees)	-96.6083333
Longitude (degrees minutes seconds)	096° 36' 30" W
Coordinate Source	+/- 1 Second
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	860
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1298
Well Depth Source	Geophysical Log
Drilling Start Date	
Drilling End Date	3/0/1966
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	None
Water Quality Available	Yes
Pump	Turbine
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	City of Howe
Driller	J.L. Myers
Other Data Available	Electric Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0910013B
Groundwater Conservation District Well Number	
Owner Well Number	2 - YOUNG ST
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	4/15/1976
Last Update Date	9/24/2021

**Remarks** Cemented from 979 ft. to surface. Underreamed, screened and gravel packed. Pump set at 610 ft. Draw- down 85 ft. pumping 208 gpm on Apr. 18, 1966. Pumping level 548 ft. on July 29, 1966. Formerly well # 3.

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
4	Blank	Steel				
4	Screen	Steel				
8	Blank	Steel			0	979

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



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**Water Level Measurements**

No Data Available



### Water Quality Analysis

**Sample Date:** 4/16/1966    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		13	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		419	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		479.6	mg/L	
00910	CALCIUM (MG/L)		2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		15.6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		16	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		9	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		760	ug/L	
00920	MAGNESIUM (MG/L)		1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )	<	0.4	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		8.2		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		33.3		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		231	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1040	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		68	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		571	mg/L	



### Water Quality Analysis

**Sample Date:** 11/1/1967    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		13	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		383	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		435.66	mg/L	
00910	CALCIUM (MG/L)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		15.6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		16	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		6	mg/L as CaCO3	
01045	IRON, TOTAL (UG/L AS FE)	<	20	ug/L	
00920	MAGNESIUM (MG/L)	<	1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	50	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.53		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		37.06		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		219	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		950	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		60	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		528	mg/L	



### Water Quality Analysis

**Sample Date:** 11/10/1968    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		17	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		520	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		590	mg/L	
00910	CALCIUM (MG/L)		2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		20	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		28	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		10	mg/L as CaCO3	
01045	IRON, TOTAL (UG/L AS FE)		40	ug/L	
00920	MAGNESIUM (MG/L)		1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	50	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		10.15		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		42.96		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		298	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1341	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		96	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		740	mg/L	



### Water Quality Analysis

**Sample Date:** 8/20/1970    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		11.67	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		340.46	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		387	mg/L	
00910	CALCIUM (MG/L)		2	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		14	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		16	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		13	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		2	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.8	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.55		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		22.61		
00932	SODIUM, CALCULATED, PERCENT		96	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		189	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		852	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		60	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		474	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

State Well Number	1828902
County	Grayson
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	Red River GCD
Latitude (decimal degrees)	33.515001
Latitude (degrees minutes seconds)	33° 30' 54" N
Longitude (decimal degrees)	-96.518611
Longitude (degrees minutes seconds)	096° 31' 07" W
Coordinate Source	+/- 1 Second
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	800
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1502
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	9/0/1991
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Kentuckytown Water Supply Corp. Well 4
Driller	J.L. Myers
Other Data Available	Drillers Log; Electric Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0910060D
Groundwater Conservation District Well Number	
Owner Well Number	4
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	8/6/1992
Last Update Date	

Remarks	Cemented from 1395 ft. to surface. Underreamed to 16 in. from 1395 to 1465 ft., screened and gravel packed.
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**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
13	Blank	Steel			0	10
7	Blank	Steel			0	1395
4	Blank	Steel			1295	1399
4	Screen	Stainless Steel			1399	1455
4	Blank	Steel			1455	1465

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

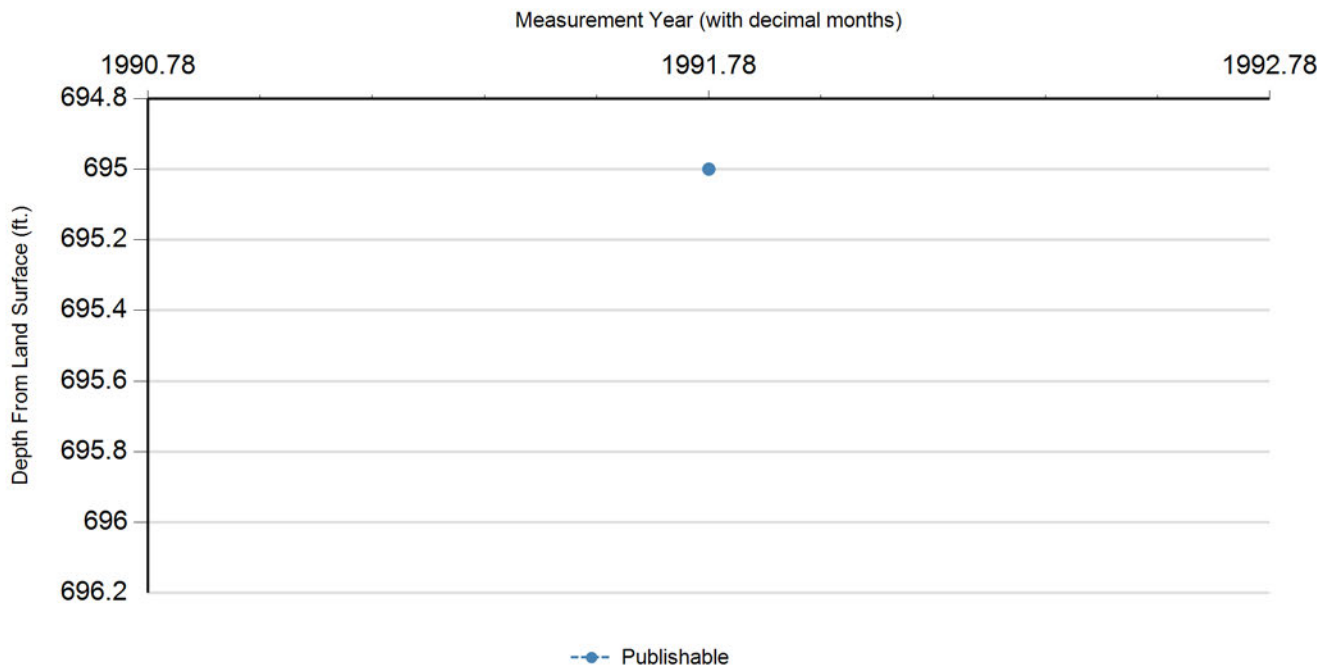
**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/14/1991		695		105	1	Registered Water Well Driller	Logging Sonde		

### Code Descriptions

Status Code	Status Description
P	Publishable



### Water Quality Analysis

**Sample Date:** 10/15/1991 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Registered Water Well Driller

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Pope Testing Lab

**Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		12	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		308	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		346.58	mg/L	
00910	CALCIUM (MG/L)		1.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		14.4	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		20	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		4	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		70	ug/L	
00920	MAGNESIUM (MG/L)		0.02	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		0	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.08		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		42.13		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		195.5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		750	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		89.2	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		492	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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[GWDB Reports and Downloads](#)
[Well Basic Details](#)
[Scanned Documents](#)

State Well Number	1834101
County	Grayson
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	Red River GCD
Latitude (decimal degrees)	33.458612
Latitude (degrees minutes seconds)	33° 27' 31" N
Longitude (decimal degrees)	-96.848056
Longitude (degrees minutes seconds)	096° 50' 53" W
Coordinate Source	+/- 1 Second
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	670
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	400
Well Depth Source	Memory of Owner
Drilling Start Date	
Drilling End Date	0/0/1965
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Stock
Water Level Observation	Historical
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Mrs. Cliff Davis
Driller	
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	2/3/1995
Last Update Date	12/4/2006

Remarks Water-level observation well.

**Casing - No Data**

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

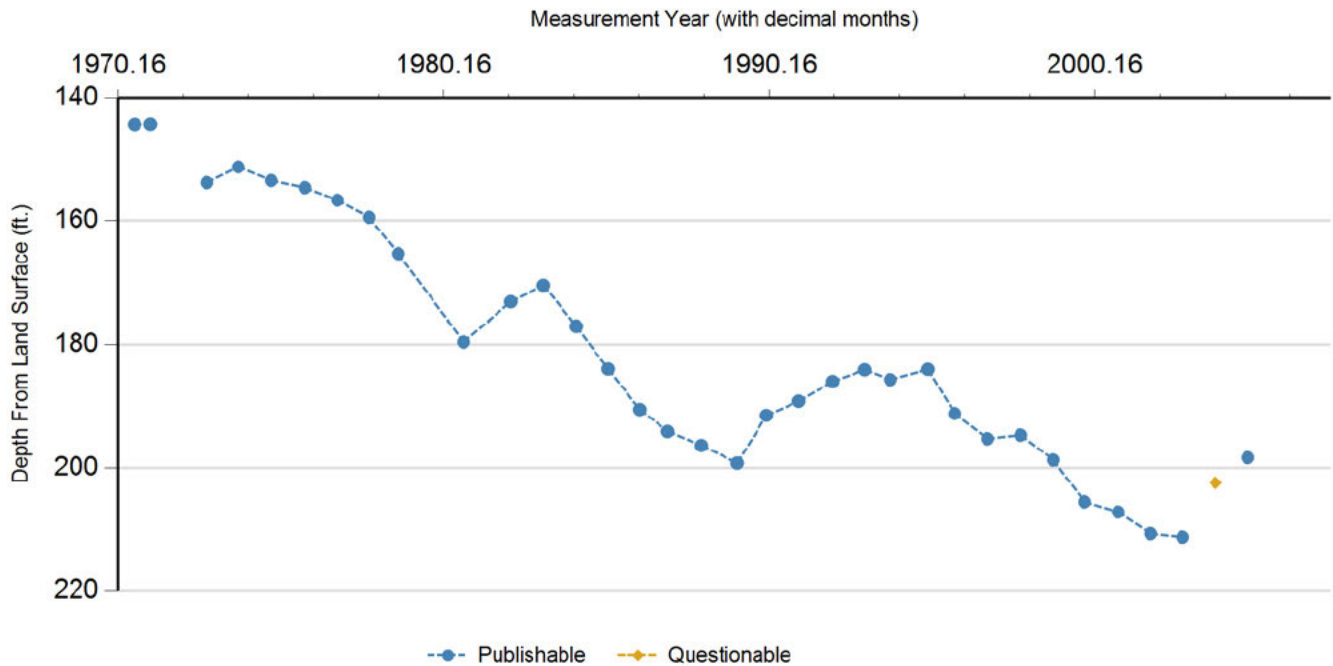
**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	8/28/1970		144.35		525.65	1	Texas Water Development Board	Steel Tape		
P	2/24/1971		144.31	(0.04)	525.69	1	Texas Water Development Board	Steel Tape		
X	11/12/1971					1	Texas Water Development Board		32	
P	11/20/1972		153.8		516.2	1	Texas Water Development Board	Steel Tape		
P	11/7/1973		151.25	(2.55)	518.75	1	Texas Water Development Board	Steel Tape		
P	11/11/1974		153.46	2.21	516.54	1	Texas Water Development Board	Steel Tape		
P	11/25/1975		154.62	1.16	515.38	1	Texas Water Development Board	Steel Tape		
P	11/24/1976		156.66	2.04	513.34	1	Texas Water Development Board	Steel Tape		
P	11/14/1977		159.43	2.77	510.57	1	Texas Water Development Board	Steel Tape		
P	10/6/1978		165.34	5.91	504.66	1	Texas Water Development Board	Steel Tape		
P	10/9/1980		179.59	14.25	490.41	1	Texas Water Development Board	Steel Tape		
P	3/18/1982		173.16	(6.43)	496.84	1	Texas Water Development Board	Steel Tape		
P	3/17/1983		170.47	(2.69)	499.53	1	Texas Water Development Board	Steel Tape		
P	3/22/1984		177.07	6.60	492.93	1	Texas Water Development Board	Steel Tape		
P	3/14/1985		183.97	6.90	486.03	1	Texas Water Development Board	Steel Tape		
P	3/5/1986		190.55	6.58	479.45	1	Texas Water Development Board	Steel Tape		
P	1/13/1987		194.12	3.57	475.88	1	Texas Water Development Board	Steel Tape		
P	1/26/1988		196.39	2.27	473.61	1	Texas Water Development Board	Steel Tape		
P	3/1/1989		199.25	2.86	470.75	1	Texas Water Development Board	Steel Tape		
P	1/25/1990		191.5	(7.75)	478.5	1	Texas Water Development Board	Steel Tape		
P	1/22/1991		189.2	(2.30)	480.8	1	Texas Water Development Board	Steel Tape		



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-34-101**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	2/7/1992		186	(3.20)	484	1	Texas Water Development Board	Steel Tape		
P	2/2/1993		184.1	(1.90)	485.9	1	Texas Water Development Board	Steel Tape		
P	11/17/1993		185.7	1.60	484.3	1	Texas Water Development Board	Steel Tape		
P	1/12/1995		184.02	(1.68)	485.98	1	Texas Water Development Board	Steel Tape		
P	11/9/1995		191.2	7.18	478.8	1	Texas Water Development Board	Steel Tape		
P	11/11/1996		195.3	4.10	474.7	1	Texas Water Development Board	Steel Tape		
P	11/19/1997		194.7	(0.60)	475.3	1	Texas Water Development Board	Steel Tape		
P	11/19/1998		198.75	4.05	471.25	1	Texas Water Development Board	Steel Tape		
P	11/4/1999		205.52	6.77	464.48	1	Texas Water Development Board	Steel Tape		
P	11/16/2000		207.17	1.65	462.83	1	Texas Water Development Board	Steel Tape		
P	11/15/2001		210.65	3.48	459.35	1	Texas Water Development Board	Steel Tape		
P	11/9/2002		211.23	0.58	458.77	1	Texas Water Development Board	Steel Tape		
Q	11/14/2003		202.45	(8.78)	467.55	1	Texas Water Development Board	Steel Tape	10	
P	11/9/2004		198.37	(4.08)	471.63	1	Texas Water Development Board	Steel Tape		
X	12/13/2005					1	Texas Water Development Board	Steel Tape	25	
X	11/27/2006					1	Texas Water Development Board	Steel Tape	22	

### Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
10	Inconsistent or spotty tape mark due to wet or leaking casing
22	Unable to measure because tape hangs before reaching water level
25	Unable to measure due to wet or leaking casing
32	Well temporarily inaccessible due to winterization or debris



### Water Quality Analysis

**Sample Date:** 7/20/1971    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health    **Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		192	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		234.31	mg/L	
00910	CALCIUM (MG/L)		4.8	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		14	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		14	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		0.6	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		3.55		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		9	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		12.13		
00932	SODIUM, CALCULATED, PERCENT		94	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		106	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		483	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		38	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		288	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

State Well Number	1836504
County	Grayson
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	Red River GCD
Latitude (decimal degrees)	33.4358333
Latitude (degrees minutes seconds)	33° 26' 09" N
Longitude (decimal degrees)	-96.5708333
Longitude (degrees minutes seconds)	096° 34' 15" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	789
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1425
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	3/0/1968
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	GCD Current Site Visit
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	South Grayson WSC Well #1
Driller	J.L. Myers
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0910064A
Groundwater Conservation District Well Number	RR-3834
Owner Well Number	1 - NE / VAN ALSTYN
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	12/18/1975
Last Update Date	7/25/2024

**Remarks** Cemented from 1287 ft. to surface. Drilled to 1425 ft. and plugged back with gravel to 1375 ft. Screen and liner gravel packed from bottom of well to 1178 ft. Pump set at 800 ft. Pumping level 650 ft. on Oct. 15, 1973 and 638 ft. on Nov. 29, 1976. Pumps 105 gal/min

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
12	Blank	Steel			0	10
8	Blank	Steel			0	1287
4	Blank	Steel			1173	1287
4	Screen	Stainless Steel			1287	1292
4	Blank	Steel			1292	1297
4	Screen	Stainless Steel			1297	1339
4	Blank	Steel			1339	1350
3	Screen	Stainless Steel			1350	1365
3	Blank	Steel			1365	1375

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**



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*Borehole - No Data*

*Plugged Back - No Data*

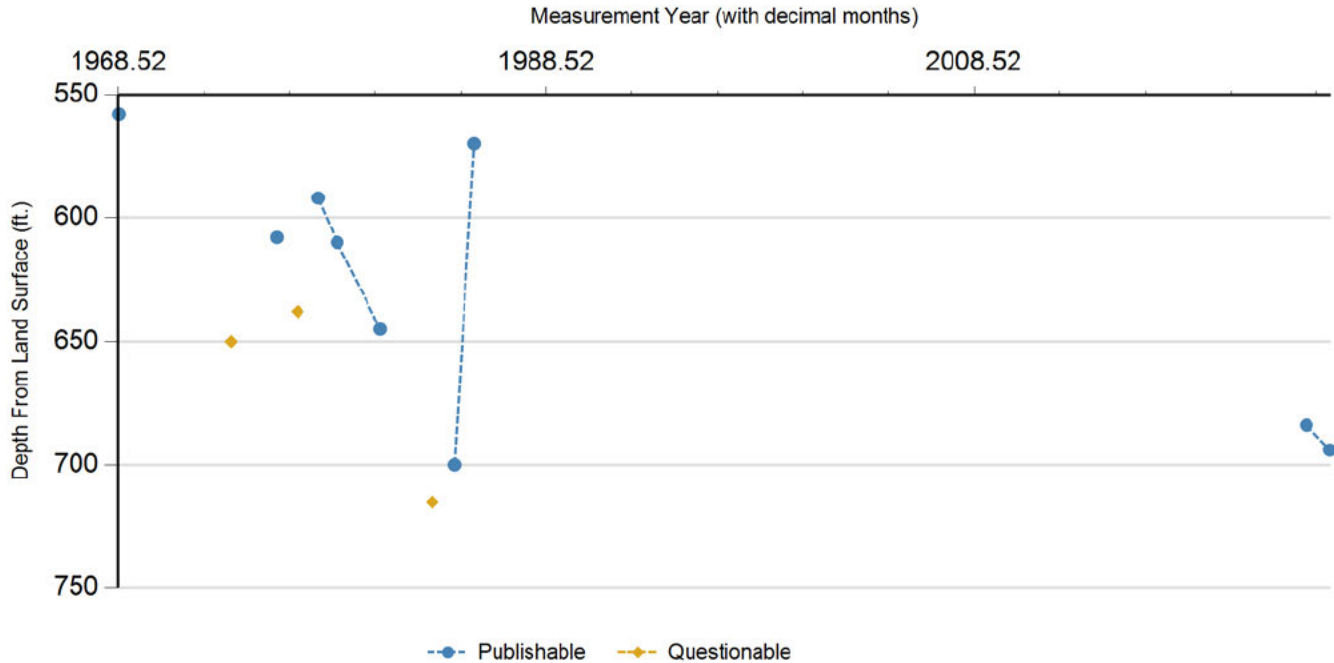
*Filter Pack - No Data*

*Packers - No Data*

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### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	7/24/1968		558		231	1	Registered Water Well Driller	Air Line		
Q	10/15/1973		650	92.00	139	1	Registered Water Well Driller	Air Line	2	
P	12/18/1975		608	(42.00)	181	1	Texas Water Development Board	Air Line		
Q	11/29/1976		638	30.00	151	1	Texas Water Development Board	Air Line	2	
P	11/14/1977		592	(46.00)	197	1	Texas Water Development Board	Air Line		
P	10/3/1978		610	18.00	179	1	Texas Water Development Board	Air Line		
P	10/8/1980		645	35.00	144	1	Texas Water Development Board	Air Line		
X	3/16/1982					1	Texas Water Development Board		32	
Q	3/11/1983		715		74	1	Texas Water Development Board	Air Line	2	
P	3/22/1984		700	(15.00)	89	1	Texas Water Development Board	Air Line		
P	1/0/1985		570	(130.00)	219	1	Registered Water Well Driller	Unknown		
X	3/14/1985					1	Texas Water Development Board	Air Line	21	
X	3/5/1986					1	Texas Water Development Board		26	
P	1/18/2024		684		105	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/18/2025		694	10.00	95	1	Groundwater Conservation District	Sonic/Laser Device		



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**Code Descriptions**

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Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
2	Pumping-level measurement
21	Unable to reach water level with available measuring equipment
26	Unable to measure due to leaking airline tubing
32	Well temporarily inaccessible due to winterization or debris

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### Water Quality Analysis

**Sample Date:** 3/10/1983    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health    **Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		9	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		327	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		377.09	mg/L	
00910	CALCIUM (MG/L)		0.4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		10.8	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		17	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		1	mg/L as CaCO <sub>3</sub>	
00920	MAGNESIUM (MG/L)	<	0.1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )	<	0.04	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.51		
00955	SILICA, DISSOLVED (MG/L AS SiO <sub>2</sub> )		13	mg/L as SiO <sub>2</sub>	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		71.82		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		196	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		840	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		69	mg/L as SO <sub>4</sub>	
00010	TEMPERATURE, WATER (CELSIUS)		27	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		492	mg/L	



### Water Quality Analysis

**Sample Date:** 6/23/1983    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board  
**Sampled Aquifer:** Woodbine Sand  
**Analyzed Lab:** Texas Department of Health    **Reliability:** Collected from pumped well, but not filtered or preserved  
**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		324	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		383.19	mg/L	
00910	CALCIUM (MG/L)		0.4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		17	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		0.25	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.44		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		12	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		57.75		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		189	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		834	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		69	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		27	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		483	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**Well Basic Details**

[Scanned Documents](#)

State Well Number	1836806
County	Grayson
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	Red River GCD
Latitude (decimal degrees)	33.410278
Latitude (degrees minutes seconds)	33° 24' 37" N
Longitude (decimal degrees)	-96.544445
Longitude (degrees minutes seconds)	096° 32' 40" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	714
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	1570
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	3/1/2013
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	None
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Pressure Cement
Surface Completion	Surface Slab Installed
Owner	South Grayson WSC Woodbine 14
Driller	THI Water Well
Other Data Available	Drillers Log
Well Report Tracking Number	<a href="#">356410</a>
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	14
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	7/14/2015
Last Update Date	3/4/2020

Remarks	
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**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
9	Blank	Steel			3	1300
4	Blank	Steel			1190	1290
4	Screen	Steel			1290	1382
4	Blank	Steel			1382	1410

**Well Tests**

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2013-03-01	Pump	70	560	36

**Lithology - No Data**

**Annular Seal Range - No Data**

**Plugged Back - No Data**



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**Borehole**

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
14.75	0	1570

**Filter Pack**

Filter Material	Top Depth (ft.)	Bottom Depth (ft.)	Size
Gravel	1200	1570	16/30

**Packers - No Data**

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**Water Level Measurements**

No Data Available



### Water Quality Analysis

**Sample Date:** 5/27/2015    **Sample Time:** 1315    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** LCRA - Lower Colorado River Authority

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** Lab Calculated Anion/Cation Chg Bal set to TWDB Calculated Value due to an error in the lab calculated formula

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		400	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	20	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		343	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
50938	ANION/CATION CHG BAL, PERCENT		4.07	PCT	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		2.15	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		418.57	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		853	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.1	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		0.53	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		23	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2.89	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		2.16	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.09	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		1	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		135	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		11.1	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)	<	0.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		19.9	ug/L	
71890	MERCURY, DISSOLVED (UG/L AS HG)	<	0.2	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.02	mg/L as NO3	



**Texas Water Development Board (TWDB)  
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Well Information Report for State Well Number  
18-36-806**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		9.06	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		0.451	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		0.66	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.83		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12.2	mg/L as SI02	
01075	SILVER, DISSOLVED (UG/L AS AG)	<	1	ug/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		69.79		
00932	SODIUM, CALCULATED, PERCENT		100	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		235	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1020	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		40	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		91.1	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		25.5	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		569	mg/L	
22703	URANIUM, NATURAL, DISSOLVED (UG/L AS U)	<	1	ug/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	4	ug/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

State Well Number	1842701
County	Denton
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	North Texas GCD
Latitude (decimal degrees)	33.289167
Latitude (degrees minutes seconds)	33° 17' 21" N
Longitude (decimal degrees)	-96.869722
Longitude (degrees minutes seconds)	096° 52' 11" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	613
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	438
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	3/18/1994
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Perforations

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Aqua Texas, Inc. Willow Wood #1
Driller	Millican Well Serv.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0610212A
Groundwater Conservation District Well Number	
Owner Well Number	Willow Wood Well #1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	6/25/1998
Last Update Date	7/15/2016

**Remarks** Reported yield 20 GPM with 30 feet drawdown after pumping 2 hours in 1994. Gravel packed from 300 to 438 feet. Cemented from 0 to 300 feet. Well originally owned by H2M Water Systems, Inc.

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
6	Blank	Steel			0	360
6	Screen	Steel			360	415
6	Blank	Steel			415	435

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	3/17/1994		250		363	1	Registered Water Well Driller	Unknown	17	
X	9/12/2001					1	Texas Water Development Board		28	

### Code Descriptions

Status Code	Status Description
Q	Questionable
X	No Measurement

Remark ID	Remark Description
17	Measurement before well completion
28	Uncertain of reason for no measurement



### Water Quality Analysis

**Sample Date:** 9/12/2001    **Sample Time:** 1042    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** LCRA - Lower Colorado River Authority

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		260	mg/L as CaCO3	
82244	ALKALINITY PHENOLPHTHALEIN FIELD DATA (MG/L)		12	mg/L	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		14.6	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		265	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)		5.41	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		4.66	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		287.76	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		402	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.0546	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		0.53	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		17.52	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		14.1	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		1.12	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		1.08	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.6	mg/L	
04241	GROSS ALPHA RADIATION,TOTAL, PRODUCED WATER(pCi/L)		1.2	pCi/L	1
04242	GROSS BETA RADIATION, TOTAL, PRODUCED WATER(pCi/L)		1.1	pCi/L	1.4
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	51	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		8.69	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)	<	0.2	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		4.06	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)	<	1	ug/L	



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-42-701**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.09	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.86	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		0.67	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		5.26		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12.4	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		42.47		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		143	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		649	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)	<	20.4	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		52.7	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		22.9	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		383	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	4	ug/L	



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### Water Quality Analysis

**Sample Date:** 9/12/2001      **Sample Time:**      **Sample Number:** 1      **Collection Entity:** Texas Commission on Environmental Quality

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Immunoassay at TCEQ

**Reliability:** Sampled using TWDB protocols, but NOT filtered

**Collection Remarks:** No Data

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Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39033	ATRAZINE, TOTAL, UG/L	<	0.05	ug/L	



### Water Quality Analysis

**Sample Date:** 9/13/2001    **Sample Time:**    **Sample Number:** 1    **Collection Entity:** Texas Commission on Environmental Quality

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Immunoassay at TCEQ

**Reliability:** Sampled using TWDB protocols, but NOT filtered

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
82612	METOLACHLOR, WHOLE WATER, TOTAL RECOVERABLE, UG/L	<	0.05	ug/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-44-202**

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**Well Basic Details**

[Scanned Documents](#)

<b>State Well Number</b>	1844202
<b>County</b>	Collin
<b>River Basin</b>	Trinity
<b>Groundwater Management Area</b>	8
<b>Regional Water Planning Area</b>	C - Region C
<b>Groundwater Conservation District</b>	North Texas GCD
<b>Latitude (decimal degrees)</b>	33.3488889
<b>Latitude (degrees minutes seconds)</b>	33° 20' 56" N
<b>Longitude (decimal degrees)</b>	-96.5477778
<b>Longitude (degrees minutes seconds)</b>	096° 32' 52" W
<b>Coordinate Source</b>	Global Positioning System - GPS
<b>Aquifer Code</b>	212WDBN - Woodbine Sand
<b>Aquifer</b>	Woodbine
<b>Aquifer Pick Method</b>	
<b>Land Surface Elevation (feet above sea level)</b>	712
<b>Land Surface Elevation Method</b>	Digital Elevation Model -DEM
<b>Well Depth (feet below land surface)</b>	1557
<b>Well Depth Source</b>	Driller's Log
<b>Drilling Start Date</b>	
<b>Drilling End Date</b>	4/9/1976
<b>Drilling Method</b>	Mud (Hydraulic) Rotary
<b>Borehole Completion</b>	Gravel Pack w/Screen

<b>Well Type</b>	Withdrawal of Water
<b>Well Use</b>	Public Supply
<b>Water Level Observation</b>	GCD Current Site Visit
<b>Water Quality Available</b>	Yes
<b>Pump</b>	Submersible
<b>Pump Depth (feet below land surface)</b>	
<b>Power Type</b>	Electric Motor
<b>Annular Seal Method</b>	
<b>Surface Completion</b>	
<b>Owner</b>	City of Anna Well
<b>Driller</b>	J.L. Myers Company
<b>Other Data Available</b>	Aquifer Test; Drillers Log; Electric Log
<b>Well Report Tracking Number</b>	
<b>Plugging Report Tracking Number</b>	
<b>U.S. Geological Survey Site Number</b>	
<b>Texas Commission on Environmental Quality Source Id</b>	G0430027B
<b>Groundwater Conservation District Well Number</b>	
<b>Owner Well Number</b>	1
<b>Other Well Number</b>	
<b>Previous State Well Number</b>	
<b>Reporting Agency</b>	Texas Water Development Board
<b>Created Date</b>	10/27/1976
<b>Last Update Date</b>	9/21/2021

<b>Remarks</b>	Measured yield 150 GPM with 138 feet drawdown after pumping 24 hours in 1976. Pumping level 637 feet. Recover test three hours. Pump set at 750 feet. Cemented from 0 to 1300 feet. Underreamed and gravel packed from 1300 to 1557 feet. Aquifer test data in TWDB files. Originally owner well # 2, but now well #1 after original well #1 was plugged.
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### Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
16	Blank	Steel			0	20
10	Blank	Steel			0	1300
6	Blank	Steel			1098	1300
6	Screen	Stainless Steel			1300	1328
6	Blank	Steel			1328	1335
6	Screen	Stainless Steel			1335	1356
6	Blank	Steel			1356	1360
6	Screen	Stainless Steel			1360	1365
6	Blank	Steel			1365	1430
6	Screen	Stainless Steel			1430	1456
6	Blank	Steel			1456	1496
6	Screen	Stainless Steel			1496	1506
6	Blank	Steel			1506	1512
6	Screen	Stainless Steel			1512	1526
6	Blank	Steel			1526	1557

### Well Tests - No Data

### Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	2	SURFACE SOIL
2	422	AUSTIN CHALK ROCK
422	987	EAGLE FORD SHALE
987	1006	SAND
1006	1103	SHALE W/ SAND STRKS
1103	1110	SAND
1110	1122	SHALE
1122	1237	SANDY SHALE
1237	1282	SHALE
1282	1366	SAND W/ SHALE BREAKS
1366	1410	SHALE
1410	1456	SAND W/ SHALE BREAKS
1456	1492	SHALE
1492	1540	SAND W/ SHALE BREAKS
1540	1557	SHALE

### Annular Seal Range - No Data

### Borehole - No Data

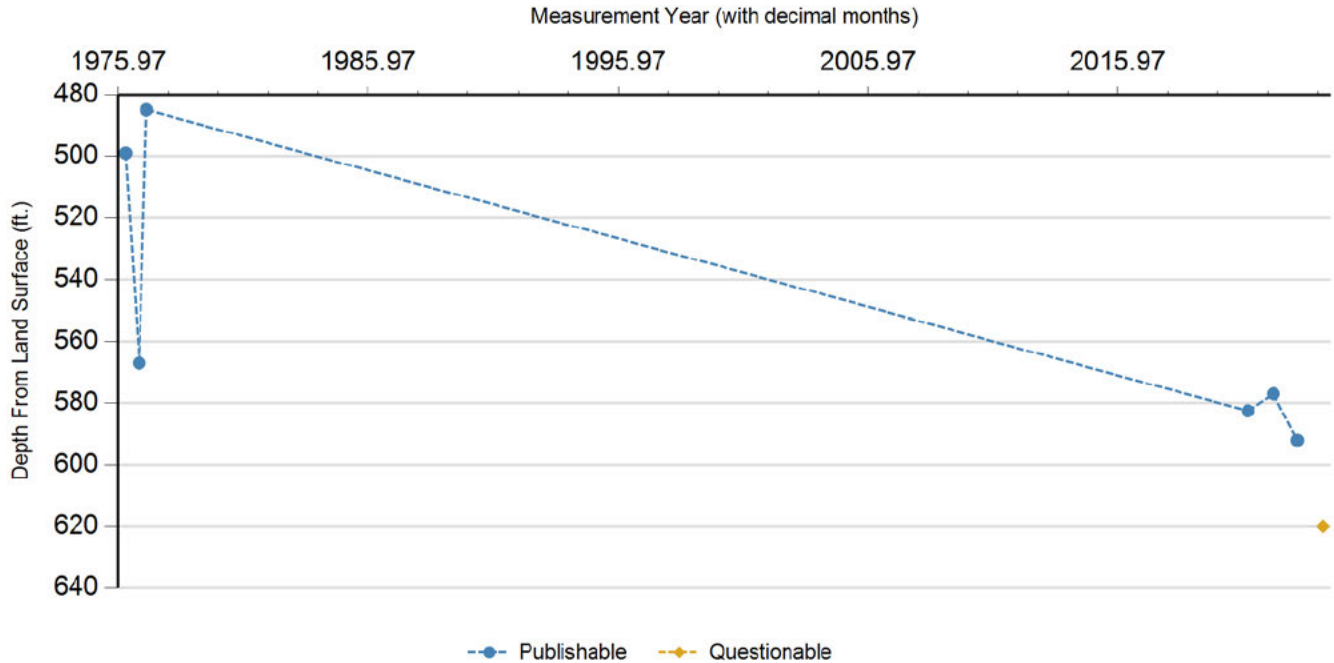
### Plugged Back - No Data

### Filter Pack - No Data

### Packers - No Data



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/9/1976		499		213	1	Registered Water Well Driller	Air Line		
P	10/27/1976		567	68.00	145	1	Texas Water Development Board	Air Line		
P	2/10/1977		485	(82.00)	227	1	Texas Water Development Board	Air Line		
P	3/3/2021		582.5	97.50	129.5	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/10/2022		577	(5.50)	135	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/21/2023		592	15.00	120	1	Groundwater Conservation District	Sonic/Laser Device		
Q	3/5/2024		620	28.00	92	1	Groundwater Conservation District	Sonic/Laser Device	12	

### Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable

Remark ID	Remark Description
12	Uncertain of reason for questionable measurement



### Water Quality Analysis

**Sample Date:** 4/8/1976    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Registered Water Well Driller

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Pope Testing Lab

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		17.8	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		356.4	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		391.49	mg/L	
00910	CALCIUM (MG/L)		1.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		21.36	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		38.4	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		6	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		200	ug/L	
00920	MAGNESIUM (MG/L)		0.5	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		0	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.01		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		35.18		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		243.9	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		975	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		121	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		620	mg/L	



### Water Quality Analysis

**Sample Date:** 10/20/1976    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Reliability unknown or not available

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		8	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		350	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		407.6	mg/L	
00910	CALCIUM (MG/L)		3	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		9.6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		66	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		11	mg/L as CaCO3	
01045	IRON, TOTAL (UG/L AS FE)		180	ug/L	
00920	MAGNESIUM (MG/L)	<	1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.77		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		32.57		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		255	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1188	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		119	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		655	mg/L	



### Water Quality Analysis

**Sample Date:** 6/20/1983    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health    **Reliability:** From well not sufficiently pumped; not filtered or preserved

**Collection Remarks:** pumped recently- from tank

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		9	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		348	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		402.71	mg/L	
00910	CALCIUM (MG/L)		1.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		10.8	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		70	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		6	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		0.5	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		2.61	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.84		
70300	RESIDUE, TOTAL FILTERABLE (DRIED AT 180C), MG/L		694	mg/L	
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		46.34		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		262	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1210	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		123	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		680	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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## GWDB Reports and Downloads

## Well Basic Details

## Scanned Documents

State Well Number	1844205
County	Collin
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	North Texas GCD
Latitude (decimal degrees)	33.36
Latitude (degrees minutes seconds)	33° 21' 36" N
Longitude (decimal degrees)	-96.5663889
Longitude (degrees minutes seconds)	096° 33' 59" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	752
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	1500
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	1/12/2004
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Filter Packed

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	1050
Power Type	Electric Motor
Annular Seal Method	Positive Displacement
Surface Completion	Surface Slab Installed
Owner	City of Anna Well #5
Driller	Tim Hall, Inc.
Other Data Available	Drillers Log; Specific Capacity
Well Report Tracking Number	<a href="#">33898</a>
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0430027E
Groundwater Conservation District Well Number	
Owner Well Number	5
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	7/2/2007
Last Update Date	9/21/2016

**Remarks** Specific capacity 0.85 gpm/ft.

### Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
8.625	Blank	Steel			0	1297
4.5	Screen	Stainless Steel			1297	1328
4.5	Blank	Steel			1328	1382
4.5	Screen	Stainless Steel			1382	1422
4.5	Blank	Steel			1422	1456
4.5	Screen	Stainless Steel			1456	1496
4.5	Blank	Steel			1496	1500

### Well Tests

Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
1/13/2004	Pump	150	177	36



### **Lithology**

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	3	TOP SOIL
3	630	RED AND BROWN CLAY
630	968	GREY AND BLACK SHALE
968	1000	SAND WITH GREY SHALE
1000	1036	GREY SHALE
1036	1055	SAND
1055	1082	GREY SHALE
1082	1090	SAND
1090	1100	BLACK AND GREY SHALE
1100	1140	SAND
1140	1200	GREY SHALE AND RED CLAY
1200	1220	SAND AND GREY SHALE
1220	1300	GREY AND BLACK SHALE
1300	1332	SAND
1332	1375	GREY AND BLACK SHALE
1375	1420	SAND W/ GREY & BLACK SHALE
1420	1455	GREY SHALE WITH RED CLAY
1455	1490	SAND
1490	1500	GREY SHALE

### **Annular Seal Range**

Annular Seal Material	Amount	Unit	Top Depth (ft.)	Bottom Depth (ft.)
Cement	625	Bags/Sacks	0	1217

### **Borehole**

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
14.75	0	1500

**Plugged Back - No Data**

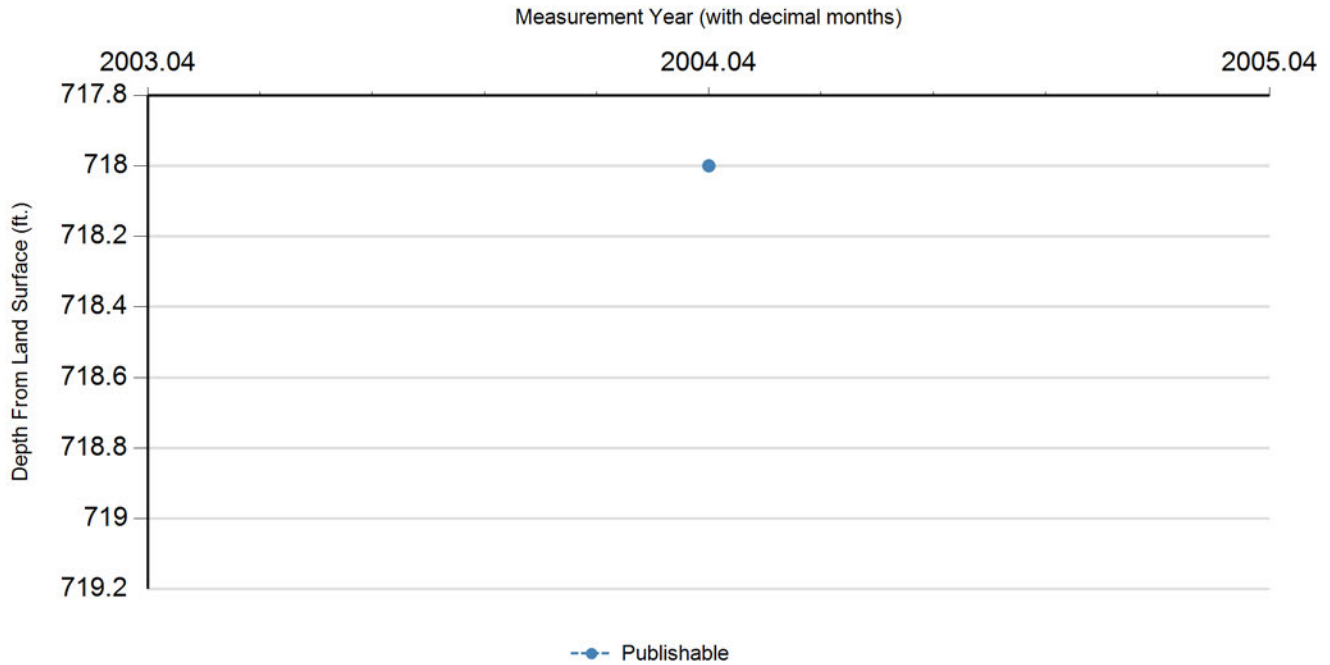
### **Filter Pack**

Filter Material	Top Depth (ft.)	Bottom Depth (ft.)	Size
Gravel	1217	1500	16/30

**Packers - No Data**



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/13/2004		718		34	1	Registered Water Well Driller	Unknown		

### Code Descriptions

Status Code	Status Description
P	Publishable



### Water Quality Analysis

**Sample Date:** 6/26/2007    **Sample Time:** 1345    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Energy Labs Inc.

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** Faucet at well

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		578	mg/L as CaCO3	
82244	ALKALINITY PHENOLPHTHALEIN FIELD DATA (MG/L)		20	mg/L	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	1	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		574	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)		7	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	1	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		6	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		700.47	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1600	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)	<	0.5	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		21	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)	<	1	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		5	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)	<	30	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		31	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)	<	0.5	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	1	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		2	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.44	mg/L as NO3	



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-44-205**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.1	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.55	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		0.9	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		11.38		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	1	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		16.2	mg/L as SI02	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		63.61		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		312	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1307	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		54	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		93	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		34.8	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		792	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	1	ug/L	



### Water Quality Analysis

**Sample Date:** 6/26/2007      **Sample Time:**      **Sample Number:** 1      **Collection Entity:** Texas Commission on Environmental Quality

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Immunoassay at TCEQ

**Reliability:** Sampled using TWDB protocols, but NOT filtered

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39033	ATRAZINE, TOTAL, UG/L		0	ug/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

<b>State Well Number</b>	1844504
<b>County</b>	Collin
<b>River Basin</b>	Trinity
<b>Groundwater Management Area</b>	8
<b>Regional Water Planning Area</b>	C - Region C
<b>Groundwater Conservation District</b>	North Texas GCD
<b>Latitude (decimal degrees)</b>	33.295
<b>Latitude (degrees minutes seconds)</b>	33° 17' 42" N
<b>Longitude (decimal degrees)</b>	-96.578889
<b>Longitude (degrees minutes seconds)</b>	096° 34' 44" W
<b>Coordinate Source</b>	Global Positioning System - GPS
<b>Aquifer Code</b>	212WDBN - Woodbine Sand
<b>Aquifer</b>	Woodbine
<b>Aquifer Pick Method</b>	
<b>Land Surface Elevation (feet above sea level)</b>	685
<b>Land Surface Elevation Method</b>	Digital Elevation Model -DEM
<b>Well Depth (feet below land surface)</b>	1476
<b>Well Depth Source</b>	Driller's Log
<b>Drilling Start Date</b>	
<b>Drilling End Date</b>	12/10/1984
<b>Drilling Method</b>	Mud (Hydraulic) Rotary
<b>Borehole Completion</b>	Screened

<b>Well Type</b>	Withdrawal of Water
<b>Well Use</b>	Public Supply
<b>Water Level Observation</b>	Miscellaneous Measurements
<b>Water Quality Available</b>	Yes
<b>Pump</b>	Submersible
<b>Pump Depth (feet below land surface)</b>	660
<b>Power Type</b>	Electric Motor
<b>Annular Seal Method</b>	
<b>Surface Completion</b>	
<b>Owner</b>	City of Melissa Country Ridge Well #1
<b>Driller</b>	J. L. Myers
<b>Other Data Available</b>	Aquifer Test; Drillers Log; Electric Log
<b>Well Report Tracking Number</b>	
<b>Plugging Report Tracking Number</b>	
<b>U.S. Geological Survey Site Number</b>	
<b>Texas Commission on Environmental Quality Source Id</b>	G0430070A
<b>Groundwater Conservation District Well Number</b>	
<b>Owner Well Number</b>	1
<b>Other Well Number</b>	
<b>Previous State Well Number</b>	
<b>Reporting Agency</b>	Texas Water Development Board
<b>Created Date</b>	10/1/1987
<b>Last Update Date</b>	7/15/2016

**Remarks** Measured yield 164 GPM with 60 feet drawdown after pumping 24 hours in 1985. Specific capacity 2.73 gpm/ft. Pumping level 520 feet. Cemented from 0 to 1300 feet. Aquifer test data in TWDB files. Country Ridge Water was bought by City of Melissa on 6/15/2006.

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
9	Blank	Steel			0	1300
5	Blank	Steel			1200	1306
5	Screen	Stainless Steel			1306	1320
5	Blank	Steel			1320	1350
5	Screen	Stainless Steel			1350	1408
5	Blank	Steel			1408	1416
5	Screen	Stainless Steel			1416	1460
5	Blank	Steel			1460	1476

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**



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*Borehole - No Data*

*Plugged Back - No Data*

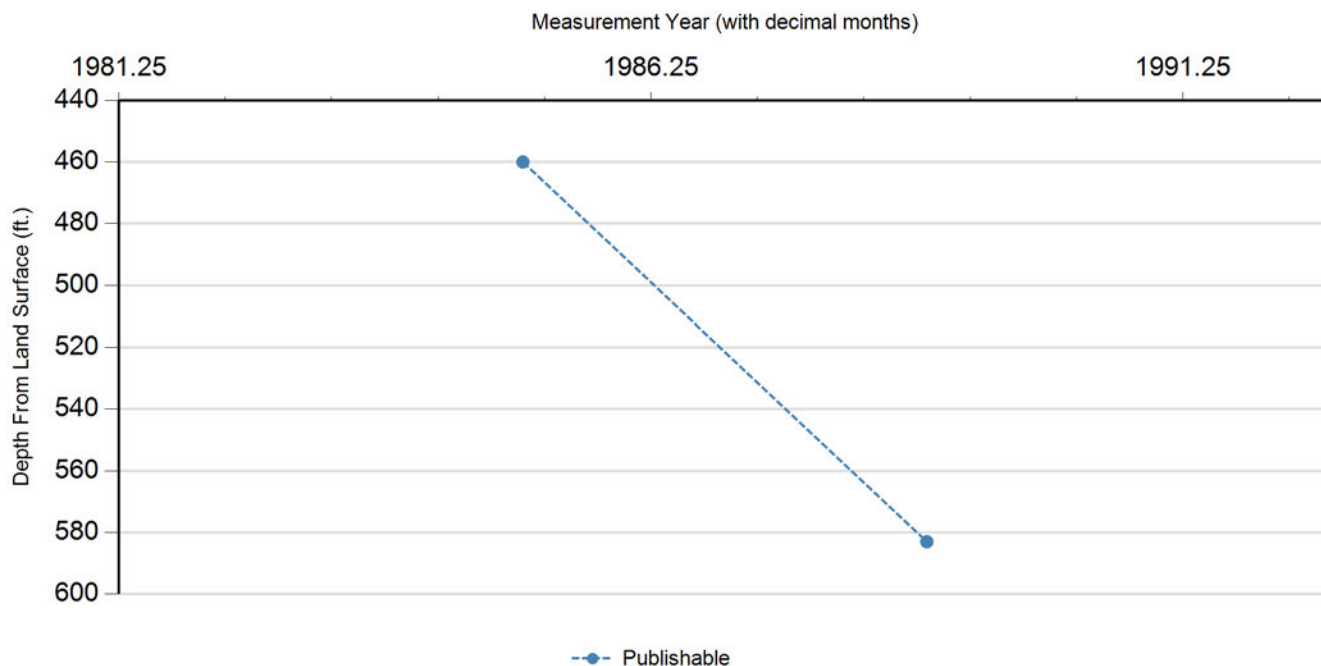
*Filter Pack - No Data*

*Packers - No Data*

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### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/17/1985		460		225	1	Registered Water Well Driller	Air Line		
P	11/8/1988		583	123.00	102	1	Texas Water Development Board	Air Line		

### Code Descriptions

Status Code	Status Description
P	Publishable



### Water Quality Analysis

**Sample Date:** 1/18/1985    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Registered Water Well Driller

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Pope Testing Lab

**Reliability:**

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		6	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		252	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		292.88	mg/L	
00910	CALCIUM (MG/L)		1.6	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		7.2	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		18	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		8	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		350	ug/L	
00920	MAGNESIUM (MG/L)		1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)		0	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		0	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.6	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		4.88		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		22.87		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		149.7	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		600	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		56	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		378	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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## GWDB Reports and Downloads

## Well Basic Details

## Scanned Documents

State Well Number	1844801
County	Collin
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	North Texas GCD
Latitude (decimal degrees)	33.285556
Latitude (degrees minutes seconds)	33° 17' 08" N
Longitude (decimal degrees)	-96.572222
Longitude (degrees minutes seconds)	096° 34' 20" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	678
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	1563
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	7/1/1954
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Plugged or Destroyed
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	None
Pump Depth (feet below land surface)	500
Power Type	
Annular Seal Method	
Surface Completion	
Owner	City of Melissa Well #1
Driller	J.L. Myers
Other Data Available	Drillers Log; Other
Well Report Tracking Number	
Plugging Report Tracking Number	9154
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0430040A
Groundwater Conservation District Well Number	
Owner Well Number	1
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	10/27/1976
Last Update Date	6/21/2016

**Remarks** Cemented from 1310 ft. to surface. Screened and gravel packed. Reported yield 100 gpm. Well first drilled on July 1, 1954 to depth of 1366 ft. Deepened in 1962 to 1563 ft. The 1962 casing and screen record not known.

### Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
10	Blank	Steel			0	7
7	Blank	Steel			0	1310
6	Blank	Steel			1200	1308
6	Screen	Steel			1308	1358
6	Blank	Steel			1358	1366

### Well Tests - No Data



### ***Lithology***

<b>Top Depth (ft.)</b>	<b>Bottom Depth (ft.)</b>	<b>Description</b>
0	4	SURFACE SOIL
4	526	CHALK ROCK
526	984	SHALE
984	1006	SAND
1006	1104	SHALE
1104	1122	SANDY SHALE
1122	1145	SHALE
1145	1175	SAND
1175	1238	SHALE
1238	1246	SAND
1246	1324	SHALE
1324	1369	SAND
1369	1371	SHALE

***Annular Seal Range - No Data***

***Borehole - No Data***

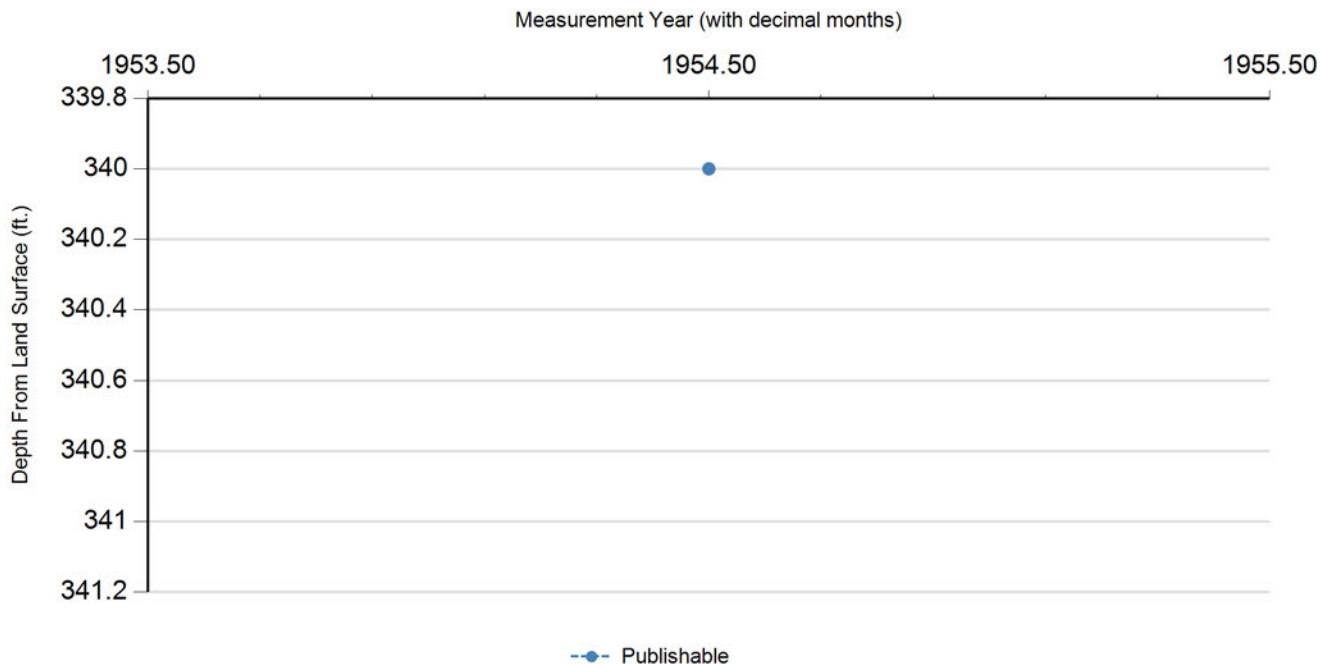
***Plugged Back - No Data***

***Filter Pack - No Data***

***Packers - No Data***



### Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	7/1/1954		340		338	1	Other or Source of Measurement Unknown	Unknown		

### Code Descriptions

Status Code	Status Description
P	Publishable



### Water Quality Analysis

**Sample Date:** 9/11/1956    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** U.S. Geological Survey

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** U.S. Geological Survey Lab

**Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		12.5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		354.41	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		402	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1600	ug/L	
00910	CALCIUM (MG/L)		0.8	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		15	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		37	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.8	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		1	mg/L as CaCO <sub>3</sub>	
01046	IRON, DISSOLVED (UG/L AS FE)		40	ug/L	
01045	IRON, TOTAL (UG/L AS FE)		140	ug/L	
00920	MAGNESIUM (MG/L)		0	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		3	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		1.1	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.05		
00955	SILICA, DISSOLVED (MG/L AS SiO <sub>2</sub> )		14	mg/L as SiO <sub>2</sub>	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		65.54		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		238	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		987	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		100	mg/L as SO <sub>4</sub>	
00010	TEMPERATURE, WATER (CELSIUS)		32	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		609	mg/L	



### Water Quality Analysis

**Sample Date:** 8/8/1971    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** From well not sufficiently pumped; not filtered or preserved

**Collection Remarks:** distribution

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		312	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		380.75	mg/L	
00910	CALCIUM (MG/L)		3	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		53	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.9	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		11	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		1	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.01		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		27.59		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		216	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		87	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		550	mg/L	



### Water Quality Analysis

**Sample Date:** 5/24/1976    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Municipal Water Agency or Public Water Supply Corp

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health

**Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		329.58	mg/L as CaCO <sub>3</sub>	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		390	mg/L	
00910	CALCIUM (MG/L)		4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		122	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		14	mg/L as CaCO <sub>3</sub>	
01045	IRON, TOTAL (UG/L AS FE)		100	ug/L	
00920	MAGNESIUM (MG/L)	<	1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )		0.5	mg/L as NO <sub>3</sub>	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.31		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		31.86		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		275	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1260	MICR	
00945	SULFATE, TOTAL (MG/L AS SO <sub>4</sub> )		85	mg/L as SO <sub>4</sub>	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		686	mg/L	



### Water Quality Analysis

**Sample Date:** 6/21/1983    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Texas Department of Health    **Reliability:** Collected from pumped well, but not filtered or preserved

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		344	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		407.6	mg/L	
00910	CALCIUM (MG/L)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		155	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		5	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		0.65	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.53	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.78		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		50.25		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		297	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1419	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		98	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		29	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		771	mg/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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**GWDB Reports and Downloads**

**Well Basic Details**

**Scanned Documents**

State Well Number	1844803
County	Collin
River Basin	Trinity
Groundwater Management Area	8
Regional Water Planning Area	C - Region C
Groundwater Conservation District	North Texas GCD
Latitude (decimal degrees)	33.284167
Latitude (degrees minutes seconds)	33° 17' 03" N
Longitude (decimal degrees)	-96.573055
Longitude (degrees minutes seconds)	096° 34' 23" W
Coordinate Source	Global Positioning System - GPS
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	674
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	1506
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	2/1/1987
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Screened

Well Type	Withdrawal of Water
Well Use	Public Supply
Water Level Observation	Historical
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	730
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	City of Melissa Well #2
Driller	J.L. Myers
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0430040B
Groundwater Conservation District Well Number	
Owner Well Number	2
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	6/14/2006
Last Update Date	7/15/2016

**Remarks** Cemented from 0 to 1300 feet. Underreamed 18 inch and gravel packed from 1305 to 1506 feet.

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
9	Blank	Steel			0	1300
5	Blank	Steel			1200	1306
5	Screen	Stainless Steel			1306	1354
5	Blank	Steel			1354	1368
5	Screen	Stainless Steel			1368	1388
5	Blank	Steel			1388	1440
5	Screen	Stainless Steel			1440	1483
5	Blank	Steel			1483	1506

**Well Tests - No Data**

**Lithology - No Data**

**Annular Seal Range - No Data**

**Borehole - No Data**

**Plugged Back - No Data**



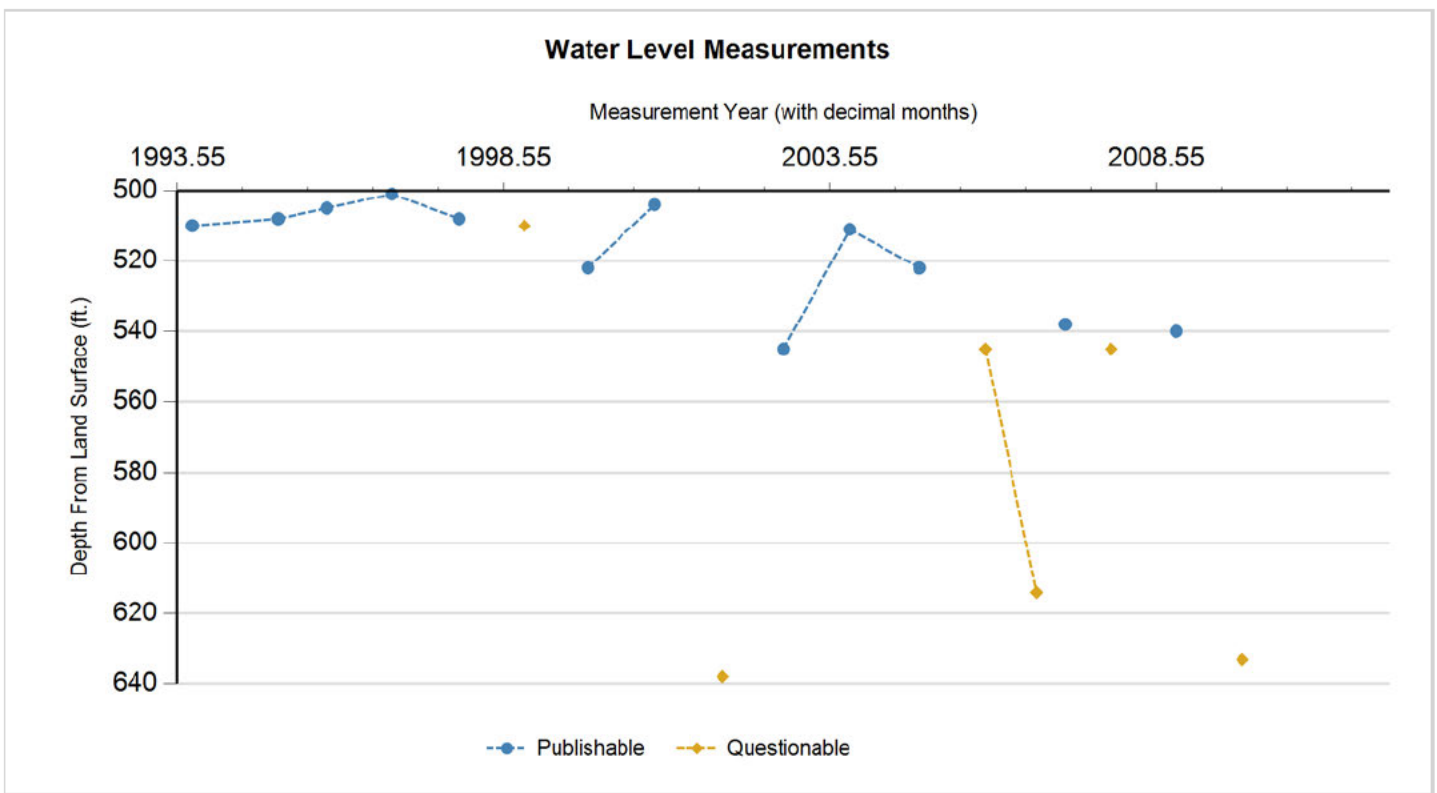
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*Filter Pack - No Data*

*Packers - No Data*

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Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/14/1993		510		164	1	Texas Water Development Board	Air Line		
P	2/7/1995		508	(2.00)	166	1	Texas Water Development Board	Air Line		
P	11/9/1995		505	(3.00)	169	1	Texas Water Development Board	Air Line		
P	11/7/1996		501	(4.00)	173	1	Texas Water Development Board	Air Line		
P	11/18/1997		508	7.00	166	1	Texas Water Development Board	Air Line		
Q	11/19/1998		510	2.00	164	1	Texas Water Development Board	Air Line	4	
P	11/9/1999		522	12.00	152	1	Texas Water Development Board	Air Line		
P	11/16/2000		504	(18.00)	170	1	Texas Water Development Board	Air Line		
X	9/11/2001					1	Texas Water Development Board		19	
Q	12/3/2001		638		36	1	Texas Water Development Board	Air Line	4	
P	11/8/2002		545	(93.00)	129	1	Texas Water Development Board	Air Line		
P	11/13/2003		511	(34.00)	163	1	Texas Water Development Board	Air Line		
P	12/8/2004		522	11.00	152	1	Texas Water Development Board	Air Line		
Q	12/14/2005		545	23.00	129	1	Texas Water Development Board	Air Line	2	
Q	9/21/2006		614	69.00	60	1	Texas Water Development Board	Air Line	3	
P	2/27/2007		538	(76.00)	136	1	Texas Water Development Board	Air Line		
Q	11/15/2007		545	7.00	129	1	Texas Water Development Board	Air Line	11	
P	11/14/2008		540	(5.00)	134	1	Texas Water Development Board	Air Line		
Q	11/19/2009		633	93.00	41	1	Texas Water Development Board	Air Line	11	
X	11/18/2010					1	Texas Water Development Board		32	
X	11/30/2011					1	Texas Water Development Board		18	



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**Code Descriptions**

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Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
2	Pumping-level measurement
3	Well or wells pumping nearby
4	Well pumped recently
11	Airline tubing possibly leaking air
18	Well destroyed
19	Well pumping
32	Well temporarily inaccessible due to winterization or debris

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### Water Quality Analysis

**Sample Date:** 4/20/1988    **Sample Time:** 0000    **Sample Number:** 1    **Collection Entity:** Registered Water Well Driller

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Pope Testing Lab

**Reliability:**

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		14	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		404	mg/L as CaCO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		493.01	mg/L	
00910	CALCIUM (MG/L)		2.4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		129	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.6	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		10	mg/L as CaCO 3	
01045	IRON, TOTAL (UG/L AS FE)		180	ug/L	
00920	MAGNESIUM (MG/L)		1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)		0	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8.4	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.87		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		49.68		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		362.5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1400	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		204	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		943	mg/L	



### Water Quality Analysis

**Sample Date:** 10/21/1997    **Sample Time:** 1515    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** LCRA - Lower Colorado River Authority

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		365	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		3	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		358	mg/L as CaCO3	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)		9.4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		7.9	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	2	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		429.56	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1984	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.82	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		1.29	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		3.6	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		139	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		11.9	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		10.4	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.57	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		5	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		110	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		24.5	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		0.62	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		3.6	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)	<	1	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.27	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.06	mg/L as N	



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-44-803**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00608	NITROGEN, AMMONIA, DISSOLVED (MG/L AS N)		0.92	mg/L as N	
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)		0.66	mg/L as N	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		36.5	MV	
00400	PH (STANDARD UNITS), FIELD		7.78	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)		0.46	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.28	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.05		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	5	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		12.3	mg/L as SI02	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		62.48		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		345	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1300	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		145.5	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		136	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		29.1	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		852	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		2.6	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		3.8	ug/L	



### Water Quality Analysis

**Sample Date:** 9/11/2001    **Sample Time:** 0907    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** LCRA - Lower Colorado River Authority

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO <sub>3</sub>		356	mg/L as CaCO <sub>3</sub>	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		3.44	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		358	mg/L as CaCO <sub>3</sub>	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)		11.4	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		6.8	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		428.49	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1280	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.753	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		1.03	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		4.13	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		135	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		1.44	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		2.54	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.46	mg/L	
04241	GROSS ALPHA RADIATION, TOTAL, PRODUCED WATER(pCi/L)		1.4	pCi/L	1.8
04242	GROSS BETA RADIATION, TOTAL, PRODUCED WATER(pCi/L)		2.1	pCi/L	2.1
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		4	mg/L as CaCO <sub>3</sub>	
01046	IRON, DISSOLVED (UG/L AS FE)		53	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		16.7	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		0.41	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		3.53	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
01065	NICKEL, DISSOLVED (UG/L AS NI)	<	1	ug/L	



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-44-803**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.09	mg/L as NO3	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.02	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		8.33	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.3	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		7.08		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		14.6	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		62.62		
00932	SODIUM, CALCULATED, PERCENT		99	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		297	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1414	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		114	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		146	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		29.2	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		811	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	4	ug/L	



### Water Quality Analysis

**Sample Date:** 6/14/2006    **Sample Time:** 1500    **Sample Number:** 1    **Collection Entity:** Texas Water Development Board

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Energy Labs Inc.

**Reliability:** Sampled using TWDB protocols

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO <sub>3</sub>		313	mg/L as CaCO <sub>3</sub>	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	1	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO <sub>3</sub> )		300	mg/L as CaCO <sub>3</sub>	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)		3	ug/L	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	1	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		12	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO <sub>3</sub> )		366.1	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1200	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.22	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		5.8	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO <sub>3</sub> )		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		148	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)		2	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)	<	1	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		6	ug/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO <sub>3</sub> )		20	mg/L as CaCO <sub>3</sub>	
01046	IRON, DISSOLVED (UG/L AS FE)		39	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		19	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		1.3	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		3	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)	<	1	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO <sub>3</sub> )	<	0.44	mg/L as NO <sub>3</sub>	
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)	<	0.1	mg/L as N	
00400	PH (STANDARD UNITS), FIELD		7.46	SU	



**Texas Water Development Board (TWDB)  
Groundwater Database (GWDB)  
Well Information Report for State Well Number  
18-44-803**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00935	POTASSIUM, DISSOLVED (MG/L AS K)		1.6	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		5.6		
01145	SELENIUM, DISSOLVED (UG/L AS SE)		1	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		11.5	mg/L as SI02	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		28.43		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		291	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1352	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		181	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		135	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		29.3	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		775	mg/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)	<	1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		11	ug/L	



### Water Quality Analysis

**Sample Date:** 6/14/2006    **Sample Time:**    **Sample Number:** 1    **Collection Entity:** Texas Commission on Environmental Quality

**Sampled Aquifer:** Woodbine Sand

**Analyzed Lab:** Immunoassay at TCEQ

**Reliability:** Sampled using TWDB protocols, but NOT filtered

**Collection Remarks:** No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39033	ATRAZINE, TOTAL, UG/L		0.05	ug/L	
82612	METOLACHLOR, WHOLE WATER, TOTAL RECOVERABLE, UG/L	<	0.05	ug/L	

\* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

**GWDB DISCLAIMER:** Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdb rpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at [GroundwaterData@twdb.texas.gov](mailto:GroundwaterData@twdb.texas.gov).



## Hal Bailey

---

**From:** Hal Bailey  
**Sent:** Friday, September 5, 2025 1:15 PM  
**To:** Campbell, Kelsey (McGuire)  
**Cc:** Humberto Galvan; Chris Kozlowski; Alderman, Nadia (Whitehouse)  
**Subject:** Horizon Rockhill Heights, LLC Application No. 14129 Request for Information (RFI)  
**Attachments:** Horizon\_Rockhill\_Heights\_LLC\_14129\_RFI\_09.05.2025.pdf

Good afternoon Ms. Campbell,

Please find the attached RFI for water use permit application no. 14129. Response due date is 10/06/2025.

If you have any questions, please feel free to contact me.

Thank you,

Hal E. Bailey, Jr.  
Natural Resources Specialist IV  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section  
Phone: 512-239-4615



Brooke T. Paup, *Chairwoman*  
Bobby Janecka, *Commissioner*  
Catarina R. Gonzales, *Commissioner*  
Kelly Keel, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

September 5, 2025

Ms. Kelsey L. Campbell, P.E.  
Kimley-Horn  
6160 Warren Parkway, Suite 210  
Frisco, TX 75034-9741

**VIA E-MAIL**

RE: Horizon Rockhill Heights, LLC  
WRPERM 14129  
CN606158939, RN112222864  
Application No. 14129 for a Water Use Permit  
Texas Water Code § 11.121, Requiring Published and Mailed Notice  
Unnamed Tributary of Little Elm Creek, Trinity River Basin  
Collin County

Dear Ms. Campbell:

This acknowledges receipt, on May 29, 2025, of the referenced application and fees in the amount of \$949.11 (Receipt No. M557992, copy attached).

Additional information is required before the application can be declared administratively complete.

1. Confirm that the application is requesting authorization to maintain two reservoirs with groundwater from the Woodbine aquifer.
2. Confirm the location and capacity of each reservoir requested:

Reservoir Name	Latitude (N)	Longitude (W)	Capacity (Acre-feet)
Pond 1	33.329386	96.782551	17.20
Pond 2	33.333187	96.779461	3.69

3. Confirm that the application is requesting authorization to use the bed and banks of an unnamed tributary of Little Elm Creek (Pond 1), tributary of Little Elm Creek, Trinity River Basin to convey groundwater for subsequent diversion and use for agricultural and recreational purposes.
4. Provide a completed *Worksheet 4.0 Discharge Information and Worksheet 4.1 Discharge Point Information* for Pond 2 discharges.
5. Provide an updated USGS 7.5 minute topographic map (or equivalent) with the location of all reservoirs, diversion points, and discharge points clearly marked.
6. Provide the well number(s) or well identifier(s), location of the well, and well data sheets for the groundwater quality data provided in Worksheet 5.0 (3)(b)(ii).

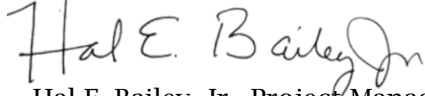


Horizon Rockhill Heights, LLC  
Application No. 14129  
September 5, 2025  
Page 2 of 2

Please provide the requested information by October 6, 2025, or the application may be returned pursuant to Title 30 TAC § 281.18.

If you have any questions concerning this matter, please contact me via email at [hal.bailey@tceq.texas.gov](mailto:hal.bailey@tceq.texas.gov) or by telephone at (512) 239-4615.

Sincerely,

A handwritten signature in black ink that reads "Hal E. Bailey, Jr." The signature is written in a cursive, slightly slanted style.

Hal E. Bailey, Jr., Project Manager  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section

Attachment





02-JUN-25 12:55 PM

## TCEQ - A/R RECEIPT REPORT BY ACCOUNT NUMBER

<u>Fee Description</u>	<u>Fee Code</u> <u>Account#</u> <u>Account Name</u>	<u>Ref#1</u> <u>Ref#2</u> <u>Paid In By</u>	<u>Check Number</u> <u>Card Auth.</u> <u>User Data</u>	<u>CC Type</u> <u>Tran Code</u> <u>Rec Code</u>	<u>Slip Key</u> <u>Document#</u>	<u>Tran Date</u>	<u>Tran Amount</u>
WTR USE PERMITS	WUP	M557992	216863476		BS00115610	02-JUN-25	-\$949.11
	WUP	14129	060225	N	D5802983		
	WATER USE PERMITS	KIMLEY HORN & ASSOC INC	RHDAVIS	CK			
	WUP	M557995	17791		BS00115610	02-JUN-25	-\$100.00
	WUP	142538	060225	N	D5802983		
	WATER USE PERMITS	MILLS COUNTY ABSTRACT & TITLE COMPANY	RHDAVIS	CK			
	WUP	M557996	2547		BS00115610	02-JUN-25	-\$100.00
	WUP	4336	060225	N	D5802983		
	WATER USE PERMITS	WALKER, GARY/CHRIST Y	RHDAVIS	CK			
Total (Fee Code):							-\$1,149.11





May 27, 2025

Texas Commission on Environmental Quality  
Water Availability Division, MC-160  
12100 Park 35 Circle  
Austin, TX 78753

**RE:   *Heights at Uptown  
City of Celina, TX***

Dear TCEQ Representative:

Horizon Rockhill Heights is proposing a single family development north of Malone Street and East of Preston Road in the City of Celina. This permit application addresses two proposed regional detention ponds and one existing stock pond. Some ponds are proposed to store water for irrigation and all ponds will lose water to evaporation. A groundwater well is proposed to be constructed to maintain the water levels in the ponds, so that State Water is not impounded.

Enclosed is an application to obtain a Water Rights Permit for a proposed project in the Celina, Texas.

If you have any questions, please contact me at [Kelsey.campbell@kimley-horn.com](mailto:Kelsey.campbell@kimley-horn.com) or 972-335-3580.

Sincerely,

A handwritten signature in blue ink that reads "K. Campbell".

Kelsey L. Campbell, P.E.

**RECEIVED**

MAY 29 2025

Water Availability Division



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## TCEQ WATER RIGHTS PERMITTING APPLICATION

### ADMINISTRATIVE INFORMATION CHECKLIST

Complete and submit this checklist for each application. See Instructions Page 5.

APPLICANT(S): Horizon Rockhill Heights, LLC

Indicate whether the following items are included in your application by writing either Y (for yes) or N (for no) next to each item (all items are not required for every application).

Y/N

Y **Administrative Information Report**

N Additional Co-Applicant Information

N Additional Co-Applicant Signature Pages

Y Written Evidence of Signature Authority

Y **Technical Information Report**

Y USGS Map (or equivalent)

Y Map Showing Project Details

Y Original Photographs

Y Water Availability Analysis

Y **Worksheet 1.0**

Y Recorded Deeds for Irrigated Land

N Consent for Irrigated Land

N **Worksheet 1.1**

N Addendum to Worksheet 1.1

N **Worksheet 1.2**

Y **Worksheet 2.0**

Y Additional W.S. 2.0 for Each Reservoir

N Dam Safety Documents

Y Notice(s) to Governing Bodies

Y Recorded Deeds for Inundated Land

Y Consent for Inundated Land

Y/N

Y **Worksheet 3.0**

Y Additional W.S. 3.0 for each Point

Y Recorded Deeds for Diversion Points

N Consent for Diversion Access

Y **Worksheet 4.0**

N TPDES Permit(s)

N WWTP Discharge Data

Y Groundwater Well Permit

N Signed Water Supply Contract

Y **Worksheet 4.1**

Y **Worksheet 5.0**

N Addendum to Worksheet 5.0

Y **Worksheet 6.0**

N Water Conservation Plan(s)

N Drought Contingency Plan(s)

N Documentation of Adoption

Y **Worksheet 7.0**

Y Accounting Plan

Y **Worksheet 8.0**

Y Fees

Y Public Involvement Plan

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MAY 29 2025

Water Availability Division



# ADMINISTRATIVE INFORMATION REPORT

The following information is **required** for all new applications and amendments.

**\*\*\*Applicants are REQUIRED to schedule a pre-application meeting with TCEQ Staff to discuss Applicant's needs prior to submitting an application. Call the Water Rights Permitting Team to schedule a meeting at (512) 239-4600.**

## 1. TYPE OF APPLICATION (Instructions, Page. 6)

Indicate, by marking X, next to the following authorizations you are seeking.

☒ New Appropriation of State Water

☐ Amendment to a Water Right \*

☒ Bed and Banks

*\*If you are seeking an amendment to an existing water rights authorization, you must be the owner of record of the authorization. If the name of the Applicant in Section 2 does not match the name of the current owner(s) of record for the permit or certificate or if any of the co-owners is not included as an applicant in this amendment request, your application could be returned. If you or a co-applicant are a new owner, but ownership is not reflected in the records of the TCEQ, submit a change of ownership request (Form TCEQ-10204) prior to submitting the application for an amendment. See Instructions page. 6. Please note that an amendment application may be returned, and the Applicant may resubmit once the change of ownership is complete.*

Please summarize the authorizations or amendments you are seeking in the space below or attach a narrative description entitled "Summary of Request."

Horizon Rockhill Heights has created Heights at Uptown as a single family development in Celina, Texas. This project includes 2 ponds for recreational purposes and one pond for irrigation along Unnamed Tributary to Little Elm Creek. This application is requesting authorization from TCEQ to impound water. Water lost due to evaporation and irrigation will be replaced by groundwater.

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MAY 29 2025  
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## 2. APPLICANT INFORMATION (Instructions, Page. 6 )

### a. Applicant

Indicate the number of Applicants/Co-Applicants 1  
(Include a copy of this section for each Co-Applicant, if any)

What is the Full Legal Name of the individual or entity (applicant) applying for this permit?

Horizon Rockhill Heights, LLC

*(If the Applicant is an entity, the legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)*

If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)?  
You may search for your CN on the TCEQ website at

<http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN : CN606158939 ( leave blank if you do not yet have a CN).

What is the name and title of the person or persons signing the application? Unless an application is signed by an individual applicant, the person or persons must submit written evidence that they meet the signatory requirements in 30 TAC § 295.14.

First/Last Name: Ryan Griffin

Title: Manager

Have you provided written evidence meeting the signatory requirements in 30 TAC § 295.14, as an attachment to this application? Y/N       

What is the applicant's mailing address as recognized by the US Postal Service (USPS)? You may verify the address on the USPS website at

<https://tools.usps.com/go/ZipLookupAction!input.action>.

Name: Horizon Rockhill Heights, LLC

Mailing Address: 2801 Network Boulevard Suite 350

City: Frisco State: TX ZIP Code: 75034

Indicate an X next to the type of Applicant:

<input type="checkbox"/> Individual	<input type="checkbox"/> Sole Proprietorship-D.B.A.
<input type="checkbox"/> Partnership	<input type="checkbox"/> Corporation
<input type="checkbox"/> Trust	<input type="checkbox"/> Estate
<input type="checkbox"/> Federal Government	<input type="checkbox"/> State Government
<input type="checkbox"/> County Government	<input type="checkbox"/> City Government
<input type="checkbox"/> Other Government	<input checked="" type="checkbox"/> Other <u>Limited Liability Corp</u>

For Corporations or Limited Partnerships, provide:

State Franchise Tax ID Number: 2863523 SOS Charter (filing) Number: 0804304813



### 3. APPLICATION CONTACT INFORMATION (Instructions, Page. 9)

If the TCEQ needs additional information during the review of the application, who should be contacted? Applicant may submit their own contact information if Applicant wishes to be the point of contact.

First and Last Name: Kelsey L. Campbell, PE

Title: Professional Engineer

Organization Name: Kimley-Horn

Mailing Address: 6160 Warren Parkway, Suite 210

City: Frisco State: TX ZIP Code: 75034

Phone Number: 972-335-3580

Fax Number:

E-mail Address:



#### 4. WATER RIGHT CONSOLIDATED CONTACT INFORMATION (Instructions, Page. 9)

This section applies only if there are multiple Owners of the same authorization. Unless otherwise requested, Co-Owners will each receive future correspondence from the Commission regarding this water right (after a permit has been issued), such as notices and water use reports. Multiple copies will be sent to the same address if Co-Owners share the same address. Complete this section if there will be multiple owners and all owners agree to let one owner receive correspondence from the Commission. Leave this section blank if you would like all future notices to be sent to the address of each of the applicants listed in section 2 above.

I/We authorize all future notices be received on my/our behalf at the following:

First and Last Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_



## 5. MISCELLANEOUS INFORMATION (Instructions, Page. 9)

- a. The application will not be processed unless all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol by all applicants/co-applicants. If you need assistance determining whether you owe delinquent penalties or fees, please call the Water Rights Permitting Team at (512) 239-4600, prior to submitting your application.
1. Does Applicant or Co-Applicant owe any fees to the TCEQ? **Yes / No** No  
If **yes**, provide the following information:  
Account number: \_\_\_\_\_ Amount past due: \_\_\_\_\_
2. Does Applicant or Co-Applicant owe any penalties to the TCEQ? **Yes / No** No  
If **yes**, please provide the following information:  
Enforcement order number: \_\_\_\_\_ Amount past due: \_\_\_\_\_
- b. If the Applicant is a taxable entity (corporation or limited partnership), the Applicant must be in good standing with the Comptroller or the right of the entity to transact business in the State may be forfeited. See Texas Tax Code, Subchapter F. Applicant's may check their status with the Comptroller at <https://mycpa.cpa.state.tx.us/coa/>  
Is the Applicant or Co-Applicant in good standing with the Comptroller? **Yes / No** Yes
- c. The commission will not grant an application for a water right unless the applicant has submitted all Texas Water Development Board (TWDB) surveys of groundwater and surface water use – if required. See TWC §16.012(m) and 30 TAC § 297.41(a)(5). Applicants should check survey status on the TWDB website prior to filing:  
[https://www3.twdb.texas.gov/apps/reports/WU\\_REP/SurveyStatus\\_PriorThreeYears](https://www3.twdb.texas.gov/apps/reports/WU_REP/SurveyStatus_PriorThreeYears)  
Applicant has submitted all required TWDB surveys of groundwater and surface water?  
**Yes / No** Yes



6. SIGNATURE PAGE (Instructions, Page. 11)

Applicant:

I, Ryan Griffin  
(Typed or printed name)

Manager  
(Title)

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 Title 30 Texas Administrative Code §295.14 to sign and submit this document and I have submitted written evidence of my signature authority.

Signature: Ryan W. Griffin

(Use blue ink)

Date: 4/8/25

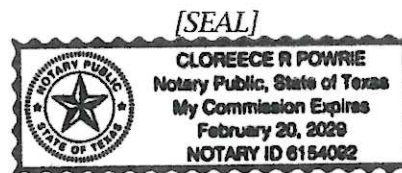
Subscribed and Sworn to before me by the said

on this 8th day of April, 2025.

My commission expires on the 20th day of February, 2029.

Notary Public Cloreece R. Powrie

County, Texas Collin



*If the Application includes Co-Applicants, each Applicant and Co-Applicant must submit an original, separate signature page*



**HORIZON ROCKHILL HEIGHTS, LLC**  
**WRITTEN CONSENT OF THE MANAGERS**  
**TO CERTAIN ACTION**

In accordance with the Texas Business Organizations Code, and other applicable provisions of law, the undersigned, being all the managers (the "*Managers*") of HORIZON ROCKHILL HEIGHTS, LLC, a Texas limited liability company ("*Seller*"), do hereby acknowledge, confirm and stipulate that the recitals set forth herein are true and correct, and consent and agree to and approve the following Resolutions and the same are hereby adopted:

RESOLVED, that the undersigned are all the managers of the Company;

RESOLVED FURTHER, that Company desires to obtain a water rights permit for the detention pond ("Water Rights Permit") that will be located in the subdivision referenced in *Exhibit A* attached hereto and incorporated herein for all purposes ("*Property*");

RESOLVED FURTHER, that RYAN W. GRIFFIN ("*Authorized Party*") is hereby authorized to execute and deliver the Water Rights Permit and such other instruments (without the necessity of secretarial attestation) as may be required and to take such other actions in the consummation of the transaction herein contemplated as the Authorized Party shall deem to be necessary or desirable, and any and all acts heretofore taken by the Authorized Party to such end are hereby expressly ratified and confirmed as the acts and deeds of the Company;

RESOLVED FURTHER, that with respect to all of the aforesaid resolutions, any and all acts heretofore taken by the Authorized Party in furtherance of and conformity therewith are ratified and adopted in full as if these resolutions predate said actions; and

RESOLVED FURTHER, that for the purposes of negotiating and finalizing the closing documents, any signed document (including this resolution) transmitted by electronic means shall be treated in all manner and respects as an original document. Any such transmittal shall be considered to have the same binding legal effect as an original document. The signatures of the undersigned Managers shall be considered for these purposes as original signatures.

*[Signatures appear on following page]*



EXECUTED and adopted as of the 7<sup>th</sup> day of April, 2025.

MANAGERS:

  
\_\_\_\_\_  
RYAN W. GRIFFIN

  
\_\_\_\_\_  
MARK D. SMITH

[SIGNATURE PAGE TO WRITTEN CONSENT]



**EXHIBIT A**

All of the lots in the Final Plat of the Heights at Uptown, Phase 1, an Addition to the City of Celina, Collin County, Texas, according to the Map or Plat thereof recorded in Volume 2024, Pages 1131-1135, of the Map and/or Plat Records of Collin County, Texas.



# TECHNICAL INFORMATION REPORT

## WATER RIGHTS PERMITTING

This Report is required for applications for new or amended water rights. Based on the Applicant's responses below, Applicants are directed to submit additional Worksheets (provided herein). A completed Administrative Information Report is also required for each application.

**Applicants are REQUIRED to schedule a pre-application meeting with TCEQ Permitting Staff to discuss Applicant's needs and to confirm information necessary for an application prior to submitting such application. Please contact the Water Availability Division at (512) 239-4600 or [WRPT@tceq.texas.gov](mailto:WRPT@tceq.texas.gov) to schedule a meeting.**

Date of pre-application meeting: 4/30/25

### 1. New or Additional Appropriations of State Water. Texas Water Code (TWC) § 11.121 (Instructions, Page. 12)

**State Water is:** *The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state. TWC § 11.021.*

- a. Applicant requests a new appropriation (diversion or impoundment) of State Water? Y / N<sup>Y</sup>\_\_\_\_\_
- b. Applicant requests an amendment to an existing water right requesting an increase in the appropriation of State Water or an increase of the overall or maximum combined diversion rate? Y / N<sup>N</sup>\_\_\_\_\_(If yes, indicate the Certificate or Permit number:\_\_\_\_\_)

*If Applicant answered yes to (a) or (b) above, does Applicant also wish to be considered for a term permit pursuant to TWC § 11.1381? Y / N<sup>N</sup>\_\_\_\_\_*

- c. Applicant requests to extend an existing Term authorization or to make the right permanent? Y / N<sup>N</sup>\_\_\_\_\_(If yes, indicate the Term Certificate or Permit number:\_\_\_\_\_)

*If Applicant answered yes to (a), (b) or (c), the following worksheets and documents are required:*

- **Worksheet 1.0 – Quantity, Purpose, and Place of Use Information Worksheet**
- **Worksheet 2.0 - Impoundment/Dam Information Worksheet** (submit one worksheet for each impoundment or reservoir requested in the application)
- **Worksheet 3.0 - Diversion Point Information Worksheet** (submit one worksheet for each diversion point and/or one worksheet for the upstream limit and one worksheet for the downstream limit of each diversion reach requested in the application)
- **Worksheet 5.0 – Environmental Information Worksheet**
- **Worksheet 6.0 – Water Conservation Information Worksheet**
- **Worksheet 7.0 – Accounting Plan Information Worksheet**
- **Worksheet 8.0 – Calculation of Fees**
- **Fees calculated on Worksheet 8.0 – see instructions Page. 34.**
- **Maps – See instructions Page. 15.**
- **Photographs – See instructions Page. 30.**

*Additionally, if Applicant wishes to submit an alternate source of water for the project/authorization, see Section 3, Page 3 for Bed and Banks Authorizations (Alternate sources may include groundwater, imported water, contract water or other sources).*

**Additional Documents and Worksheets may be required (see within).**



## 2. Amendments to Water Rights. TWC § 11.122 (Instructions, Page. 12)

This section should be completed if Applicant owns an existing water right and Applicant requests to amend the water right. *If Applicant is not currently the Owner of Record in the TCEQ Records, Applicant must submit a Change of Ownership Application (TCEQ-10204) prior to submitting the amendment Application or provide consent from the current owner to make the requested amendment. If the application does not contain consent from the current owner to make the requested amendment, TCEQ will not begin processing the amendment application until the Change of Ownership has been completed and will consider the Received Date for the application to be the date the Change of Ownership is completed. See instructions page. 6.*

Water Right (Certificate or Permit) number you are requesting to amend: N/A

Applicant requests to sever and combine existing water rights from one or more Permits or Certificates into another Permit or Certificate? Y / N \_\_\_\_\_ (if yes, complete chart below):

List of water rights to sever	Combine into this ONE water right

- a. Applicant requests an amendment to an existing water right to increase the amount of the appropriation of State Water (diversion and/or impoundment)? Y / N \_\_\_\_\_

*If yes, application is a new appropriation for the increased amount, complete Section 1 of this Report (PAGE. 1) regarding New or Additional Appropriations of State Water.*

- b. Applicant requests to amend existing Term authorization to extend the term or make the water right permanent (remove conditions restricting water right to a term of years)? Y / N \_\_\_\_\_

*If yes, application is a new appropriation for the entire amount, complete Section 1 of this Report (PAGE. 1) regarding New or Additional Appropriations of State Water.*

- c. Applicant requests an amendment to change the purpose or place of use or to add an additional purpose or place of use to an existing Permit or Certificate? Y / N \_\_\_\_\_  
*If yes, submit:*

- **Worksheet 1.0 - Quantity, Purpose, and Place of Use Information Worksheet**
- **Worksheet 1.2 - Notice: "Marshall Criteria"**

- d. Applicant requests to change: diversion point(s); or reach(es); or diversion rate? Y / N \_\_\_\_\_  
*If yes, submit:*

- **Worksheet 3.0 - Diversion Point Information Worksheet** (submit one worksheet for each diversion point or one worksheet for the upstream limit and one worksheet for the downstream limit of each diversion reach)
- **Worksheet 5.0 - Environmental Information** (Required for any new diversion points that are not already authorized in a water right)

- e. Applicant requests amendment to add or modify an impoundment, reservoir, or dam? Y / N \_\_\_\_\_

*If yes, submit: Worksheet 2.0 - Impoundment/Dam Information Worksheet* (submit one worksheet for each impoundment or reservoir)



- f. Other - Applicant requests to change any provision of an authorization not mentioned above? Y / N\_\_\_\_\_ *If yes, call the Water Availability Division at (512) 239-4600 to discuss.*

**Additionally, all amendments require:**

- **Worksheet 8.0 – Calculation of Fees; and Fees calculated – see instructions Page. 34**
- **Maps – See instructions Page. 15.**
- **Additional Documents and Worksheets may be required (see within).**

### **3. Bed and Banks. TWC § 11.042 (Instructions, Page 13)**

- a. Pursuant to contract, Applicant requests authorization to convey, stored or conserved water to the place of use or diversion point of purchaser(s) using the bed and banks of a watercourse? TWC § 11.042(a). Y/N<sup>N</sup>\_\_\_\_\_

*If yes, submit a signed copy of the Water Supply Contract pursuant to 30 TAC §§ 295.101 and 297.101. Further, if the underlying Permit or Authorization upon which the Contract is based does not authorize Purchaser's requested Quantity, Purpose or Place of Use, or Purchaser's diversion point(s), then either:*

- 1. Purchaser must submit the worksheets required under Section 1 above with the Contract Water identified as an alternate source; or*
- 2. Seller must amend its underlying water right under Section 2.*

- b. Applicant requests to convey water imported into the state from a source located wholly outside the state using the bed and banks of a watercourse? TWC § 11.042(a-1). Y / N<sup>N</sup>\_\_\_\_\_

*If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps and fees from the list below.*

- c. Applicant requests to convey Applicant's own return flows derived from privately owned groundwater using the bed and banks of a watercourse? TWC § 11.042(b). Y / N<sup>N</sup>\_\_\_\_\_

*If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below.*

- d. Applicant requests to convey Applicant's own return flows derived from surface water using the bed and banks of a watercourse? TWC § 11.042(c). Y / N<sup>N</sup>\_\_\_\_\_

*If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, Maps, and fees from the list below.*

***\*Please note, if Applicant requests the reuse of return flows belonging to others, the Applicant will need to submit the worksheets and documents under Section 1 above, as the application will be treated as a new appropriation subject to termination upon direct or indirect reuse by the return flow discharger/owner.***

- e. Applicant requests to convey water from any other source, other than (a)-(d) above, using the bed and banks of a watercourse? TWC § 11.042(c). Y / N<sup>r</sup>\_\_\_\_\_

*If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below.*

*Worksheets and information:*

- **Worksheet 1.0 – Quantity, Purpose, and Place of Use Information Worksheet**
- **Worksheet 2.0 - Impoundment/Dam Information Worksheet** (submit one worksheet for each impoundment or reservoir owned by the applicant through which water will be conveyed or diverted)
- **Worksheet 3.0 - Diversion Point Information Worksheet** (submit one worksheet for the downstream limit of each diversion reach for the proposed conveyances)



- **Worksheet 4.0 – Discharge Information Worksheet** (for each discharge point)
- **Worksheet 5.0 – Environmental Information Worksheet**
- **Worksheet 6.0 – Water Conservation Information Worksheet**
- **Worksheet 7.0 – Accounting Plan Information Worksheet**
- **Worksheet 8.0 – Calculation of Fees; and Fees calculated – see instructions Page. 34**
- **Maps – See instructions Page. 15.**
- **Additional Documents and Worksheets may be required (see within).**

#### **4. General Information, Response Required for all Water Right Applications (Instructions, Page 15)**

- a. Provide information describing how this application addresses a water supply need in a manner that is consistent with the state water plan or the applicable approved regional water plan for any area in which the proposed appropriation is located or, in the alternative, describe conditions that warrant a waiver of this requirement (*not required for applications to use groundwater-based return flows*). Include citations or page numbers for the State and Regional Water Plans, if applicable. Provide the information in the space below or submit a supplemental sheet entitled “Addendum Regarding the State and Regional Water Plans”:

Heights at Uptown is located within the City of Celina which is part of the Region C Planning Group for the State's Water Plan. This application proposes use of groundwater wells to replace water loss due to evaporation and irrigation. This approach is consistent with the 2022 State Water Plan which recommends groundwater wells as a way to meet water supply needs (see Chapter 6, pg 84).

- b. Did the Applicant perform its own Water Availability Analysis? Y / N <sup>Y</sup>\_\_\_\_\_

*If the Applicant performed its own Water Availability Analysis, provide electronic copies of any modeling files and reports.*

- c. Does the application include required Maps? (Instructions Page. 15) Y / N <sup>Y</sup>\_\_\_\_\_



# WORKSHEET 1.0

## Quantity, Purpose and Place of Use

### 1. New Authorizations (Instructions, Page. 16)

Submit the following information regarding quantity, purpose and place of use for requests for new or additional appropriations of State Water or Bed and Banks authorizations:

Quantity (acre- feet) <i>(Include losses for Bed and Banks)</i>	State Water Source (River Basin) or Alternate Source <i>*each alternate source (and new appropriation based on return flows of others) also requires completion of Worksheet 4.0</i>	Purpose(s) of Use	Place(s) of Use <i>*requests to move state water out of basin also require completion of Worksheet 1.1 Interbasin Transfer</i>
111.77	Woodbine Aquifer	Irrigation, Recreation	Collin County
20.89	Trinity River Basin	Reservoir Impoundment	Collin County

132.66 Total amount of water (in acre-feet) to be used annually (*include losses for Bed and Banks applications*)

If the Purpose of Use is Agricultural/Irrigation for any amount of water, provide:

a. Location Information Regarding the Lands to be Irrigated

- i) Applicant proposes to irrigate a total of 32.4 acres in any one year. This acreage is all of or part of a larger tract(s) which is described in a supplement attached to this application and contains a total of 130 acres in Collin County, TX.
- ii) Location of land to be irrigated: In the Collin County School Land Survey Original Survey No. 15, Abstract No. 75034.

***A copy of the deed(s) or other acceptable instrument describing the overall tract(s) with the recording information from the county records must be submitted. Applicant's name must match deeds.***

***If the Applicant is not currently the sole owner of the lands to be irrigated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.***

***Water Rights for Irrigation may be appurtenant to the land irrigated and convey with the land unless reserved in the conveyance. 30 TAC § 297.81.***



## WORKSHEET 2.0

### Impoundment/Dam Information

This worksheet **is required** for any impoundment, reservoir and/or dam. Submit an additional Worksheet 2.0 for each impoundment or reservoir requested in this application.

*If there is more than one structure, the numbering/naming of structures should be consistent throughout the application and on any supplemental documents (e.g., maps).*

#### 1. Storage Information (Instructions, Page. 21)

- a. Official USGS name of reservoir, if applicable: Pond 1 (Unofficial name) \_\_\_\_\_
- b. Provide amount of water (in acre-feet) impounded by structure at normal maximum operating level: 17.20 \_\_\_\_\_.
- c. The impoundment is on-channel<sup>x</sup> \_\_\_\_\_ or off-channel \_\_\_\_\_ (mark one)
- i. Applicant has verified on-channel or off-channel determination by contacting Surface Water Availability Team at (512) 239-4600? Y / N N
  - ii. If on-channel, will the structure have the ability to pass all State Water inflows that Applicant does not have authorization to impound? Y / N Y
- d. Is the impoundment structure already constructed? Y / N Y On channel structure is not a dam
- i. For already constructed **on-channel** structures:
    - 1. Date of Construction: 2022 \_\_\_\_\_
    - 2. Was it constructed to be an exempt structure under TWC § 11.142? Y / N N
      - a. If Yes, is Applicant requesting to proceed under TWC § 11.143? Y / N N/A
      - b. If No, has the structure been issued a notice of violation by TCEQ? Y / N N
    - 3. Is it a U.S. Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service (SCS)) floodwater-retarding structure? Y / N N
      - a. If yes, provide the Site No. \_\_\_\_\_ and watershed project name \_\_\_\_\_;
      - b. Authorization to close "ports" in the service spillway requested? Y / N \_\_\_\_\_
  - ii. For **any** proposed new structures or modifications to structures:
    - 1. Applicant **must** contact TCEQ Dam Safety Section at (512) 239-0326, *prior to submitting an Application*. Applicant has contacted the TCEQ Dam Safety Section regarding the submission requirements of 30 TAC, Ch. 299? Y / N Y  
Provide the date and the name of the Staff Person \_\_\_\_\_
    - 2. As a result of Applicant's consultation with the TCEQ Dam Safety Section, TCEQ has confirmed that:
      - a. No additional dam safety documents required with the Application. Y / N Y
      - b. Plans (with engineer's seal) for the structure required. Y / N \_\_\_\_\_
      - c. Engineer's signed and sealed hazard classification required. Y / N \_\_\_\_\_
      - d. Engineer's statement that structure complies with 30 TAC, Ch. 299 Rules required. Y / N \_\_\_\_\_



## WORKSHEET 2.0

### Impoundment/Dam Information

This worksheet is **required** for any impoundment, reservoir and/or dam. Submit an additional Worksheet 2.0 for each impoundment or reservoir requested in this application.

*If there is more than one structure, the numbering/naming of structures should be consistent throughout the application and on any supplemental documents (e.g., maps).*

#### 1. Storage Information (Instructions, Page. 21)

- a. Official USGS name of reservoir, if applicable: Existing Pond 2 (Unofficial name)
- b. Provide amount of water (in acre-feet) impounded by structure at normal maximum operating level: 3.69
- c. The impoundment is on-channel<sup>x</sup> \_\_\_\_\_ or off-channel \_\_\_\_\_ (mark one)
  - i. Applicant has verified on-channel or off-channel determination by contacting Surface Water Availability Team at (512) 239-4600? Y / N N
  - ii. If on-channel, will the structure have the ability to pass all State Water inflows that Applicant does not have authorization to impound? Y / N Y
- d. Is the impoundment structure already constructed? Y / N Y
  - i. For already constructed **on-channel** structures:
    1. Date of Construction: Unknown
    2. Was it constructed to be an exempt structure under TWC § 11.142? Y / N Y
      - a. If Yes, is Applicant requesting to proceed under TWC § 11.143? Y / N N
      - b. If No, has the structure been issued a notice of violation by TCEQ? Y / N N
    3. Is it a U.S. Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service (SCS)) floodwater-retarding structure? Y / N N
      - a. If yes, provide the Site No. \_\_\_\_\_ and watershed project name \_\_\_\_\_;
      - b. Authorization to close "ports" in the service spillway requested? Y / N \_\_\_\_\_
  - ii. For **any** proposed new structures or modifications to structures:
    1. Applicant **must** contact TCEQ Dam Safety Section at (512) 239-0326, *prior to submitting an Application*. Applicant has contacted the TCEQ Dam Safety Section regarding the submission requirements of 30 TAC, Ch. 299? Y / N N  
Provide the date and the name of the Staff Person \_\_\_\_\_
    2. As a result of Applicant's consultation with the TCEQ Dam Safety Section, TCEQ has confirmed that:
      - a. No additional dam safety documents required with the Application. Y / N \_\_\_\_\_
      - b. Plans (with engineer's seal) for the structure required. Y / N \_\_\_\_\_
      - c. Engineer's signed and sealed hazard classification required. Y / N \_\_\_\_\_
      - d. Engineer's statement that structure complies with 30 TAC, Ch. 299 Rules required. Y / N \_\_\_\_\_

Existing Dam Sheet  
included with this  
submittal



3. Applicants **shall** give notice by certified mail to each member of the governing body of each county and municipality in which the reservoir, or any part of the reservoir to be constructed, will be located. (30 TAC § 295.42). Applicant must submit a copy of all the notices and certified mailing cards with this Application. Notices and cards are included? Y / N Y

iii. Additional information required for **on-channel** storage:

1. Surface area (in acres) of on-channel reservoir at normal maximum operating level: 3.40.
2. Based on the Application information provided, Staff will calculate the drainage area above the on-channel dam or reservoir. If Applicant wishes to also calculate the drainage area they may do so at their option.  
Applicant has calculated the drainage area. Y/N N  
If yes, the drainage area is 0.2185 sq. miles.  
(If assistance is needed, call the Surface Water Availability Team prior to submitting the application, (512) 239-4600).

## 2. Structure Location (Instructions, Page. 23)

- a. On Watercourse (if on-channel) (USGS name): Unnamed Tributary to Little Elm Creek
- b. Zip Code: 75009
- c. In the Collin County School Land Survey Original Survey No. 15, Abstract No. 170,  
Collin County, Texas.

***\* A copy of the deed(s) with the recording information from the county records must be submitted describing the tract(s) that include the structure and all lands to be inundated.***

***\*\*If the Applicant is not currently the sole owner of the land on which the structure is or will be built and sole owner of all lands to be inundated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.***

- d. A point on the centerline of the dam (on-channel) or anywhere within the impoundment (off-channel) is:

Latitude 33.329386 °N, Longitude 96.782551 °W.

***\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places***

- i. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD
- ii. Map submitted which clearly identifies the Impoundment, dam (where applicable), and the lands to be inundated. See instructions Page. 15. Y / N Y



3. Applicants **shall** give notice by certified mail to each member of the governing body of each county and municipality in which the reservoir, or any part of the reservoir to be constructed, will be located. (30 TAC § 295.42). Applicant must submit a copy of all the notices and certified mailing cards with this Application. Notices and cards are included? Y / N Y

iii. Additional information required for **on-channel** storage:

1. Surface area (in acres) of on-channel reservoir at normal maximum operating level: 0.9.
2. Based on the Application information provided, Staff will calculate the drainage area above the on-channel dam or reservoir. If Applicant wishes to also calculate the drainage area they may do so at their option. Applicant has calculated the drainage area. Y/N N  
If yes, the drainage area is 0.115 sq. miles.  
(If assistance is needed, call the Surface Water Availability Team prior to submitting the application, (512) 239-4600).

## 2. Structure Location (Instructions, Page. 23)

- a. On Watercourse (if on-channel) (USGS name): Unnamed Tributary to Little Elm Creek
- b. Zip Code: 75009
- c. In the Collin County School Land Survey Original Survey No. 15, Abstract No. 170,  
Collin County, Texas.

***\* A copy of the deed(s) with the recording information from the county records must be submitted describing the tract(s) that include the structure and all lands to be inundated.***

***\*\*If the Applicant is not currently the sole owner of the land on which the structure is or will be built and sole owner of all lands to be inundated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.***

- d. A point on the centerline of the dam (on-channel) or anywhere within the impoundment (off-channel) is:

Latitude 33.333187 °N, Longitude 96.779461 °W.

***\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places***

- i. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD
- ii. Map submitted which clearly identifies the Impoundment, dam (where applicable), and the lands to be inundated. See instructions Page. 15. Y / N Y



## WORKSHEET 3.0

### DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

*The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).*

#### 1. Diversion Information (Instructions, Page. 24)

a. This Worksheet is to add new (select 1 of 3 below):

1. ☒ Diversion Point No.
2. ☐ Upstream Limit of Diversion Reach No.
3. ☐ Downstream Limit of Diversion Reach No.

b. Maximum Rate of Diversion for **this new point** \_\_\_\_\_ cfs (cubic feet per second)  
or 244 \_\_\_\_\_ gpm (gallons per minute)

c. Does this point share a diversion rate with other points? Y / N <sup>N</sup> \_\_\_\_\_  
*If yes, submit Maximum **Combined** Rate of Diversion for all points/reaches* \_\_\_\_\_ cfs or \_\_\_\_\_ gpm

d. For amendments, is Applicant seeking to increase combined diversion rate? Y / N <sup>NIA</sup> \_\_\_\_\_

*\*\* An increase in diversion rate is considered a new appropriation and would require completion of Section 1, New or Additional Appropriation of State Water.*

e. Check (✓) the appropriate box to indicate diversion location and indicate whether the diversion location is existing or proposed):

Check one		Write: Existing or Proposed
<input type="checkbox"/>	Directly from stream	
<input checked="" type="checkbox"/>	From an on-channel reservoir	PROPOSED
<input type="checkbox"/>	From a stream to an on-channel reservoir	
<input type="checkbox"/>	Other method (explain fully, use additional sheets if necessary)	

f. Based on the Application information provided, Staff will calculate the drainage area above the diversion point (or reach limit). If Applicant wishes to also calculate the drainage area, you may do so at their option.

Applicant has calculated the drainage area. Y / N <sup>Y</sup> \_\_\_\_\_

If yes, the drainage area is 0.2185 \_\_\_\_\_ sq. miles.

*(If assistance is needed, call the Surface Water Availability Team at (512) 239-4600, prior to submitting application)*



## 2. Diversion Location (Instructions, Page 25)

- a. On watercourse (USGS name): Unnamed Tributary to Little Elm Creek
- b. Zip Code: 75009
- c. Location of point: In the <sup>Collin County School Land Survey</sup>                      Original Survey No. 15, Abstract No. 170, Collin County, Texas.

*A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure.*

*For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access.*

- d. Point is at: Latitude 33.329386 °N, Longitude 96.782551 °W.  
*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places*
- e. Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD
- f. Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15.
- g. If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.



## WORKSHEET 4.0

### DISCHARGE INFORMATION

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. **Instructions Page. 26. Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC, Chapter 26 or any other applicable law.**

- a. The purpose of use for the water being discharged will be TO REPLACE WATER LOST TO EVAPORATION AND IRRIGATION.
- b. Provide the amount of water that will be lost to transportation, evaporation, seepage, channel or other associated carriage losses 29.24 ac-ft (% or amount) and explain the method of calculation: Calculated using TWBD maximum monthly lake surface evaporation and pan coefficients for Quad 411. See attached calculations.
- c. Is the source of the discharged water return flows? Y / N<sup>N</sup> If yes, provide the following information:
  1. The TPDES Permit Number(s). \_\_\_\_\_ (attach a copy of the **current** TPDES permit(s))
  2. Applicant is the owner/holder of each TPDES permit listed above? Y / N

*PLEASE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the water right owner of the underlying surface water right, or the Applicant does not have a contract with the discharger, the application should be submitted under Section 1, New or Additional Appropriation of State Water, as a request for a new appropriation of state water. If Applicant is the discharger, the surface water right holder, or the contract holder, then the application should be submitted under Section 3, Bed and Banks.*

3. Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0").
  4. The percentage of return flows from groundwater \_\_\_\_\_, surface water \_\_\_\_\_?
  5. If any percentage is surface water, provide the base water right number(s) \_\_\_\_\_.
- d. Is the source of the water being discharged groundwater? Y / N<sup>y</sup> If yes, provide the following information:
1. Source aquifer(s) from which water will be pumped: Woodbine Aquifer
  2. If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See **SEE ATTACHED GROUNDWATER AVAILABILITY EVALUATION** <http://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>. Additionally, provide well numbers or identifiers \_\_\_\_\_.
  3. Indicate how the groundwater will be conveyed to the stream or reservoir.

Groundwater will be pumped to recharge the pond through a proposed well, anticipated to be discharged with an air gap.
  4. A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required. **Permit is attached.**
- di. Is the source of the water being discharged a surface water supply contract? Y / N<sup>N</sup>  
If yes, provide the signed contract(s).
- dii. Identify any other source of the water \_\_\_\_\_



## WORKSHEET 4.1

### DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps).  
**Instructions, Page 27.**

**For water discharged at this location provide:**

- a. The amount of water that will be discharged at this point is 111.77 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
- b. Water will be discharged at this point at a maximum rate of 0.23 cfs or 104 gpm.
- c. Name of Watercourse as shown on Official USGS maps: Unnamed Tributary to Little Elm Creek
- d. Zip Code 75009
- e. Location of point: In the Collin County School Land Survey Original Survey No. 15, Abstract No. 170, Collin County, Texas.
- f. Point is at:  
Latitude 33.330452 °N, Longitude 96.781957 °W.  
*\*Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places*
- g. Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): AutoCAD

**Map submitted must clearly identify each discharge point. See instructions Page. 15.**

Groundwater well will be connected via pipe system to Pond 2 to replace water lost due to evaporation



## WORKSHEET 5.0

### ENVIRONMENTAL INFORMATION

#### 1. Impingement and Entrainment

This section is required for any new diversion point that is not already authorized. Indicate the measures the applicant will take to avoid impingement and entrainment of aquatic organisms (ex. Screens on any new diversion structure that is not already authorized in a water right). **Instructions, Page 28.**

Screens will be included on any new diversion that is not already authorized.

#### 2. New Appropriations of Water (Canadian, Red, Sulphur, and Cypress Creek Basins only) and Changes in Diversion Point(s)

This section is required for new appropriations of water in the Canadian, Red, Sulphur, and Cypress Creek Basins and in all basins for requests to change a diversion point. **Instructions, Page 30.**

Description of the Water Body at each Diversion Point or Dam Location. (Provide an Environmental Information Sheet for each location),

a. Identify the appropriate description of the water body.

☐ Stream

☐ Reservoir

Average depth of the entire water body, in feet: \_\_\_\_\_

☐ Other, specify: 0804304813

IT IS OUR  
UNDERSTANDING THAT  
THIS IS NOT REQUIRED  
FOR THE TRINITY RIVER  
BASIN.

b. Flow characteristics

If a stream, was checked above, provide the following. For new diversion locations, check one of the following that best characterize the area downstream of the diversion (check one).

☐ Intermittent - dry for at least one week during most years

☐ Intermittent with Perennial Pools - enduring pools

☐ Perennial - normally flowing

Check the method used to characterize the area downstream of the new diversion location.

☐ USGS flow records

☐ Historical observation by adjacent landowners



☐ Personal observation

☐ Other, specify: \_\_\_\_\_

c. Waterbody aesthetics

Check one of the following that best describes the aesthetics of the stream segments affected by the application and the area surrounding those stream segments.

- ☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
- ☐ Natural Area: trees and/or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
- ☐ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
- ☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

d. Waterbody Recreational Uses

Are there any known recreational uses of the stream segments affected by the application?

- ☐ Primary contact recreation (swimming or direct contact with water)
- ☐ Secondary contact recreation (fishing, canoeing, or limited contact with water)
- ☐ Non-contact recreation

e. Submit the following information in a Supplemental Attachment, labeled Addendum to Worksheet 5.0:

1. Photographs of the stream at the diversion point or dam location. Photographs should be in color and show the proposed point or reservoir and upstream and downstream views of the stream, including riparian vegetation along the banks. Include a description of each photograph and reference the photograph to the maps submitted with the application indicating the location of the photograph and the direction of the shot.
2. If the application includes a proposed reservoir, also include:
  - i. A brief description of the area that will be inundated by the reservoir.
  - ii. If a United States Army Corps of Engineers (USACE) 404 permit is required, provide the project number and USACE project manager.
  - iii. A description of how any impacts to wetland habitat, if any, will be mitigated if the reservoir is greater than 5,000 acre-feet.



### 3. Alternate Sources of Water and/or Bed and Banks Applications

This section is required for applications using an alternate source of water and bed and banks applications in any basins. **Instructions, page 31.**

a. For all bed and banks applications:

- i. Submit an assessment of the adequacy of the quantity and quality of flows remaining after the proposed diversion to meet instream uses and bay and estuary freshwater inflow requirements.

The application only requests to discharge and subsequently divert groundwater. The amount of water diverted will not exceed the amount of water discharged, less losses, therefore there should be no changes to downstream instream flows or freshwater inflows.

b. For all alternate source applications:

- i. If the alternate source is treated return flows, provide the TPDES permit number \_\_\_\_\_
- ii. If groundwater is the alternate source, or groundwater or other surface water will be discharged into a watercourse provide:  
Reasonably current water chemistry information including but not limited to the following parameters in the table below. Additional parameters may be requested if there is a specific water quality concern associated with the aquifer from which water is withdrawn. If data for onsite wells are unavailable; historical data collected from similar sized wells drawing water from the same aquifer may be provided. However, onsite data may still be required when it becomes available. Provide the well number or well identifier. Complete the information below for each well and provide the Well Number or identifier.

#### Woodbine Aquifer

Parameter	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Sulfate, mg/L	229	1400	29	Historical	1938-2010
Chloride, mg/L	98	700	29	Historical	1938-2010
Total Dissolved Solids, mg/L	880	3728	29	Historical	1938-2010
pH, standard units	8.1	9	29	Historical	1938-2010
Temperature*, degrees Celsius	27	38	20	Historical	1938-2010

\* Temperature must be measured onsite at the time the groundwater sample is collected.

- iii. If groundwater will be used, provide the depth of the well ~870 ft and the name of the aquifer from which water is withdrawn Woodbine Aquifer.



# WORKSHEET 6.0 N/A

## Water Conservation/Drought Contingency Plans

This form is intended to assist applicants in determining whether a Water Conservation Plan and/or Drought Contingency Plans is required and to specify the requirements for plans.  
**Instructions, Page 31.**

*The TCEQ has developed guidance and model plans to help applicants prepare plans. Applicants may use the model plan with pertinent information filled in. For assistance submitting a plan call the Resource Protection Team (Water Conservation staff) at 512-239-4600, or e-mail [wras@tceq.texas.gov](mailto:wras@tceq.texas.gov). The model plans can also be downloaded from the TCEQ webpage. Please use the most up-to-date plan documents available on the webpage.*

### 1. Water Conservation Plans

- a. The following applications must include a completed Water Conservation Plan (30 TAC § 295.9) for each use specified in 30 TAC, Chapter 288 (municipal, industrial or mining, agriculture – including irrigation, wholesale):

1. Request for a new appropriation or use of State Water.
2. Request to amend water right to increase appropriation of State Water.
3. Request to amend water right to extend a term.
4. Request to amend water right to change a place of use.  
*\*does not apply to a request to expand irrigation acreage to adjacent tracts.*
5. Request to amend water right to change the purpose of use.  
*\*applicant need only address new uses.*
6. Request for bed and banks under TWC § 11.042(c), when the source water is State Water.  
*\*including return flows, contract water, or other State Water.*

- b. If Applicant is requesting any authorization in section (1)(a) above, indicate each use for which Applicant is submitting a Water Conservation Plan as an attachment:

1. \_\_\_\_Municipal Use. See 30 TAC § 288.2. \*\*
2. \_\_\_\_Industrial or Mining Use. See 30 TAC § 288.3.
3. \_\_\_\_Agricultural Use, including irrigation. See 30 TAC § 288.4.
4. \_\_\_\_Wholesale Water Suppliers. See 30 TAC § 288.5. \*\*

**\*\*If Applicant is a water supplier, Applicant must also submit documentation of adoption of the plan. Documentation may include an ordinance, resolution, or tariff, etc. See 30 TAC §§ 288.2(a)(1)(J)(i) and 288.5(1)(H). Applicant has submitted such documentation with each water conservation plan? Y / N\_\_\_\_**

- c. Water conservation plans submitted with an application must also include data and information which: supports applicant's proposed use with consideration of the plan's water conservation goals; evaluates conservation as an alternative to the proposed



appropriation; and evaluates any other feasible alternative to new water development.  
See 30 TAC § 288.7.

Applicant has included this information in each applicable plan? Y / N\_\_\_\_

## 2. Drought Contingency Plans

- a. A drought contingency plan is also required for the following entities if Applicant is requesting any of the authorizations in section (1) (a) above – indicate each that applies:
  1. \_\_\_\_Municipal Uses by public water suppliers. See 30 TAC § 288.20.
  2. \_\_\_\_Irrigation Use/ Irrigation water suppliers. See 30 TAC § 288.21.
  3. \_\_\_\_Wholesale Water Suppliers. See 30 TAC § 288.22.
- b. If Applicant must submit a plan under section 2(a) above, Applicant has also submitted documentation of adoption of drought contingency plan (*ordinance, resolution, or tariff, etc. See 30 TAC § 288.30*) Y / N\_\_\_\_



## WORKSHEET 7.0

### ACCOUNTING PLAN INFORMATION WORKSHEET

The following information provides guidance on when an Accounting Plan may be required for certain applications and if so, what information should be provided. An accounting plan can either be very simple such as keeping records of gage flows, discharges, and diversions; or, more complex depending on the requests in the application. Contact the Surface Water Availability Team at 512-239-4600 for information about accounting plan requirements, if any, for your application. **Instructions, Page 34.**

#### 1. Is Accounting Plan Required

Accounting Plans are generally required:

- For applications that request authorization to divert large amounts of water from a single point where multiple diversion rates, priority dates, and water rights can also divert from that point;
- For applications for new major water supply reservoirs;
- For applications that amend a water right where an accounting plan is already required, if the amendment would require changes to the accounting plan;
- For applications with complex environmental flow requirements;
- For applications with an alternate source of water where the water is conveyed and diverted; and
- For reuse applications.

#### 2. Accounting Plan Requirements

- a. A **text file** that includes:
  1. an introduction explaining the water rights and what they authorize;
  2. an explanation of the fields in the accounting plan spreadsheet including how they are calculated and the source of the data;
  3. for accounting plans that include multiple priority dates and authorizations, a section that discusses how water is accounted for by priority date and which water is subject to a priority call by whom; and
  4. Should provide a summary of all sources of water.
- b. A **spreadsheet** that includes:
  1. Basic daily data such as diversions, deliveries, compliance with any instream flow requirements, return flows discharged and diverted and reservoir content;
  2. Method for accounting for inflows if needed;
  3. Reporting of all water use from all authorizations, both existing and proposed;
  4. An accounting for all sources of water;
  5. An accounting of water by priority date;
  6. For bed and banks applications, the accounting plan must track the discharged water from the point of delivery to the final point of diversion;
  7. Accounting for conveyance losses;
  8. Evaporation losses if the water will be stored in or transported through a reservoir. Include changes in evaporation losses and a method for measuring reservoir content resulting from the discharge of additional water into the reservoir;
  9. An accounting for spills of other water added to the reservoir; and
  10. Calculation of the amount of drawdown resulting from diversion by junior rights or diversions of other water discharged into and then stored in the reservoir.



## WORKSHEET 8.0 CALCULATION OF FEES

This worksheet is for calculating required application fees. Applications are not Administratively Complete until all required fees are received. **Instructions, Page. 34**

### 1. NEW APPROPRIATION

	Description	Amount (\$)
Filing Fee	Circle fee correlating to the total amount of water* requested for any new appropriation and/or impoundment. Amount should match total on Worksheet 1, Section 1. Enter corresponding fee under <b>Amount (\$)</b> . <u>In Acre-Feet</u>	\$250.00
	a. Less than 100 \$100.00	
	b. 100 - 5,000 \$250.00	
	c. 5,001 - 10,000 \$500.00	
	d. 10,001 - 250,000 \$1,000.00	
	e. More than 250,000 \$2,000.00	
Recording Fee		\$25.00
Agriculture Use Fee	<i>Only for those with an Irrigation Use.</i> Multiply 50¢ x <u>32.4</u> Number of acres that will be irrigated with State Water. **	\$16.20
Use Fee	<i>Required for all Use Types, excluding Irrigation Use.</i> Multiply \$1.00 x _____ Maximum annual diversion of State Water in acre-feet. **	
Recreational Storage Fee	<i>Only for those with Recreational Storage.</i> Multiply \$1.00 x <u>20.89</u> acre-feet of in-place Recreational Use State Water to be stored at normal max operating level.	\$20.89
Storage Fee	<i>Only for those with Storage, excluding Recreational Storage.</i> Multiply 50¢ x _____ acre-feet of State Water to be stored at normal max operating level.	
Mailed Notice	Cost of mailed notice to all water rights in the basin. Contact Staff to determine the amount (512) 239-4600.	\$524.52
TOTAL		\$ 836.61

### 2. AMENDMENT OR SEVER AND COMBINE

	Description	Amount (\$)
Filing Fee	Amendment: \$100	
	OR Sever and Combine: \$100 x _____ of water rights to combine	
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
TOTAL INCLUDED		\$

### 3. BED AND BANKS

	Description	Amount (\$)
Filing Fee		\$100.00
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
TOTAL INCLUDED		\$ 112.50



ATTACHMENT A  
TAX INFORMATION







# ATTACHMENT F

## WATER AVAILABILITY ANALYSIS



March 30, 2022

Mr. Kyle A. Dickey, P.E.  
Kimley-Horn  
6160 Warren Parkway, Suite 210  
Frisco, Texas 75304

Re: Groundwater Availability Evaluation – Celina 115 Development, Northern Collin County, Texas

Dear Mr. Dickey,

R.W. Harden & Associates (RWH&A) has completed an evaluation of the groundwater resources beneath the Celina 115 property (Property), which is located just north of the City of Celina in northern Collin County, Texas. This study focused on estimating the availability of groundwater for irrigation and replenishing evaporative losses from surface ponds on the Property. Based on information provided by your office, it is estimated that average annual needs for irrigation will be approximately 24,825,000 gallons annually, or approximately 50 gallons per minute (gpm).

For this work, RWH&A compiled information regarding the surrounding geologic structure, lithologic composition, hydraulic properties, and water quality of the production zones beneath the Property. This evaluation included a review of published and unpublished groundwater and geologic maps and reports, well completion records, water level and water quality records maintained by the Texas Water Development Board (TWDB), the Groundwater Availability Model (GAM) for the Northern Trinity-Woodbine aquifer system (TWDB, 2014), documents distributed by Groundwater Management Area No. 8 (GMA-8), and regulations pertaining to groundwater production within the North Texas Groundwater Conservation District (NTGCD or District)

### Target Aquifers

The primary water-bearing aquifers located beneath the property include from youngest to oldest: the Woodbine Group (Woodbine), Paluxy Formation (Paluxy), and the Twin Mountains Formation, which is also referred to as the Lower Trinity Group (Lower Trinity). The shallowest aquifer, the Woodbine, occurs from approximately from 400 feet to 850 feet below ground level bgl. The Paluxy is present from about 1,400 to 1,550 feet bgl and is hydraulically isolated from the overlying Woodbine by the relatively-impermeable interbedded limestone, shale, marl, and clay of the Fredericksburg/Washita Groups. The Lower Trinity, comprised of the Twin Mountain formation, is present from approximately 2,050 feet to 2,600 feet bgl, and is hydraulically isolated from the overlying Paluxy aquifer by the relatively-impermeable Glen Rose formation. The productive portions of these aquifers are primarily composed of interbedded layers of quartz sand that outcrop (i.e. occur at the surface) in areas northwest of the Property and dip toward the southeast at about 60 to 90 feet per mile.



Infiltration of precipitation in outcrop areas is the primary source of groundwater recharge. Once infiltrated, groundwater percolates downdip within the pore spaces between the sand grains that comprise the productive portions of the aquifers. Figure 1 shows the location of the Property and Figure 2 depicts a geologic cross-section of the general subsurface structure of the aquifers, which was derived from GAM structure data.

Figure 1. Project Location Map

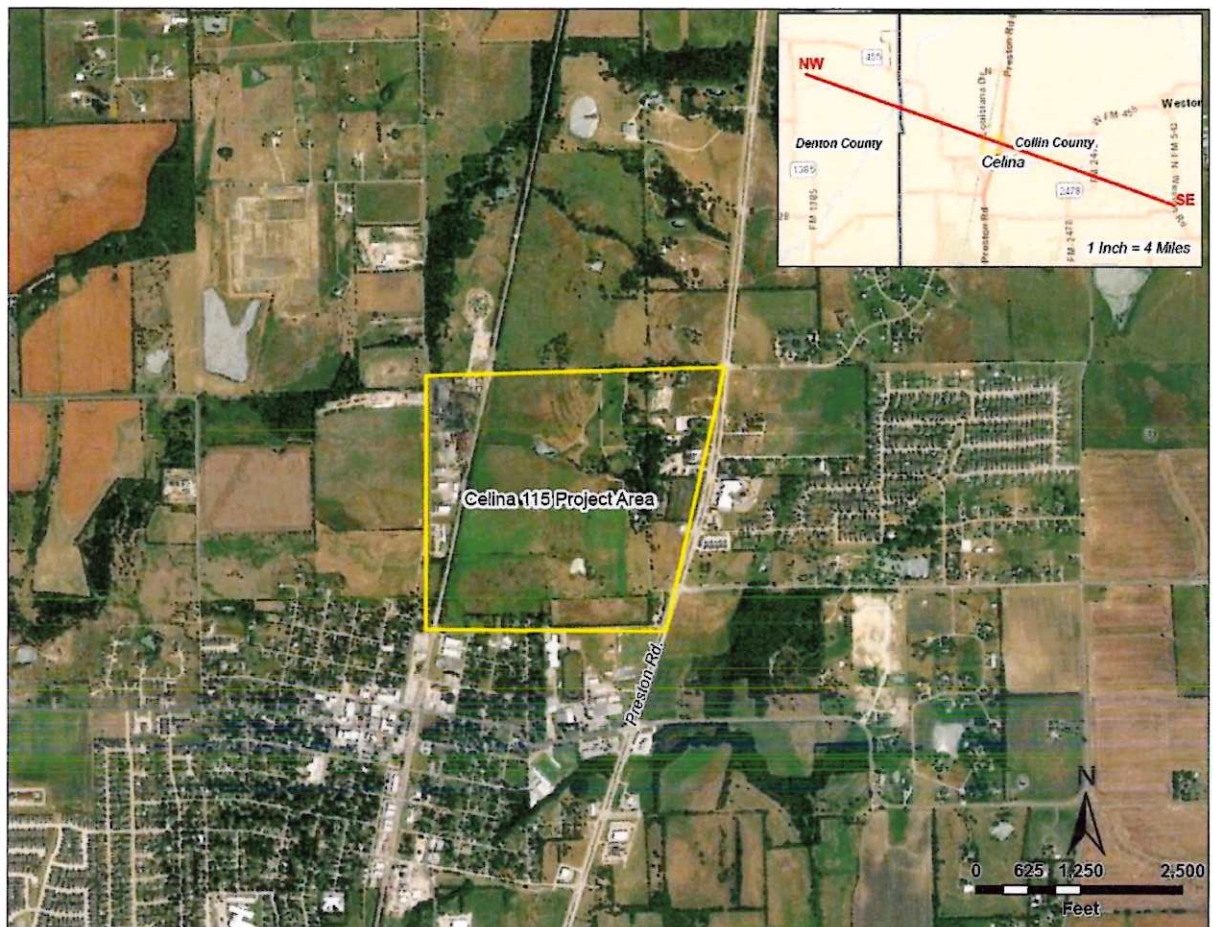
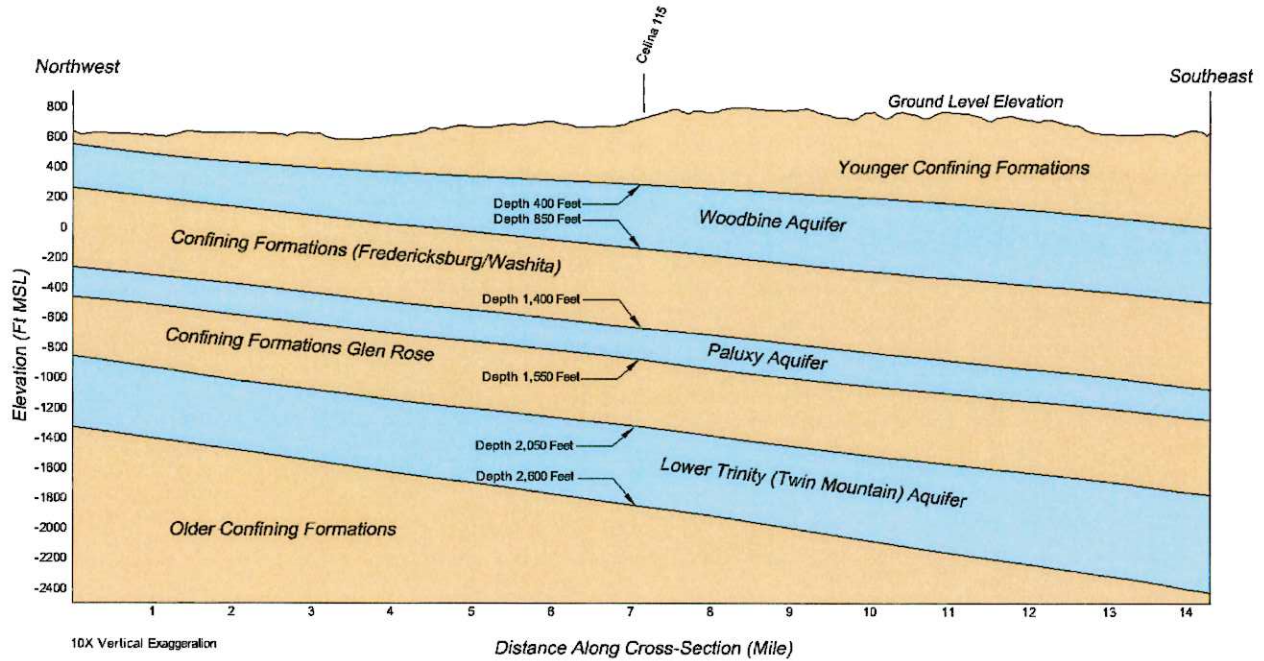




Figure 2. Schematic Cross Section of the Aquifers Underlying Celina 115



## Water Quality

Table 1 lists the concentrations for some of the commonly reported chemical constituents and parameters from the three target aquifers within approximately ten miles of the Property, as reported in the groundwater database maintained by the TWDB.

Total dissolved solids (TDS) is commonly used as a general indicator of water quality; water with TDS concentrations below 1,000 milligrams per liter (mg/L) is considered fresh, brackish water contains TDS concentrations between 1,000 and 10,000 mg/L TD, and water with TDS concentrations greater than 10,000 mg/L TDS is considered saline. For reference, the average TDS of sea water is approximately 35,000 mg/L. As shown in the table below, average TDS concentrations in the groundwater of all three aquifers range from approximately 691 to 880 mg/L, indicating that water quality is generally fresh. However, TDS concentrations in the Woodbine range from approximately 207 to more than 3,700 mg/L, indicating that water quality is variable and site-specific. It is also important to note that water quality data for the Paluxy and Lower Trinity surrounding Celina 115 is sparse, and therefore, water quality in the Paluxy and Lower Trinity beneath the Property may differ from concentrations reported in Table 1.



Table 1. Reported Water Quality for the Woodbine, Paluxy, and Lower Trinity Aquifers

Parameter	Woodbine				Paluxy				Lower Trinity			
	Min	Max	Avg	No. Samples	Min	Max	Avg	No. Samples	Min	Max	Avg	No. Samples
TDS (mg/L)	207	3,728	880	29	529	805	691	6	542	1,568	853	11
pH	7.2	9	8.1	29	8.5	9	8.7	6	8.2	8.8	9	11
SAR Ratio	1	66	28	29	34	63	53	6	23	54	38	11
Bicarbonate (mg/L)	137	927	421	29	389	637	534	6	300	558	374	11
Calcium (mg/L)	1	85	14	29	1	3	2	6	1	8	4	11
Chloride (mg/L)	12	700	98	29	17	28	23	6	19	707	193	11
Magnesium (mg/L)	0	26.0	5	29	0.1	2.1	0.6	6	0	2.5	1.4	11
Sodium (mg/L)	30	1,340	308	29	176	323	273	6	208	602	331	11
Sulfate (mg/L)	22	1,400	229	29	59	109	86	6	79	230	117	11
Hardness (mg/L)	3	299	57	29	3	16	7	6	5	27	15	11



The results in Table 1 indicate that sodium-bicarbonate water is produced from the three target aquifers, which may not be appropriate as a sole source of irrigation water in poorly-drained soils. Excess sodium can be toxic to many plant species, and both bicarbonate and sodium can negatively impact soil permeability over time. The Sodium Adsorption Ratio (SAR) is commonly used to evaluate the suitability of water for irrigation use. In general, the higher the SAR, the less suitable the water is for irrigation. The average values of the Sodium Adsorption Ratio (SAR) are approximately 28, 53, and 38, from groundwater within the Woodbine, Paluxy, and Lower Trinity aquifers, respectively. While different species of plants and types of soil can tolerate a wide range of sodium and bicarbonate, the SAR values shown here are generally considered high for sustained, long-term irrigation. If unblended or untreated groundwater from any of the target aquifers is to be the main source of irrigation water, RWH&A recommends an evaluation of local soils and planned crops be performed by a qualified agronomist.

### Groundwater Regulation

RWH&A reviewed the NTGCD Rules (Amended February 11, 2020) to determine the requirements for regulating groundwater production and well spacing in Collin County. The rules most applicable to this project are:

- A production permit must be obtained prior to drilling, construction, or operation of a well or well system.
- If the permit applicant is requesting water for the purposes of irrigating more than one acre of landscape, the applicant must agree to install and maintain a smart irrigation controller (weather or soil moisture-based) on the irrigation system.
- Multiple wells that are part of a well system and that are owned and operated by the same entity and are completed in the same aquifer may be aggregated under a single permit.
- Wells must be located at least 50 feet from the nearest uncontrolled property.
- New wells must be located at least  $1,175 \text{ ft} + (1.2 \times \text{GPM})$  from any other well completed in the same aquifer. RWH&A communications with NTGCD staff indicate that this spacing rule does not apply to wells constructed on the same property as an aggregate well field. In other words, this rule only applies to the spacing between existing wells on adjoining properties and future wells on the Property.
- The District assesses a production fee of \$0.10 per 1,000 gallons for all non-exempt water uses except agricultural use, which is assessed a fee of \$1.00 per acre-foot of water. For reference, one acre-foot of water is approximately 325,851 gallons.

As a member of GMA-8, the NTGCD must engage in joint planning with other northern Texas groundwater conservation districts to develop aquifer impact limits and associated groundwater production amounts, which are termed “desired future conditions” (DFC) and “modeled available groundwater” (MAG), respectively. Table 2 lists the currently-adopted MAG values for Collin County for each target aquifer, by decade. The project demands may require pumpage ranging between 50 to 100 gpm (approximately 80 to 160 acre-feet per year), which represents a relatively-small portion of the MAG values assigned to the target aquifers. Consequently, permitting the proposed supply will likely not meet significant resistance from the District or other users in the region.



Table 2. Aquifer MAG Values for Collin County

Aquifer	Modeled Available Groundwater (MAG) (Acre-Feet per Year)			
	2020	2030	2040	2050
Woodbine	4,263	4,251	4,263	4,251
Paluxy	1,551	1,547	1,551	1,547
Lower Trinity	4,256	4,245	4,256	4,245

### Aquifer Transmissivity, Well Efficiency, and Available Drawdown

Maximum well productivity is primarily a function of three parameters: 1) aquifer transmissivity, 2) well efficiency, and 3) available drawdown. The term “transmissivity” describes an aquifer’s ability to transmit water through a vertical section of sediments and is used as a general measure of its productivity. All other aspects of a groundwater system being equal, an aquifer with twice the transmissivity of another aquifer can sustain about twice as much production. Well efficiency is a measure of the ease with which an individual well can transmit water from the aquifer through the screen/gravel pack to the well. Well efficiencies are defined by calculating the ratio of the declines predicted to occur in a theoretical, “perfect” well that incurs no added head loss as water moves from the aquifer to the well to the measured drawdown in a real-world well. Typical efficiencies range from about 50% for wells with straightwall construction, to greater than 80% for wells constructed for higher-capacity municipal applications.

Groundwater is vertically confined within the Woodbine, Paluxy, and Lower Trinity by relatively-impermeable geologic formations. The downward pressure of near-surface groundwater in aquifer outcrop/recharge zones to the northwest pressurizes the groundwater beneath the Property. Consequently, aquifer (artesian) pressure will drive well bore water levels above the top of the aquifer that is screened by a well. As wells are pumped, the decline in water level observed in the wells is the result of decreased groundwater pressure rather than desaturation of the aquifer sediments near the well bore. The vertical distance between the static (non-pumping) wellbore water level and the top of the aquifer is commonly referred to as “available drawdown.” This distance is important with respect to groundwater availability because, as is the case with aquifer transmissivity, a well with twice as much available drawdown can produce groundwater at twice the rate. However, rather than assuming that 100% of the available drawdown at a site may be utilized for production, it is beneficial to ensure some “safety factor” to account for hydrologic uncertainties and unforeseen impacts from other and/or future groundwater users when determining the availability of groundwater supply over the long-term. Given that the target aquifers are a major source of groundwater for the region, declines in artesian pressure levels and available drawdown are likely in the future, which may affect the availability of groundwater.

Water level data recorded during constant-rate aquifer tests are generally the most reliable method of estimating the hydraulic properties of an aquifer. However, there are no properly conducted aquifer tests from wells in the Celina 115 area. To calculate the anticipated impacts to the proposed well pumping at a constant rate of 50 gpm, RWH&A estimated a range of aquifer characteristics (aquifer hydraulic conductivity, aquifer depths, and artesian pressure.) for the target aquifers using data and information compiled from the TWDB, Submitted Drillers Reports (SDRs), and the GAM.



## Groundwater Modeling

RWH&A conducted analytical groundwater modeling using proprietary CAD-based software that utilizes the Theis (1940) non-equilibrium solution to evaluate the maximum potential productivity in the Woodbine, Paluxy and Lower Trinity aquifers beneath the Property. Production was modeled over a 30-year period at average continuous production rates, which allows for accurate assessment of average aquifer declines over that period. It is important to note that, due to the lack of site-specific hydrogeologic data, the modeling results represent estimated aquifer production capacities based on assumed aquifer properties. Actual wellfield drawdown and well capacities vary with site-specific aquifer hydraulic properties and individual well characteristics.

### Model Parameters and Assumptions

Regional data indicates that the hydraulic properties of the target aquifers are variable in the areas surrounding the Property. To bracket potential well productivity, both low and high estimated transmissivity scenarios were evaluated for each aquifer. Table 3 shows parameters that were used in the model scenarios. The model for this study assumes a 50% well efficiency, which is typical for properly constructed straight wall irrigation-supply well.

Table 3. Model Scenario Parameters

<b>Aquifer</b>	<b>Low Transmissivity (gal/day/ft)</b>	<b>High Transmissivity (gal/day/ft)</b>	<b>Available Drawdown (ft)</b>
Woodbine	1,350	3,400	140
Paluxy	770	6,000	370
Lower Trinity	4,500	6,200	700

Low transmissivity values for the target aquifers were obtained from the GAM, and high transmissivity values were obtained from TDWB and SDR pumping test records and reports. As stated in the previous section, aquifer characteristics such as aquifer hydraulic conductivity, aquifer depths, and artesian pressure were obtained from the GAM and previous RWH&A efforts.

### Model Results

The model results are summarized in Table 4, which lists the simulated, long-term maximum production rates (in gallons per minute) for 30 years from a well completed in the target aquifers.

Table 4. Model Results

<b>Aquifer</b>	<b>Low Transmissivity Maximum Well Yield (gpm)</b>	<b>High Transmissivity Maximum Well Yield (gpm)</b>
Woodbine	25	65
Paluxy	60	400
Lower Trinity	690	920



The model results suggest that the Woodbine aquifer may be capable of producing approximately 25 gallons per minute (gpm) to 65 gpm from a single well, and the Paluxy may be capable of producing up to approximately 60 gpm up to 400 gpm from a single well. Low productivity from the Woodbine aquifer is due to a combination of factors, including low aquifer transmissivity and shallow aquifer depth. However, the Woodbine may still be able to achieve higher production rates suitable for long-term use depending on the site-specific hydraulic properties of the aquifer and local demand requirements. The Lower Trinity is predicted to be the most productive, with individual well yields ranging from 690 gpm to 920 gpm. However, the relatively high cost of constructing a deep Lower Trinity well may not be consistent with the budgetary constraints of the project.

## **Conclusions**

Based on the available data and groundwater modeling results of RWH&A's groundwater modeling simulations, the Woodbine, Paluxy, or Lower Trinity are capable of providing the required supply, but the productivity will vary on a site-by-site basis. Selection of one or more preferred aquifer zones typically depends on a combination of factors, including productivity, reliability, water quality, and cost. The following summarizes the findings associated with each of the potential target aquifers.

### **Woodbine Aquifer**

- Well depth of approximately 870 feet
- Less expensive well
- Likely fresh but some brackish water quality found locally
- Maximum Well Yield: 25 to 65 gpm

### **Paluxy Aquifer**

- Well depth of approximately 1,600 feet
- Moderately expensive well
- Fresh water quality
- Maximum Well Yield: 60 to 400 gpm

### **Lower Trinity Aquifer**

- Well depth of approximately 2,400 feet
- Higher cost well
- Likely fresh water quality
- Maximum Well Yield: 690 to 920 gpm

The Woodbine is the least productive aquifer beneath the site and contains groundwater that is generally fresh but may be locally brackish. Due to the low productivity of the Woodbine, it is recommended that two smaller capacity wells (25 gpm) be constructed in the Woodbine, as opposed to one larger capacity well (50 gpm), which would provide a higher "safety factor" for unforeseen interference effects from existing and future groundwater users. The Paluxy contains fresh water in the region and can likely sustain the required demand given current artesian pressure levels. The Lower Trinity likely contains fresh water



ATTACHMENT G  
GROUNDWATER PERMIT





## PRODUCTION PERMIT

Permit No. NPW029

**Well Owner ("Permittee"):**

Horizon Rockhill Heights, LLC.  
9550 John W Elliot Dr Suite 106  
Frisco, TX 75033

**Total Number of Wells: 1**

**Purpose of Use:** Landscape Irrigation and Surface Impoundment(s)

**Aquifer:** Woodbine

**Well(s) Information:**

ID	Well Name	Latitude	Longitude	Capacity	Drilling Deadline
NT-5745	Heights @ uptown #1	33.330422	-96.782090	195 GPM	10/12/2023

**Term and Renewal:** This permit is effective beginning on 2/14/2023. This permit is perpetual in nature; provided, however, that the District will conduct inspections and will request information from a permit holder from time-to-time as required to ensure the accuracy and integrity of the District's information, and to enforce compliance with District Rules, the District Act, and Chapter 36 of the Texas Water Code.

**Notice of Revocation:** Failure to pay groundwater use fees, report pumpage, comply with District rules, orders, special provisions, and permit conditions can result in revocation of this permit.

**Amount of Authorized Production:** The amount of groundwater needed for use by Permittee for beneficial use, which shall not exceed: 32,290,000 gallons for 2023 and 17,340,000 gallons/year after 2023 for only that well or well system identified above.

**Permit Conditions – This Permit is conditioned on each of the following precise terms:**

1. This permit is granted subject to the District's rules, orders of the District Board of Directors, special provisions, permit conditions, and laws of the State of Texas, including but not limited to Chapter 36 of the Texas Water Code and the District's enabling legislation codified at Chapter 8856 of the Special District Local Laws Code.
2. Acceptance of this permit and production of groundwater under the authority granted herein by Permittee constitutes acknowledgement and agreement that Permittee is required to abide by the precise terms of this permit and comply with the District's rules, orders of the District Board of Directors, special provisions, permit conditions, and laws applicable to Permittee.
3. Violation of the terms of this permit shall result in enforcement in accordance with the District's Enforcement Policy and Civil Penalty Schedule, Chapter 36 of the Texas Water Code, and the District's enabling legislation codified at Chapter 8856 of the Special District Local Laws Code.
4. This permit does not confer any rights and/or privileges to Permittee other than those expressly set forth herein.
5. The well(s) identified in this permit shall be installed, equipped, operated, maintained, plugged, capped, or closed, as may be appropriate in accordance with the District's rules.



6. Permittee's production shall not exceed the Amount of Authorized Production set forth in this permit.
7. Produced groundwater shall be put to a beneficial use at all times. Operation of the well(s) under this permit shall be conducted in a manner so as to avoid waste, pollution, or harm to groundwater resources.
8. The well site shall be accessible to District representatives and/or agents for inspection during business hours and during emergencies. The Permittee agrees to cooperate fully in any reasonable monitoring or sampling of the well(s).
9. Permittee shall provide written notice to the District of any change of ownership, name of Permittee or Permittee's authorized representative, well operator, mailing address or telephone number in accordance with District rules.
10. Permittee shall reduce water production as required by District rules and orders of the Board of Directors, including but not limited to proportional adjustments issued based on achievement of the District's Desired Future Conditions, and/or adjustments due to times of drought and in accordance with the District's Drought Contingency Plan, as applicable.
11. The application pursuant to which this permit has been granted is incorporated herein, and this permit has been granted based on the accuracy thereof. A finding that false information has been supplied to the District shall be grounds for immediate revocation of this permit, and shall subject Permittee to enforcement.
12. This permit contains all matters approved by the District related to Permittee's use of groundwater, and all other matters requested by Permittee not included in this Permit are denied.
13. Any production of groundwater above the Authorized Production Amount, or above any additional amount as otherwise authorized by District Rules (e.g., initiation of Drought Buffer under District Rule 6.2), or a change to the well(s) or use authorized under this permit requires the submission of a Permit Amendment Application prior to such change being made.
14. In the event of a conflict between the terms of this permit and the application pursuant to which this permit has been granted, the terms of this permit shall prevail.

**Special Conditions/Terms:** *Smart irrigation controllers (weather-based or soil moisture-based) are required for any irrigation systems using the groundwater from this permit.*

***District Approval***



Signature

Paul M. Sigle

Print Name

General Manager

Title

2/15/2023

Date

***Applicant Signature***

***Required for permit to be effective***



Signature

Stephanie Centofonti

Print Name

Project Manager

Title

04/13/2023

Date

**Return one signed original copy to the District at: P.O. Box 508, Gainesville, TX 76241**



# ATTACHMENT H

## EVAPORATION CALCULATIONS



# Monthly Evaporation Summary

Month	TWDB Evaporation - Max (in.)	Pond 1	Pond 2	Total (ac-ft)
		Surface Area (ac.)		
		3.4	0.9	
		Evaporation Volume (ac-ft)		
January	4.30	1.22	0.32	1.54
February	5.29	1.50	0.40	1.90
March	5.65	1.60	0.42	2.02
April	6.32	1.79	0.47	2.26
May	6.59	1.87	0.49	2.36
June	8.95	2.54	0.67	3.21
July	10.47	2.97	0.79	3.75
August	11.14	3.16	0.84	3.99
September	8.82	2.50	0.66	3.16
October	6.00	1.70	0.45	2.15
November	4.32	1.22	0.32	1.55
December	3.75	1.06	0.28	1.34
Annual	81.60	23.12	6.12	29.24
Annual Evaporation (ac-ft)		29.24		
Annual Evaporation (gallons)		9,527,883		



# ATTACHMENT I LAND DEEDS



Independence Title/GF# 2103708 -ATDA/APW

**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.**

**GENERAL WARRANTY DEED  
WITH VENDOR'S LIEN**

**Effective Date:** March 21, 2022

**Grantor:** RCI - CELINA 115, LP, a Texas limited partnership

**Grantor's Mailing Address:**

9550 John W. Elliott, Suite 106  
Frisco, Texas 75033

**Grantee:** HORIZON ROCKHILL HOMES, LTD., a Texas limited liability company

**Grantee's Mailing Address:**

9550 John W. Elliott, Suite 106  
Frisco, Texas 75033

**Consideration:** In consideration of the sum of Ten and No/100 Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by Grantor, and the further consideration of the execution and delivery by Grantee of that certain promissory note (the "Note") on even date herewith in the principal sum of \$15,220,878.00 made payable to the order of WESTERN ALLIANCE BANK ("Lender"), as therein provided and bearing interest at a rate therein specified, the payment of which Note is being secured by the vendor's lien herein retained (the "Vendor's Lien"), and is additionally secured by a Deed of Trust, Security Agreement, Assignment of Leases, Assignment of Rents, and Financing Statement of even date herewith to B. BRIAN MEMORY, Trustee, for the benefit of Lender.

**Property (including any improvements):** See Exhibit A which is attached hereto and incorporated herein by reference. The Property includes all rights, titles, and interests appurtenant thereto including, without limitation, Grantor's interest, if any, in any and all adjacent streets, alleys, rights of way and any adjacent strips and gores and all of Grantor's right to title and interest in and to all easements, tenements, hereditaments, privileges, appurtenances, and to the extent owned by Grantor, water and water rights, mineral interests, royalty rights, and reservations (if any), and utility capacity in any way belonging or relating to the same (such land and interests are hereinafter collectively referred to as the "Property").

**Reservations from Conveyance:** None.

**Exceptions to Conveyance and Warranty:** This conveyance is made and delivered subject to those matters of title (the "Permitted Exceptions") set forth on Exhibit B attached hereto and



incorporated herein by reference, but only to the extent the same, in fact, do exist and are applicable to the Property.

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.

The Vendor's Lien against and superior title to the Property are retained by Grantor and transferred to Lender, until the indebtedness above mentioned, as evidenced by the Note, both principal and interest, are fully paid according to its terms at which time this deed shall become absolute.

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

IN WITNESS WHEREOF, Grantor has executed this General Warranty Deed with Vendor's Lien on the date set forth in the Notary clause and it shall be effective on the Effective Date.

*{Intentional Blank Signature on the following page}*



**GRANTOR:**

RCI-CELINA 115 LP,  
a Texas limited partnership

By: RCI-CELINA 115 GP, LLC,  
a Texas limited liability company  
its general partner

By: BBCT Holdings, LLC,  
a Texas limited liability company  
its manager

By: [Signature]  
Printed Name: Brett Brantley  
Title: MANAGER

THE STATE OF TEXAS  
COUNTY OF Collin

This instrument was acknowledged before me on March 22, 2022 by Brett Brantley (printed name) MANAGER (title) of BBCT Holdings, LLC, a Texas limited liability company, manager of RCI-Celina 115 GP, LLC, a Texas limited liability company, general partner of RCI-Celina 115, LP, a Texas limited partnership, on behalf of said entities.



[Signature]  
Notary Public, State of Texas

PREPARED BY:  
Kimberly A. Markel, Esq.  
Markel Law Firm, PLLC  
106 Old Town Blvd. S.  
Argyle, Texas 76226  
(940) 240-1031



**EXHIBIT A**  
**LEGAL DESCRIPTION**

BEING a tract of land situated in the Collin County School Land Survey, Abstract No. 170, Collin County, Texas and being a portion of a called 114.889 acre tract of land described in a Special Warranty Deed to RCI-Celina 115, LP., as recorded in Instrument No. 20200306000332040 of the Official Public Records of Collin County, Texas, a portion of a called 11.202 acre tract of land described in a Special Warranty Deed with Vendor's Lien to RCI-Celina 115 LP, as recorded in Instrument No. 20200306000332150 of the Official Public Records of Collin County, Texas, a portion of a called 2.932 acre tract of land described in a General Warranty Deed to RCI-Celina 115 LP, as recorded in Instrument No. 20200306000332120 of the Official Public Records of Collin County, Texas and a portion of a called 0.868 acre tract of land described as Tract 1 in a General Warranty Deed to RCI-Celina 115 LP, as recorded in Instrument No. 20200306000332190 of the Official Public Records of Collin County, Texas, and all of a called 0.088 acre tract of land described as Alley A and abandoned by Ordinance No. 2020-97, and being more particularly described as follows:

BEGINNING at a 1/2 inch iron rod found for the northwest corner of said 114.889 acre tract, common to the southwest corner of a called 95.343 acre tract described as the First Tract in a deed to Michael B. Merritt and wife, Margaret Merritt, as recorded in Instrument No. 93-0101758 of the Land Records of Collin County, Texas, same being on the easterly right-of-way line of St. Louis, San Francisco and Texas Railroad, a 100-foot wide right-of-way, same also being in the approximate centerline of County Road No. 95, a variable width right-of-way, no record found;

THENCE North 88°56'24" East, departing the easterly right-of-way line of said St. Louis, San Francisco and Texas Railroad, along the approximate centerline of said County Road No. 95, the northerly line of said 114.889 acre tract and the southerly line of said 95.343 acre tract, a distance of 1,315.03 feet to a 1/2 inch iron rod found for the northeast corner of said 114.889 acre tract, common to the northwest corner of a called 11.365 acre tract of land described in a deed to Walter Shousan Tung and wife, Suhchyn Tsai Tung, as recorded in Volume 4952, Page 4325 of the Deed Records of Collin County, Texas;

THENCE South 6°14'32" East, departing the approximate centerline of said County Road No. 95, along the easterly line of said 114.889 acre tract and along the westerly line of said 11.365 acre tract, a distance of 915.57 feet to a 1/2 inch iron rod with a plastic cap stamped "ONEAL 6570" found for the southwest corner of said 11.365 acre tract, common to an ell corner of said 114.889 acre tract;

THENCE North 89°39'56" East, continuing along the easterly line of said 114.889 acre tract and along the southerly line of said 11.365 acre tract, a distance of 70.00 feet to a 1/2 inch iron rod with a plastic cap stamped "EOC&D RPLS 5439" found for the northwest corner of a called 5.718 acre tract of land described in a deed to Jon W. Stephens, as recorded in Volume 5539, Page 3084 of the Deed Records of Collin County, Texas, common to a northeast corner of said 114.889 acre tract;



THENCE South 00°21'35" East, departing the southerly line of said 11.365 acre tract, continuing along the easterly line of said 114.889 acre tract and along the westerly line of said 5.718 acre tract, passing en route a 1/2 inch iron rod found for the northernmost southwest corner of said 5.718 acre tract, common to the northernmost corner of a called 2.12 acre tract of land described in a General Warranty Deed to Richard M. Ochoa and Cierra M. Boone, as recorded in Instrument No. 20161205001647840 of the Official Public Records of Collin County, Texas, continuing along the same course, a distance of 416.63 feet to a 1/2 inch iron rod with a plastic cap stamped "EOC&D RPLS 5439" found for an ell corner of said 2.12 acre tract, common to a southeast corner of said 114.889 acre tract;

THENCE South 89°24'35" West, continuing along the easterly line of said 114.889 acre tract and along the northerly line of said 2.12 acre tract, a distance of 133.76 feet to the southwest corner of said 2.12 acre tract, common to an ell corner of said 114.889 acre tract, from which a 1/2 inch iron rod with a plastic cap stamped "ONEAL 6570" found for witness, bears North 52°26'52" East, 0.90 feet;

THENCE South 00°30'19" East, continuing along the easterly line of said 114.889 acre tract and along the westerly line of said 2.12 acre tract, a distance of 244.76 feet to the southwest corner of said 2.12 acre tract, common to the northwest corner of a forementioned 11.202 acre tract, and an ell corner of said 114.889 acre tract, from which a 1/2 inch iron rod found for witness bears North 17°27'42" West, 0.42 feet;

THENCE North 89°21'41" East, departing the easterly line of said 114.889 acre tract, along the southerly line of said 2.12 acre tract and along the northerly line of said 11.202 acre tract, a distance of 320.65 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for the northerly northeast corner of said 11.202 acre tract, common to the northwest corner of a called 1.042 acre tract of land described in deed to Troy Davis and Sheryl Wilson Davis, as recorded in Instrument No. 20141117001250970 and connected by Instrument No. 20141205001326850 of the Official Public Records of Collin County, Texas;

THENCE South 00°30'54" East, along the easterly line of said 11.202 acre tract, the westerly line of said 1.042 acre tract and the westerly line of a called 3.34 acre tract of land described in a deed to Pat Hunn and wife, Cynthia Hunn, as recorded in Volume 2953, Page 756 of the Deed Records of Collin County, Texas, passing en route a 1/2 inch iron rod with a plastic cap stamped "RPLS 6458" found for the southwest corner of said 1.042 acre tract, common to the northwest corner of said 3.34 acre tract, and continuing along the same course, for a total distance of 530.82 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for the southwest corner of said 3.34 acre tract, common to an ell corner of said 11.202 acre tract;

THENCE North 88°39'06" East, along the southerly line of said 3.34 acre tract and along the northerly line of said 11.202 acre tract, a distance of 268.61 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for the southernmost northeast corner of said 11.202 acre tract, common to the southeast corner of said 3.34 acre tract, same also being in the approximate centerline of Shade Tree Lane, a variable width right-of-way, no record found;



THENCE South 02°04'47" East, along the easterly line of said 11.202 acre tract and along the approximate centerline of said Shade Tree Lane, passing en route the southeast corner of said 11.202 acre tract, common to the southerly northeast corner of said 114.889 acre tract, and continuing along the same course and along the easterly line of said 114.889 acre tract, a distance of 564.30 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for the northwest corner of a called 0.343 right-of-way as dedicated in dedicated in Schultz Veterinary Hospital Addition, according to the plat thereof recorded in Cabinet P, Slide 647, of the Plat Records of Collin County, Texas;

THENCE South 00°22'46" West, departing the approximate centerline of said Shade Tree Lane and continuing along the easterly line of said 114.889 acre tract and along the westerly line of said 0.343 acre tract, a distance of 54.85 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

THENCE departing the easterly line of said 114.889 acre tract and the westerly line of said 0.343 acre tract, and crossing said 114.889 acre tract, said 11.202 acre tract, aforementioned 2.932 acre tract, and aforementioned Tract 1, the following course and distances:

North 85°27'10" West, a distance of 90.85 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

North 89°37'14" West, a distance of 122.60 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the right with a radius of 390.00 feet, a central angle of 66°42'09", and a chord bearing and distance of North 56°14'09" West, 429.20 feet;

In a northerly direction, with said tangent curve to the right, an arc distance of 454.48 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

North 22°11'05" West, a distance of 90.95 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the left with a radius of 48.50 feet, a central angle of 42°44'24", and a chord bearing and distance of North 44°13'17" West, 52.35 feet;

In a westerly direction, with said tangent curve to the left, an arc distance of 36.18 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a reverse curve to the right with a radius of 72.00 feet, a central angle of 18°21'45", and a chord bearing and distance of North 56°24'37" West, 22.98 feet;

In a northerly direction, with said reverse curve to the right, an arc distance of 23.07 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a reverse curve to the left with a radius of 48.50 feet, a central angle of 42°44'24", and a chord bearing and distance of North 68°35'57" West, 35.35 feet;

In a southerly direction, with said reverse curve to the left, an arc distance of 36.18 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;



North 89°58'09" West, a distance of 221.74 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the left with a radius of 310.00 feet, a central angle of 42°34'51", and a chord bearing and distance of South 68°44'26" West, 225.12 feet;

In a southerly direction, with said tangent curve to the left, an arc distance of 130.38 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

South 47°27'00" West, a distance of 116.35 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the right with a radius of 390.00 feet, a central angle of 42°34'51", and a chord bearing and distance of South 68°44'26" West, 283.21 feet;

In a northerly direction, with said tangent curve to the right, an arc distance of 289.84 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

North 89°58'09" West, a distance of 380.11 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the left with a radius of 310.00 feet, a central angle of 88°48'56", and a chord bearing and distance of South 45°37'23" West, 433.85 feet;

In a southerly direction, with said tangent curve to the left, an arc distance of 480.54 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;

South 01°12'55" West, a distance of 218.98 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner on the southerly line of said Tract 1, same being on the northerly right-of-way line of East Malone Street, a variable width right-of-way;

THENCE North 89°58'47" West, along the northerly right-of-way line of said East Malone Street, the southerly line of said Tract 1, and the southerly line of aforementioned abandoned Alley A, a distance of 80.01 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for the southwest corner of said abandoned Alley A common to the southeast corner of a called 0.438 acre tract of land described as Tract 2 in aforementioned deed to RCI-Celina 115, LP., as recorded in Instrument No. 2020030600052190 of the Official Public Records of Collin County, Texas;

THENCE North 01°12'55" East, departing the northerly right-of-way line of said East Malone Street, along the westerly line of said abandoned Alley A and along the easterly line of said Tract 2, passing through the northeast corner of said Tract 2, being on the southerly line of said 2.932 acre tract, and continuing along the same course and crossing said 2.932 acre tract, for a total distance of 219.95 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set at the beginning of a tangent curve to the right with a radius of 390.00 feet, a central angle of 15°57'27", and a chord bearing and distance of North 09°11'39" East, 108.27 feet;

THENCE in an easterly direction, continuing across said 2.932 acre tract, and with said tangent curve to the right, an arc distance of 108.62 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner;



THENCE North 89°58'09" West, continuing across said 2.932 acre tract, a distance of 277.60 feet to a 5/8 inch iron rod with plastic cap stamped "KHA" set for corner on the westerly line of said 2.932 acre tract, same being the easterly right-of-way line of aforementioned St. Louis, San Francisco and Texas Railroad;

THENCE North 12°26'54" East, along the easterly right-of-way line of said St. Louis, San Francisco and Texas Railroad, the westerly line of said 2.932 acre tract and the westerly line of said 114.889 acre tract, passing en route a 1/2 inch iron rod with a plastic cap stamped "4613" found for the northwest corner of said 2.932 acre tract, common to the westernmost southwest corner of said 114.889 acre tract, and continuing along the same course, for a total distance of 2,835.20 feet to the POINT OF BEGINNING and containing 104.772 acres (4,563,808 square feet) of land, more or less.

SAVE AND EXCEPT that certain tract or parcel of land as described in Warranty Deed executed by RCI - Celina 115, LP to Celina 17, LLC, dated 2/28/2022, filed 3/1/2022, recorded in Document No. 20220301000332240, Official Public Records, Collin County, Texas.



**EXHIBIT B**  
**PERMITTED EXCEPTIONS**

1. All leases, grants, exceptions or reservation of coal, lignite, oil, gas and other mineral, together with all rights, privileges, and immunities relating thereto appearing in the Public Records.
2. Easement:  
Recorded: Volume 608, Page 332, Official Public Records, Collin County, Texas  
To: Texas Power & Light Company  
Purpose: Right of Way
3. Easement:  
Recorded: Volume 549, Page 114, Official Public Records, Collin County, Texas  
To: Paul Norris  
Purpose: Water Line
4. Easement:  
Recorded: Volume 549, Page 118, Official Public Records, Collin County, Texas, as shown on that survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461  
Purpose: Access
5. Easement:  
Recorded: Volume 5533, Page 5523, Official Public Records, Collin County, Texas, as shown on that survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461  
To: Shula Netzer  
Purpose: Ingress/egress
6. Easement:  
Recorded: Volume 5533, Page 5523, Official Public Records, Collin County, Texas, as shown on that survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461  
To: Spencer B. Marks  
Purpose: Ingress/egress
7. Easement:  
Recorded: Volume 5602, Page 247, Official Public Records, Collin County, Texas  
Purpose: Reservation of future right of way
8. Easement:  
Recorded: Volume 5527, Page 3470, Official Public Records, Collin County, Texas, as shown on that survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461  
Purpose: Ingress/egress
9. Terms, Conditions and Stipulations in the Maintenance Roadway Agreement:  
Recorded: Volume 4553, Page 2284, Official Public Records, Collin County, Texas.
10. Terms, Conditions, and Stipulations in the Maintenance of Roadway Agreement:



Recorded: Volume 5527, Page 3477, Official Public Records, Collin County, Texas, as shown on that survey prepared by Sylviana Gunawan RPLS 6461 dated 4/9/2020.

11. Terms, Conditions, and Stipulations in the Maintenance of Roadway Agreement:  
Recorded: Volume 5333, Page 5534, Official Public Records, Collin County, Texas and as shown on survey prepared by Sylviana Gunawan RPLS 6461, dated 4/9/2020.
12. Terms, Conditions, and Stipulations in the Development Agreement:  
Recorded: Document No. 20191219001619930, affected Document Nos. 20200618000922630; 20210226000383060, 20200309000333730 and 20211216002537420, Official Public Records, Collin County, Texas.
13. Terms, Conditions, and Stipulations in Oil, Gas and Mineral Lease:  
Recorded: Volume 2850, Page 734, Official Public Records, Collin County, Texas.
14. Terms, Conditions, and Stipulations in Oil, Gas and Mineral Lease:  
Recorded: Volume 2850, Page 738, Official Public Records, Collin County, Texas.
15. Mineral and/or royalty interest in and to all coal, lignite, oil, gas and other minerals; together with all rights incident thereto:  
Recorded: Volume 1149, Page 114, Official Public Records, Collin County, Texas.
16. Mineral and/or royalty interest in and to all coal, lignite, oil, gas and other minerals; together with all rights incident thereto:  
Recorded: Volume 1149, Page 117, Official Public Records, Collin County, Texas.
17. Mineral and/or royalty interest in and to all coal, lignite, oil, gas and other minerals; together with all rights incident thereto:  
Recorded: Volume 341, Page 6, Official Public Records, Collin County, Texas.
18. Mineral and/or royalty interest in and to all coal, lignite, oil, gas and other minerals; together with all rights incident thereto:  
Recorded: Volume 5602, Page 247, Official Public Records, Collin County, Texas.
19. Any claim, right, or assertion of title by the adjoining land owner in and to that strip of land located between the property line and the fence(s) as shown on that survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461.
20. Matters reflected on survey dated 3/7/2022, prepared by Sylviana Gunawan, R.P.L.S. 6461.

Portion of property lying within County Road 95; Encroachment/protrusion of cattle guard onto adjacent property; 30" CMP on the east line;  
4" PVC pipe on the east portion.

GENERAL WARRANTY DEED WITH VENDOR'S LIEN

PAGE 10 OF 10



Filed and Recorded  
Official Public Records  
Stacey Kemp, County Clerk  
Collin County, TEXAS  
03/24/2022 03:30:43 PM  
\$62.00 OCARTER  
20220324000474550

*Stacey Kemp*



ATTACHMENT J  
PUBLIC INVOLVEMENT PLAN





Texas Commission on Environmental Quality

## Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

### Section 1. Preliminary Screening

- ☒ New Permit or Registration Application  
☐ New Activity - modification, registration, amendment, facility, etc. (see instructions)

**If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.**

### Section 2. Secondary Screening

- ☒ Requires public notice,  
☐ Considered to have significant public interest, and  
☐ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

**If all the above boxes are not checked, a Public Involvement Plan is not necessary.  
Stop after Section 2 and submit the form.**

- ☒ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Public Involvement Plan is not applicable due to the size of this project.



**Section 3. Application Information****Type of Application (check all that apply):**

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V  
Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire  
☐ Radioactive Material Licensing ☐ Underground Injection Control

**Water Quality**

- ☐ Texas Pollutant Discharge Elimination System (TPDES)  
☐ Texas Land Application Permit (TLAP)  
☐ State Only Concentrated Animal Feeding Operation (CAFO)  
☐ Water Treatment Plant Residuals Disposal Permit  
☐ Class B Biosolids Land Application Permit  
☐ Domestic Septage Land Application Registration

**Water Rights New Permit**

- ☐ New Appropriation of Water  
☐ New or existing reservoir

**Amendment to an Existing Water Right**

- ☐ Add a New Appropriation of Water  
☐ Add a New or Existing Reservoir  
☐ Major Amendment that could affect other water rights or the environment

**Section 4. Plain Language Summary**

Provide a brief description of planned activities.



**Section 5. Community and Demographic Information**

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

**Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.**

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☐

City

☐

County

☐

Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement



### Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☐ No

If Yes, please describe.

**If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.**

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

**Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.**

If yes, how will you provide notice in alternative languages?

- ☐ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

- ☐ TCEQ Regional Office ☐ TCEQ Central Office
- ☐ Public Place (specify)

### Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☐ No

What types of notice will be provided?

- ☐ Publish in alternative language newspaper
- ☐ Posted on Commissioner's Integrated Database Website
- ☐ Mailed by TCEQ's Office of the Chief Clerk
- ☐ Other (specify)



# ATTACHMENT K ACCOUNTING PLAN



**HEIGHTS AT UPTOWN WATER RIGHTS ACCOUNTING PLAN  
FOR APPLICATION NO. XXXX  
PONDS 1-2**

Kimley-Horn and Associates, Inc., Updated XXXXX

**INTRODUCTION**

This memorandum describes the accounting plan submitted for Application No. XXX. The application authorizes the following:

- Storage of supplemental water with a storage capacity of 20.9 acre-feet and a surface area of 4.3 acres.
- Diversion of up to 76.2 acre-feet of supplemental water per year for irrigation purposes from the perimeter of Pond 1.
- Discharge and bed and banks transfer up to 105.4 acre-feet per year of supplemental groundwater.

The applicant will not be diverting any state water, but will divert supplemental water based on private groundwater produced by the applicant and discharged into the pond (Groundwater). **NOTE:** the diversion is limited to 76.2 acre-feet per year; the diversion pump needs to be turned off for the remainder of the year once the 76.2 acre-feet is reached, but the well must remain in operation to keep the pond full.

The accounting plan assumes that storage in the reservoirs is constant. Change in storage is minimal and can be ignored. Thus this accounting plan is premised on a fundamental mass balance equation of water inflows and outflows from the three reservoirs:

$$\text{Groundwater} = \text{Irrigation Diversion} + \text{Evaporation Losses}$$

The applicant has installed meters on the Irrigation diversion and its discharges of groundwater and will read those meters daily. Net evaporation losses will be based on daily values measured by the U.S. Army Corps of Engineers (USACE) at Lewisville Lake <https://www.swf-wc.usace.army.mil/radar/>. If evaporation data are not available, the accounting plan will use the 75<sup>th</sup> percentile evaporation for the local area for the period from 1954 through 2013, calculated on a monthly basis, as published by the Texas Water Development Board (TWDB).

**ELEMENTS OF THE ACCOUNTING PLAN**

The accounting plan has been created as an Excel spreadsheet. The spreadsheet includes cells in which the applicant will insert readings for Irrigation, Groundwater, on-site lake elevations, Lewisville Lake precipitation, and Lewisville Lake evaporation rates. The spreadsheet will use the data entered in those cells to automatically calculate evaporated losses. Header columns and rows in the spreadsheet are shaded in various colors, input cells are shaded white, and automatically calculated cells are shaded in grey. All cells that include formulas will be locked once the accounting plan is approved, so that they



cannot be inadvertently altered. The accounting plan covers one calendar year, and a new Excel document will need to be created for each year.

There are 17 tabs in the accounting plan spreadsheet:

1. INSTRUCTIONS Tab – a copy of this instruction document.
2. ANNUAL Tab – summarizes water use, supplemental groundwater, and evaporative losses.
3. Monthly Tabs ( JAN through DEC) – the applicant will enter daily readings
4. EVAP DATA Tab – default evaporation rates
5. TWDB PAN LAKE COEFF Tab – data from the TWDB for Monthly Pan Coefficients
6. TWDB EVAP Tab – data from TWDB for monthly lake surface evaporation for Quadrangle 411

## ANNUAL TAB

The ANNUAL tab calculates a mass balance for ponds 1 and 2 covered by Application XXXXX. All figures on the ANNUAL tab are populated from the monthly tabs or calculated in the ANNUAL tab, so the applicant will not enter any data into the ANNUAL tab. The exception is in cell B6, where the applicant enters the current year.

The ANNUAL tab contains 7 columns (A through G) and 14 rows. The columns in the table are as follows:

<u>Column A</u>	<u>Month.</u> Labels for each month in a separate row.
<u>Column B</u>	<u>Diversion (ac-ft).</u> Contains the monthly Irrigation Diversions in acre-feet. Imported from Column C of the respective monthly tab and converted from gallons to acre-feet (1 acre-foot equals 325,851 gallons).
<u>Column C</u>	<u>Groundwater Volume (ac-ft).</u> Contains the monthly Groundwater Volume in acre-feet. Imported from Column F of the respective monthly tab and converted from gallons to acre-feet (1 acre-foot equals 325,851 gallons).
<i>Columns D through F contain the mass balance calculations.</i>	
<u>Column D</u>	<u>Net Evaporation (ac-ft).</u> Contains the monthly evaporation imported from column N of the respective monthly worksheet.
<u>Column E</u>	<u>Calculated Net Inflow (ac-ft).</u> Contains the monthly calculated net inflows in acre-feet. Imported from Column P of the respective monthly tab and converted from gallons to acre-feet (1 acre-foot equals 325,851 gallons).
<u>Column F</u>	<u>Depleted Net Inflow (ac-ft).</u> Contains the monthly depleted net inflows in acre-feet. Imported from Column Q of the respective monthly tab and converted from gallons to acre-feet (1 acre-foot equals 325,851 gallons).
<u>Column G</u>	<u>Supplemental Groundwater Release (ac-ft).</u> Contains the monthly supplemental groundwater release in acre-feet. Imported from Column R of the respective monthly tab and converted from gallons to acre-feet (1 acre-foot equals 325,851 gallons).



## MONTHLY TABS

The accounting plan includes 12 monthly spreadsheets, labeled JAN through DEC. Each worksheet contains 22 columns (A through V). The number of rows varies between 28 and 31 based on the number of days in the month and the row numbers correspond to the day of the month. The applicant will manually enter Column B "Pond 1 Irrigation Meter Reading (10,000 gal)", Column D "Groundwater Telemetric Reading to Pond 1 (10,000 gal)", Column E "Groundwater Telemetric Reading to Pond 2 (10,000 gal)", Columns G through H "Pond x Elevation (ft) (msl)", Column I "Lake Lewisville Precipitation Rate (in)", and Column J "Lake Lewisville Evaporation Rate (in)". These cells are **NOT** shaded to notate these are user entries. All other cells will be filled automatically based on those entries.

Column A Day. Lists the day of the month and is shaded orange. The JAN worksheet includes a row for December 31 of the prior year in order to record the starting point for meter readings. This row is identified as Day 0.

*Columns B through C list diverted waters from Pond 1, and their headers are shaded blue.*

Column B Pond 1 Irrigation Meter Reading (10,000 gal). Cells for the applicant to enter daily meter readings from the Irrigation Diversion out of Pond 1. The irrigation Diversion meter reads in units of 10,000 gallons. Make special note of the "February 29" day in the accounting spreadsheet in the case of a leap year.

Column C Diversion (gal). Calculates the total daily Irrigation Diversions in gallons for Pond 1, by taking the meter reading for that day, subtracting the meter reading for the prior day, and multiplying by 10,000. The cell for the first day of each month references the cell for the last day of the prior month.

*Columns D through F list supplemental inflows to the reservoirs, and their headings are shaded green.*

Column D Groundwater Telemetric Reading to Pond 1 (10,000 gal). Cells for the applicant to enter daily telemetric readings from the Groundwater well that discharges into Pond 1. The Groundwater well telemetric data reads in units of 10,000 gallons.

Column E Groundwater Telemetric Reading to Pond 2 (10,000 gal). Cells for the applicant to enter daily telemetric readings from the Groundwater well that discharges into Pond 2. The Groundwater well telemetric data reads in units of 10,000 gallons.

Column F Groundwater Volume (gal). Calculates the daily Groundwater discharges in gallons, by taking the combined telemetric reading for that day, subtracting the combined telemetric reading for the prior day, and multiplying by 10,000. The cell for the first day of each month references the cell for the last day of the prior month.

*Columns G through H reports the daily water elevations for the reservoirs, and their headings are shaded gold.*

Column G Pond 1 Elevation (ft) (msl). Reports the water surface level of the pond. The elevations should be downloaded from the float sensor. This column is to ensure that the groundwater pump is supplying the pond with sufficient water to maintain its design elevation.



Column H    Pond 2 Elevation (ft) (msl). Reports the water surface level of the pond. The elevations should be downloaded from the float sensor. This column is to ensure that the groundwater pump is supplying the pond with sufficient water to maintain its design elevation.

*Columns I through M are associated with Lewisville Lake pan evaporation and precipitation values entered from the USACE website. The headers for these columns are shaded pink.*

Column I    Lewisville Lake Precipitation Rate (in). The daily precipitation values for Lake Lewisville, obtained from the USACE website at <https://www.swf-wc.usace.army.mil/radar/>.

Column J    Lewisville Lake Evaporation Rate (in). The daily pan evaporation values for Lewisville Lake, obtained from the USACE website at <https://www.swf-wc.usace.army.mil/radar/>.

Column K    Default Evaporation Rate (in). This column is used on days when Lewisville Lake evaporation data is not available. If the value in Column M is blank, then Column N displays the 75<sup>th</sup> percentile daily pan evaporation value from Column D of the EVAP DATA Worksheet.

Column L    Total Evaporation Rate (in). This final daily pan evaporation rate based on either the values entered in Column M or the 75<sup>th</sup> percentile values in Column N.

Column M    Net Evaporation Rate (in). Calculates the final net evaporation rate (evaporation rate multiplied by pan factor less precipitation) in inches.

*Columns N through O contain the daily calculations for ponds 1 and 2. The headers for these columns are shaded in light blue.*

Column N    Net Evaporation (ac-ft). Calculated Net Evaporation, obtained by converting the Net Evaporation Rate in Column M to feet and multiplying it by the total surface area of ponds 1 and 2 in cell B6.

Column O    Net Evaporation (gal). Same as Column N reported in gallons.

*Columns P through S contain the total values for the mass balance of the inflows and outflows. The headers for these columns are shaded in purple.*

Column P    Calculated Net Inflow (gal). The calculated net inflow is determined by subtracting the groundwater inflow to the reservoir (Column F) from the sum of the evaporative loss (Column O) and the diversion (Column C). If the calculated net inflow is negative, then there is more inflow into the reservoir than can be held and this amount flows downstream.

Column Q    Depleted Net Inflow (gal). The depleted net inflow is the positive calculated net inflow from Column P. If the calculated net inflow is less than zero, then this value is equal to zero. The Depleted Net Inflow represents the amount needed to be made up through supplemental groundwater pumping.

Column R    Supplemental Groundwater Release (gal). The total supplemental groundwater release is the sum of the depleted net inflow (Column Q) reported biweekly in December, January,



Row 70      75<sup>th</sup> Percentile. Calculates the 75<sup>th</sup> percentile evaporation rate for each month from 1954 to 2013.

## **CONCLUSION**

An Accounting Plan Data Log for each calendar year must be maintained in perpetuity. Name an excel file "XXXX Accounting Plan Data Log.xls" for each year where the XXXX represents the calendar year. All excel files should be saved in an easily accessible common location.



## WORKSHEET 8.0 CALCULATION OF FEES

This worksheet is for calculating required application fees. Applications are not Administratively Complete until all required fees are received. **Instructions, Page. 34**

### 1. NEW APPROPRIATION

	Description	Amount (\$)
Filing Fee	Circle fee correlating to the total amount of water* requested for any new appropriation and/or impoundment. Amount should match total on Worksheet 1, Section 1. Enter corresponding fee under <b>Amount (\$)</b> . <u>In Acre-Feet</u>	\$250.00
	a. Less than 100 \$100.00	
	b. 100 - 5,000 \$250.00	
	c. 5,001 - 10,000 \$500.00	
	d. 10,001 - 250,000 \$1,000.00	
	e. More than 250,000 \$2,000.00	
Recording Fee		\$25.00
Agriculture Use Fee	<i>Only for those with an Irrigation Use.</i> Multiply 50¢ x <u>32.4</u> Number of acres that will be irrigated with State Water. **	\$16.20
Use Fee	<i>Required for all Use Types, excluding Irrigation Use.</i> Multiply \$1.00 x _____ Maximum annual diversion of State Water in acre-feet. **	
Recreational Storage Fee	<i>Only for those with Recreational Storage.</i> Multiply \$1.00 x <u>20.89</u> acre-feet of in-place Recreational Use State Water to be stored at normal max operating level.	\$20.89
Storage Fee	<i>Only for those with Storage, excluding Recreational Storage.</i> Multiply 50¢ x _____ acre-feet of State Water to be stored at normal max operating level.	
Mailed Notice	Cost of mailed notice to all water rights in the basin. Contact Staff to determine the amount (512) 239-4600.	\$524.52
TOTAL		\$ 836.61

### 2. AMENDMENT OR SEVER AND COMBINE

	Description	Amount (\$)
Filing Fee	Amendment: \$100	
	OR Sever and Combine: \$100 x _____ of water rights to combine	
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
TOTAL INCLUDED		\$

### 3. BED AND BANKS

	Description	Amount (\$)
Filing Fee		\$100.00
Recording Fee		\$12.50
Mailed Notice	Additional notice fee to be determined once application is submitted.	
TOTAL INCLUDED		\$ 112.50



**ATTACHMENT L**  
**EXISTING DAM INFORMATION**





Texas Commission on Environmental Quality  
Dam Safety Section  
Critical Infrastructure Division MC-177  
12100 Park 35 Circle, Bldg. A  
Mail: P.O. Box 13087  
Austin, TX 78711-3087

## INFORMATION SHEET: EXISTING DAM

(Please print or type and complete **all** Sections, unless otherwise specified)  
Reference Title 30 Texas Administrative Code (TAC), Chapter 299, Dams and Reservoirs

### SECTION 1: OWNER INFORMATION

Owner's (or representative) Name: Ryan Griffin

Organization: Horizon Rockhill Heights LLC

(Signature of Owner)

(Date)

Owner's Address: 2801 Network Blvd. Suite 350

City: Frisco

State: TX

Zip Code: 75034

Phone: ( )

Emergency Contact Phone: ( )

Email:

Owner Code (Please check one): ☐ Federal (F) ☐ Local Government (L) ☐ Utility (U) ☒ Private (P)  
☐ State (O) ☐ Other (O) specify:

Year Built: N/A

Year Modified: N/A

Engineering Firm: N/A

State Tax I.D. Number: N/A

TBPE Firm Number: N/A

Project Engineer: N/A

TBPE License Number: N/A

Engineering Firm Address: N/A

City: N/A

State: N/A

Zip Code: N/A

Phone: ( ) N/A

Emergency Contact Phone: ( ) N/A

Email: N/A

### SECTION 2: GENERAL INFORMATION

Name of Dam: Pond 2 (Unofficial Name)

Texas Dam Safety (TX) Number: N/A

Location: Celina, TX

Latitude: 33.333160 N

Longitude: 96.779437 W

County: Collin

Stream Name: Unnamed Tributary to Little Elm Creek

River Basin: Trinity River Basin

General Location: South of CR 95 and west of Lindy Ln

Date of Emergency Action Plan (EAP), if one exists: N/A



### SECTION 3: INFORMATION ON DAM

#### Classification

Size Classification: ☐ Large ☐ Intermediate ☒ Small

Hazard Classification: ☐ High ☐ Significant ☒ Low

Study Year: 2024

Type of Dam: ☒ Earthen ☐ Concrete ☐ Gravity ☐ Rockfill ☐ Masonry ☐ Other (specify): \_\_\_\_\_

**Dam Structure** (dimensions to nearest tenth of foot, volume to nearest acre-foot or cubic yard, areas to nearest acre):

Height of Dam (ft): 11 (effective crest to lowest point of original streambed)

Structural Height of Dam (ft): 5 (effective crest to lowest structural point of the dam)

Length of Dam (ft): 295 Crest Width (ft): 25

Normal Pool (ft-msl): 696 Service Spillway (ft-msl): 696.45

Emergency Spillway (ft-msl): N/A Effective Top of Dam (ft-msl): 699

Downstream Toe (ft-msl): 688 Embankment Volume (cubic yard): \_\_\_\_\_

Maximum Reservoir Capacity (ac-ft): 12.17 Normal Reservoir Capacity (ac-ft): 7.21

Normal Pool Surface Area (ac): 3.69

Total Spillway Capacity (cfs): 961.8 (at the effective crest of the dam)

#### Outlet (Drain and/or Low Flow)

Outlet Effective Diameter: 16 ☒ in ☐ ft

Type: CMP

#### Service Spillway

Type: ☒ Open Channel ☐ Overflow Structure ☐ Drop Inlet ☐ Gate ☐ Siphon ☐ Conduit ☐ Other (specify): \_\_\_\_\_

Width/Diameter (ft): 45 Capacity (cfs): 961.8

**Emergency Spillway** N/A

Type: ☐ Open Channel ☐ Overflow Structure ☐ Drop Inlet ☐ Gate ☐ Siphon ☐ Conduit ☐ Other (specify): \_\_\_\_\_

Width/Diameter (ft): \_\_\_\_\_ Capacity (cfs): \_\_\_\_\_

### SECTION 4: HYDROLOGIC INFORMATION

Required Hydrologic Criteria (% PMF): 75 PMF Passing (%): 75

PMF Study Year: 2024 Drainage Area (ac): 85.06 ☐ square miles ☒ acres

ARC III CN Number (if needed): 95.6 Time of Concentration (min): 16

Design Storm Peak Discharge (cfs): 969.9 Design Storm Peak Stage (ft-msl): 699

Design Storm Duration (hr): 1-hr

*If you have questions on how to fill out this form or about the Dam Safety Program, please contact us at 512-239-5195. Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.*





# James Pole

Irrigation Consultants  
Irrigation Design, Consulting, and  
Landscape Water Management

---

April 16, 2025

Kelsey L. Campbell  
Kimley-Horn  
6160 Warren Parkway, Suite 210  
Frisco, TX 75034

RE: Estimated Landscape Irrigation Demand, Updated 04.16.25  
The Heights

Kelsey,

Based on square foot area numbers that you have provided for the development noted above, the estimated landscape irrigation system water demands are as follows:

Ph. 1 (878,743 s.f) will require 16,750,000 gallons per year. During peak summertime watering cycles approximately 553,500 gallons will be needed per week. During these peak times, nighttime irrigation on six nights per week will require an irrigation flow rate of approximately 150 gallons per minute.

Ph. 2 (532,429 s.f) will require 10,145,146 gallons per year. During peak summertime watering cycles approximately 337,874 gallons will be needed per week. During these peak times, nighttime irrigation on six nights per week will require an irrigation flow rate of approximately 94 gallons per minute.

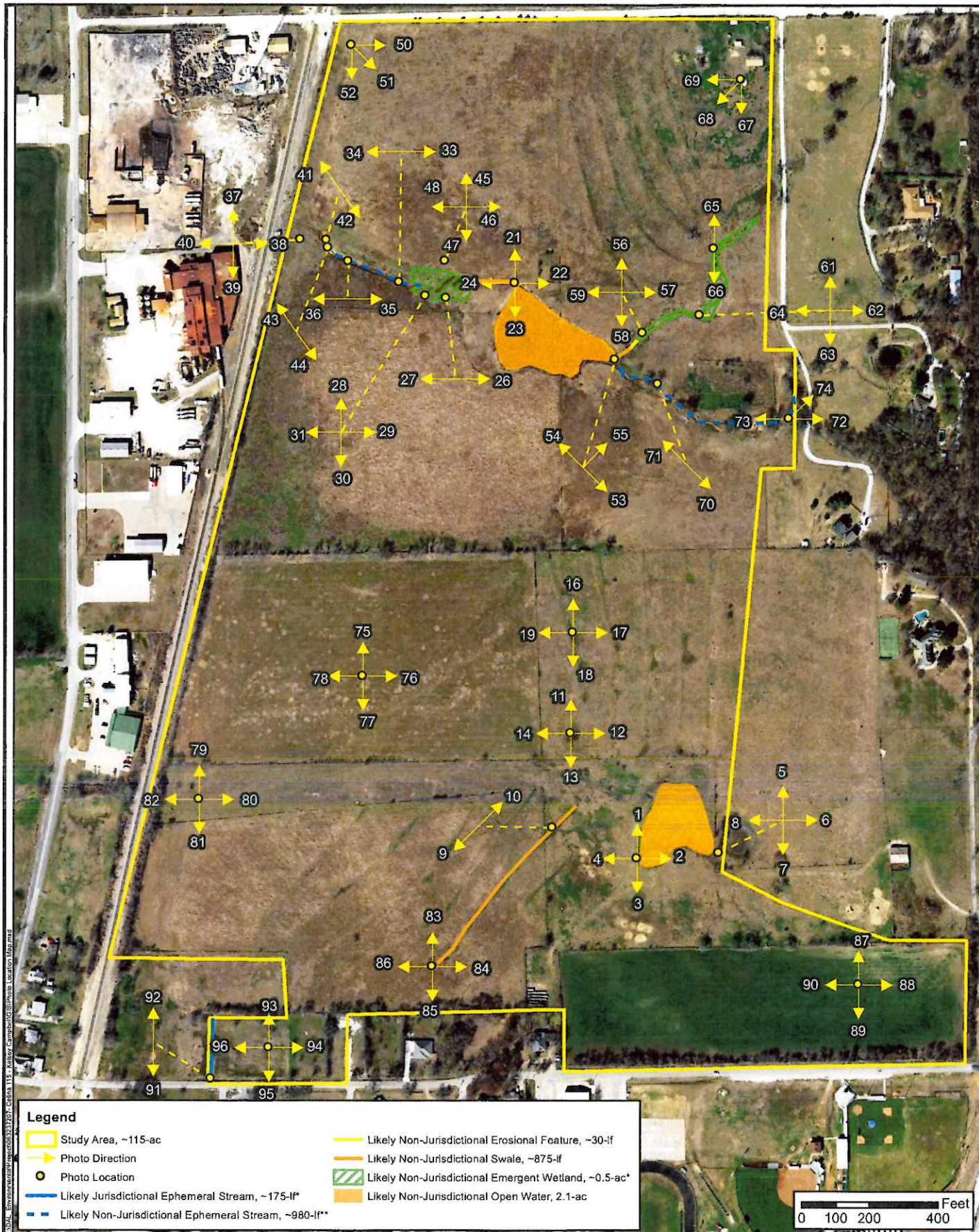
Keep in mind that we can only irrigate this frequently if we are using non-potable water. If we were using City water meters, there would likely be restrictions limiting the watering frequency and increasing the required rate of flow.

These numbers reflect the estimated volume of water required to sustain a typical "established" landscape in North Texas. Initial plant establishment will require more water for a limited time.

Respectfully,

James Pole  
James Pole Irrigation Consultants





SHEET

5

DATE: 07/22/2019

DRAWN: EKR

CHECKED: MREA

KHA NO.: 063237207

## Photo Location Map

Aerial Source: TNRIS 2015

Celina 115

Celina, Collin County, Texas



**Kimley»Horn**

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.



## **Appendix B**

### **SITE VISIT PHOTOGRAPHS**





1



2



3



4



5



6

Photos were taken on 07/25/2019





7



8



9



10



11



12

Photos were taken on 07/25/2019





13



14



15



16



17



18

Photos were taken on 07/25/2019





19



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22



23



24

Photos were taken on 07/25/2019





25



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Photos were taken on 07/25/2019





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36

Photos were taken on 07/25/2019





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41



42

Photos were taken on 07/25/2019





43



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47



48

Photos were taken on 07/25/2019





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Photos were taken on 07/25/2019





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59



60

Photos were taken on 07/25/2019





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66

Photos were taken on 07/25/2019





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Photos were taken on 07/25/2019





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Photos were taken on 07/25/2019





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81



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84

Photos were taken on 07/25/2019





85



86



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Photos were taken on 07/25/2019





91



92



93



94



95



96

Photos were taken on 07/25/2019



**ATTACHMENT E**  
**NOTIFICATION LETTERS**



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05/27/2025

The Honorable Cheryl Williams  
Collin County Commissioner Precinct 2  
2300 Bloomdale Road  
McKinney, TX 75071

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05/27/2025

The Honorable Brandon Grumbles  
Celina Council Member, Place 6  
142 N. Ohio Street  
Celina, TX 75009

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05/27/2025

The Honorable Mindy Koehne  
Celina Deputy Mayor Pro Tem, Place 5  
142 N. Ohio Street  
Celina, TX 75009

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05/27/2025

The Honorable Susan Fletcher  
Collin County Commissioner Precinct 1  
2300 Bloomdale Road  
McKinney, TX 75071

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05/27/2025

The Honorable Darrell Hale  
Collin County Commissioner Precinct 3  
2300 Bloomdale Road  
McKinney, TX 75071

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05/27/2025

The Honorable Chris Hill  
Collin County Judge  
2300 Bloomdale Road  
McKinney, TX 75071

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The Honorable Andy Hopkins  
 Celina Mayor Pro Tem, Place 3  
 142 N. Ohio Street  
 Celina, TX 75009

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The Honorable Philip Ferguson  
 Celina Council Member, Place 1  
 142 N. Ohio Street  
 Celina, TX 75009

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The Honorable Duncan Webb  
 Collin County Commissioner Precinct 4  
 2300 Bloomdale Road  
 McKinney, TX 75071

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The Honorable Wendie Wigginton  
 Celina Council Member, Place 4  
 142 N. Ohio Street  
 Celina, TX 75009

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The Honorable Eddie Cawfield  
 Celina Council Member, Place 2  
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 Celina, TX 75009

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The Honorable Ryan Tubbs  
 Mayor of Celina  
 142 N. Ohio Street  
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# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Ryan Tubbs  
Mayor of Celina  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Mr. Tubbs:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct, redevelop, and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

Horizon Rockhill Heights, LLC is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Little Elm Creek Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court.

Sincerely,



Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Philip Ferguson  
Celina Council Member, Place 1  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Mr. Ferguson:

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Sincerely,

A handwritten signature in dark ink, appearing to read "Ryan W. Griffin". The signature is fluid and cursive, with the first name "Ryan" being more prominent.

Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Eddie Cawfield  
Celina Council Member, Place 2  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

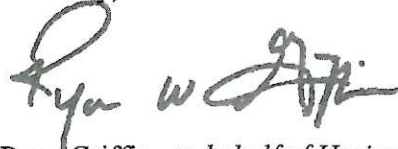
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Sincerely,

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Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Andy Hopkins  
Celina Mayor Pro Tem, Place 3  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

Dear Mr. Hopkins:

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Sincerely,

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Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Wendie Wigginton  
Celina Council Member, Place 4  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Ms. Wigginton:

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Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Mindy Koehne  
Celina Deputy Mayor Pro Tem, Place 5  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

Dear Ms. Koehne:

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Sincerely,



Ryan Griffin, on behalf of Horizon Rockhill Heights, LLC



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Brandon Grumbles  
Celina Council Member, Place 6  
City Council Representative  
City Hall  
142 N. Ohio Street  
Celina, TX 75009

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

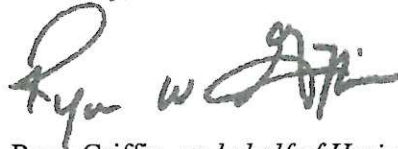
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Sincerely,

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Ryan Griffin, on behalf of Horizon Rockhill Heights, LLC



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Chris Hill  
Collin County Judge  
Commissioners Court  
Administration Building  
2300 Bloomdale Road  
McKinney, TX 75071

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

Dear Mr. Hill:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

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Ryan Griffin, on behalf of Horizon Rockhill Heights, LLC



# ROCKHILL

## CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Susan Fletcher  
Collin County Commissioner Precinct 1  
Commissioners Court  
Administration Building  
2300 Bloomdale Road  
McKinney, TX 75071

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Ms. Fletcher:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct, redevelop, and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

Horizon Rockhill Heights, LLC is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Little Elm Creek Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court.

Sincerely,



Ryan Griffin, on behalf of Horizon Rockhill Heights, LLC



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Cheryl Williams  
Collin County Commissioner Precinct 2  
Commissioners Court  
Administration Building  
2300 Bloomdale Road  
McKinney, TX 75071

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Ms. Williams:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct, redevelop, and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

Horizon Rockhill Heights, LLC is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Little Elm Creek Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court.

Sincerely,



Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



# ROCKHILL

CAPITAL & INVESTMENTS

May 23, 2025

The Honorable Darrell Hale  
Collin County Commissioner Precinct 3  
Commissioners Court  
Administration Building  
2300 Bloomdale Road  
McKinney, TX 75071

**Subject: Heights at Uptown**  
**Application for Permit to Appropriate State Water**  
**City of Celina, Collin County, Texas**

Dear Mr. Hale:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct, redevelop, and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

Horizon Rockhill Heights, LLC is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Little Elm Creek Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court.

Sincerely,



Ryan Griffin, on behalf of Horizon Rockhill Heights, LLC



# ROCKHILL

CAPITAL & INVESTMENTS

May 14, 2025

The Honorable Duncan Webb  
Collin County Commissioner Precinct 4  
Commissioners Court  
Administration Building  
2300 Bloomdale Road  
McKinney, TX 75071

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Mr. Webb:

Horizon Rockhill Heights, LLC is currently developing the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct, redevelop, and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

Horizon Rockhill Heights, LLC is pursuing this application to appropriate State Water with the Texas Commission on Environmental Quality (TCEQ). Notification of the application will be sent to all Water Rights holders in the Little Elm Creek Watershed as well as to all of the members of the Celina City Council and Collin County Commissioners Court.

Sincerely,



Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC*



[DATE]

[Title Name]

[Place Name]

[Address 1]

[Address 1]

**Subject: Heights at Uptown  
Application for Permit to Appropriate State Water  
City of Celina, Collin County, Texas**

Dear Mr./Mrs. \_\_\_\_\_:

Horizon Rockhill Heights, LLC is proposing to construct the Heights at Uptown, a single-family development within the City of Celina, Texas. The project is north of Malone Street and east of Preston Road.

As part of the plan for the development, the Horizon Rockhill Heights, LLC is applying for a Water Rights Permit to construct and maintain reservoirs for in-place recreation and irrigation. These ponds are central amenity features as well as a source for irrigation. A groundwater well is proposed to replenish water lost to evaporation and irrigation. The ponds will be located on Little Elm Creek Tributaries A-3 and A-4.

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Sincerely,

**Ryan Griffin, *on behalf of Horizon Rockhill Heights, LLC***





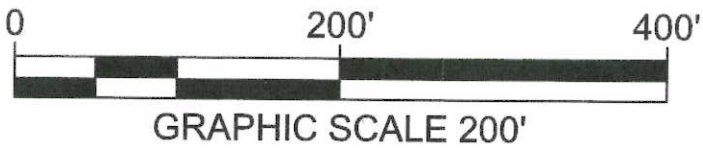
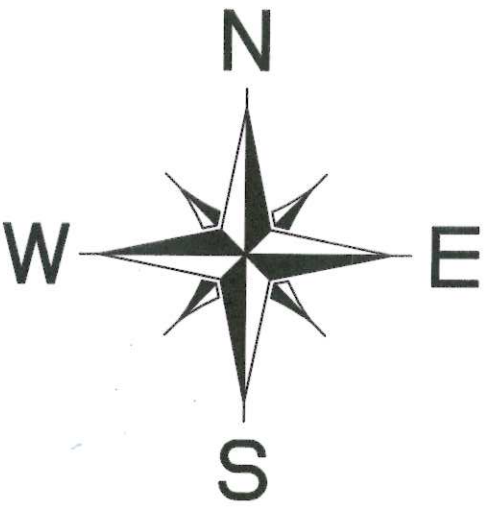
POND 2

COUNTY ROAD 95













# VICINITY MAP


Celina, Texas  
APRIL 2025

**Kimley»Horn**

6160 Warren Parkway  
Suite 210  
Frisco, Texas 75034  
972-335-3580



Impoundments		
Symbol	Latitude	Longitude
1	33.329386	-96.782551
2	33.333187	-96.779461

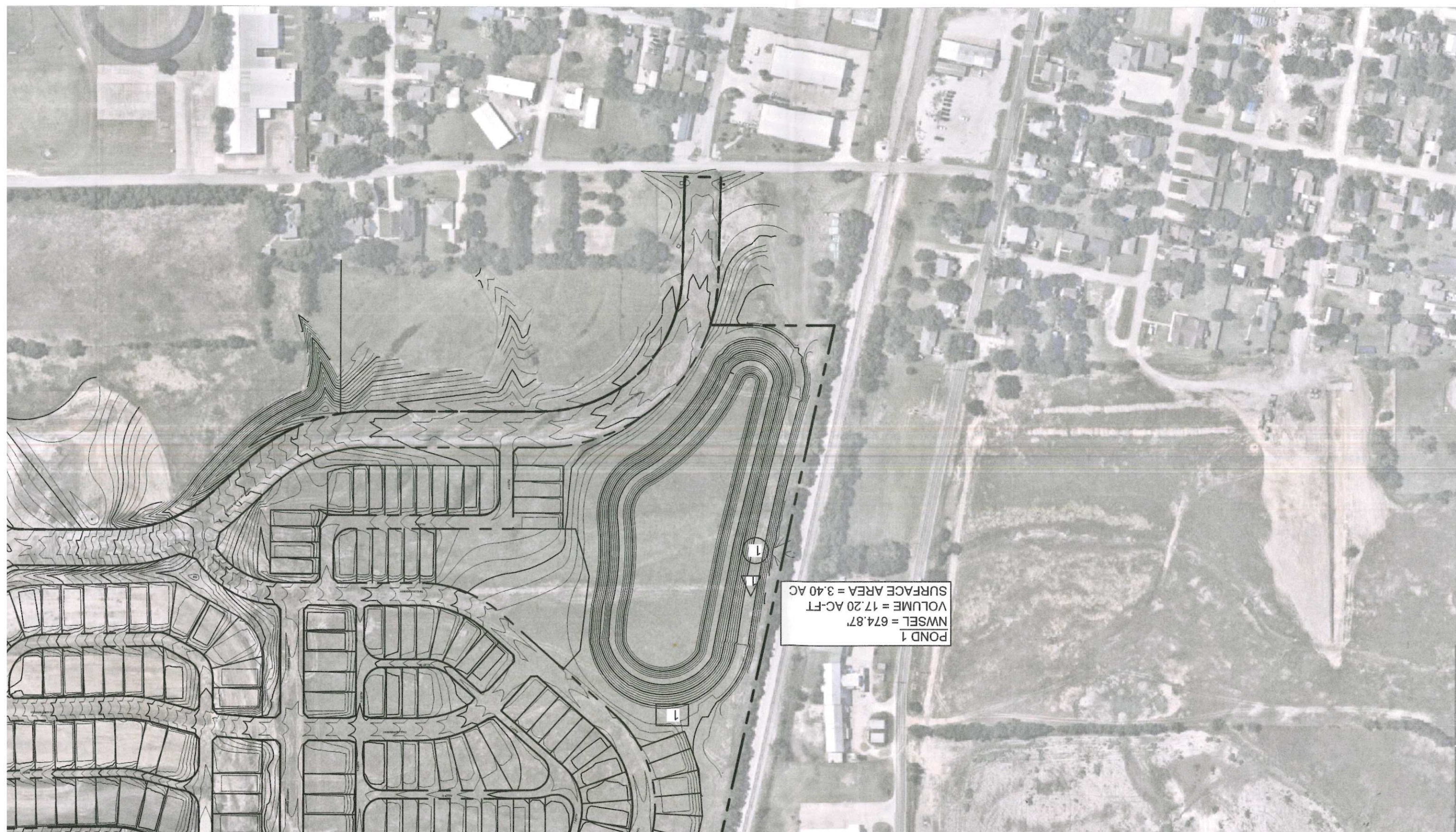
Diversions		
Symbol	Latitude	Longitude
	33.329386	-96.782551

Discharge Points		
Symbol	Latitude	Longitude
1	33.330452	-96.781957

POND 2  
NWSEL = 699'  
VOLUME = 3.6 AC-FT  
SURFACE AREA = 0.9 ACRES

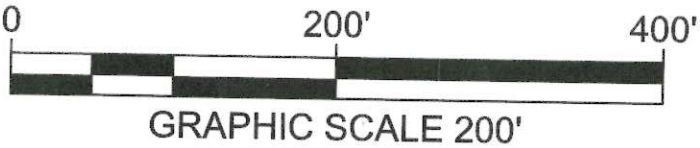
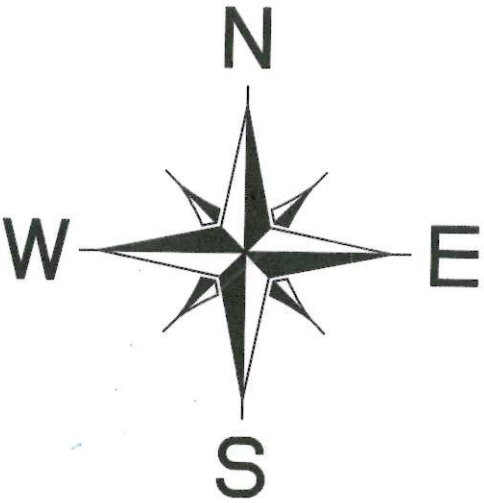
2



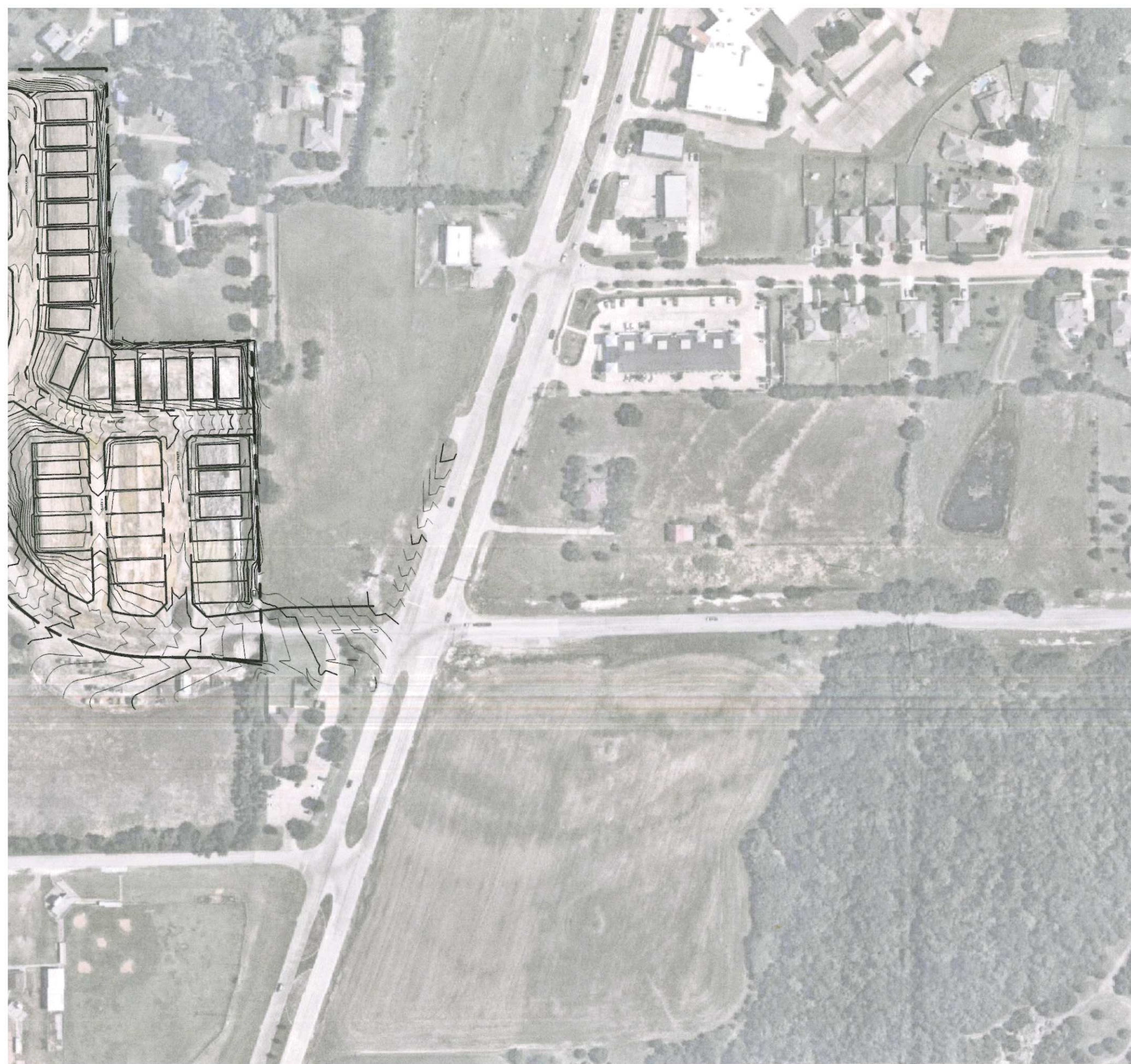


POND 1  
NWSEL = 674.87'  
VOLUME = 17.20 AC-FT  
SURFACE AREA = 3.40 AC









# DISCHARGE AND DIVERSION EXHIBIT

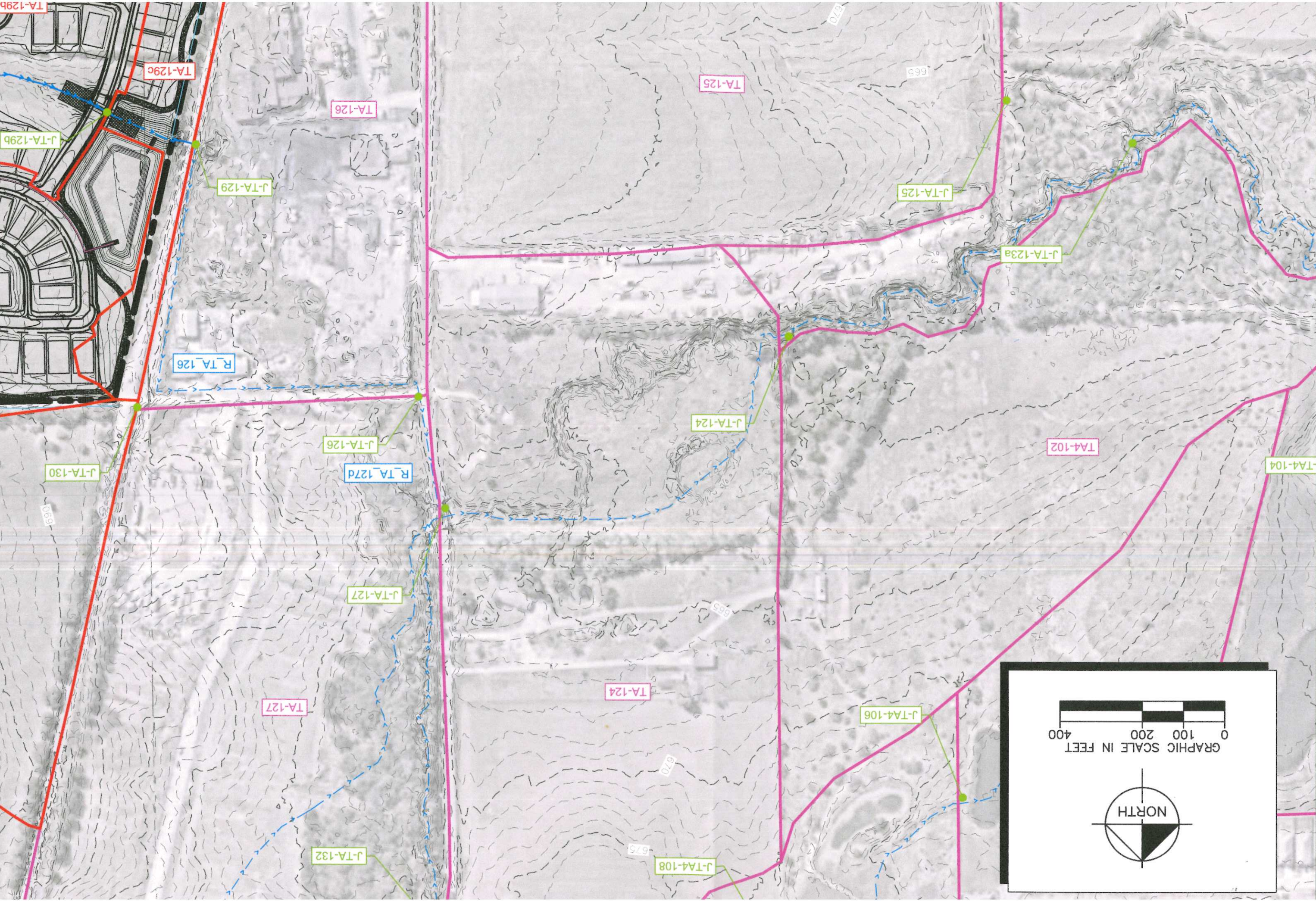
Celina, Texas  
MAY 2025

**Kimley»Horn**

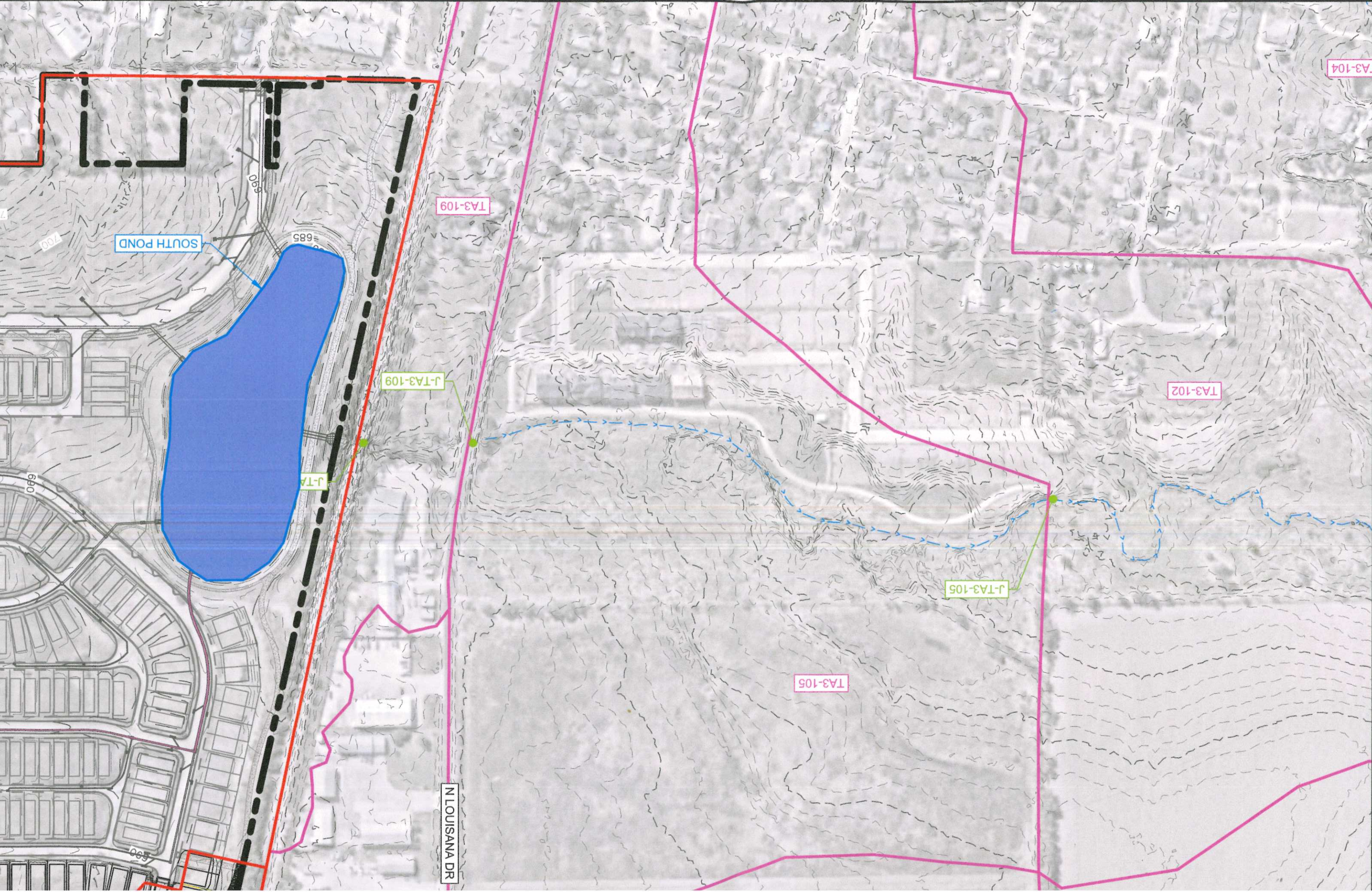
6160 Warren Parkway  
Suite 210  
Frisco, Texas 75034  
972-335-3580



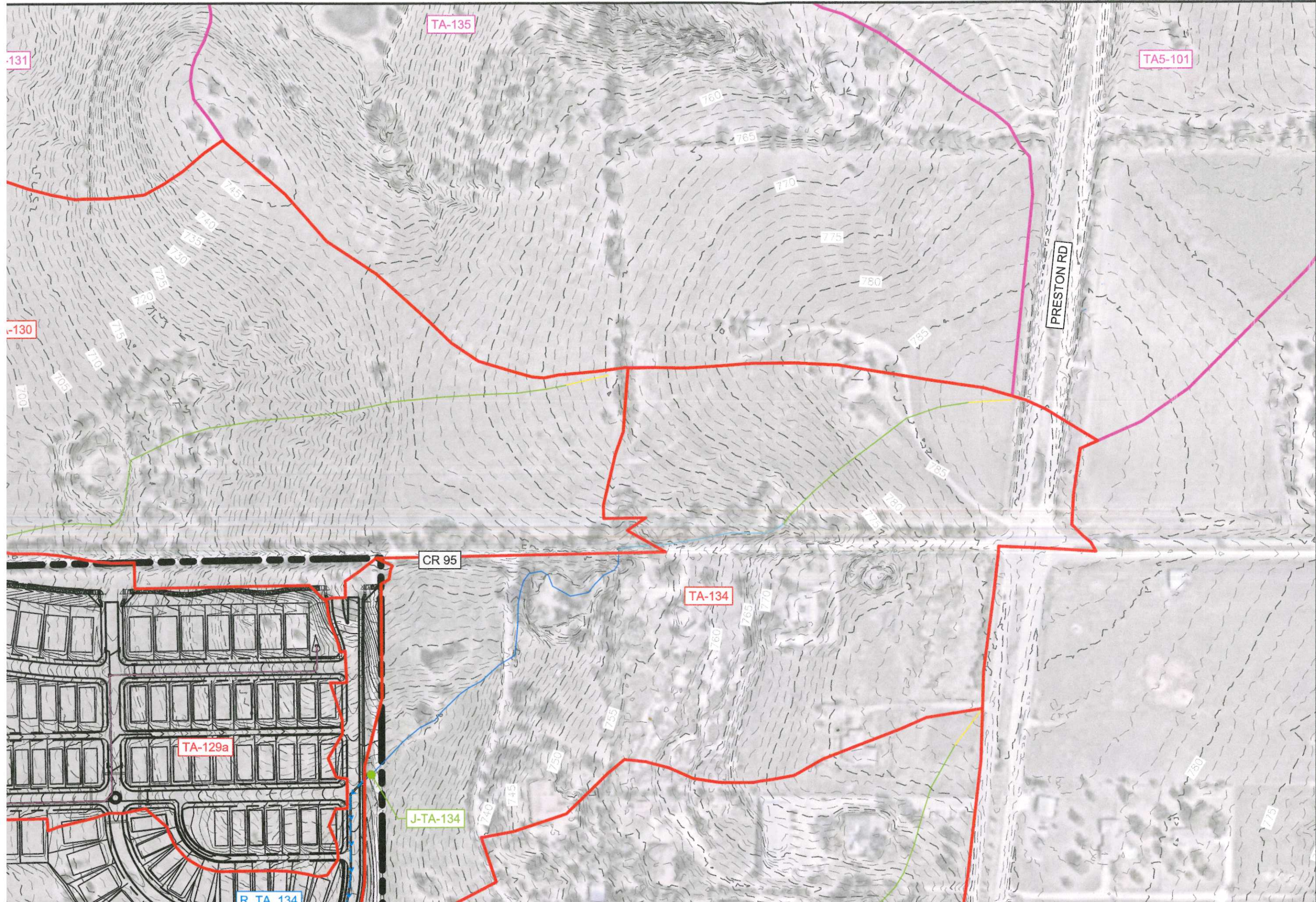
RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.











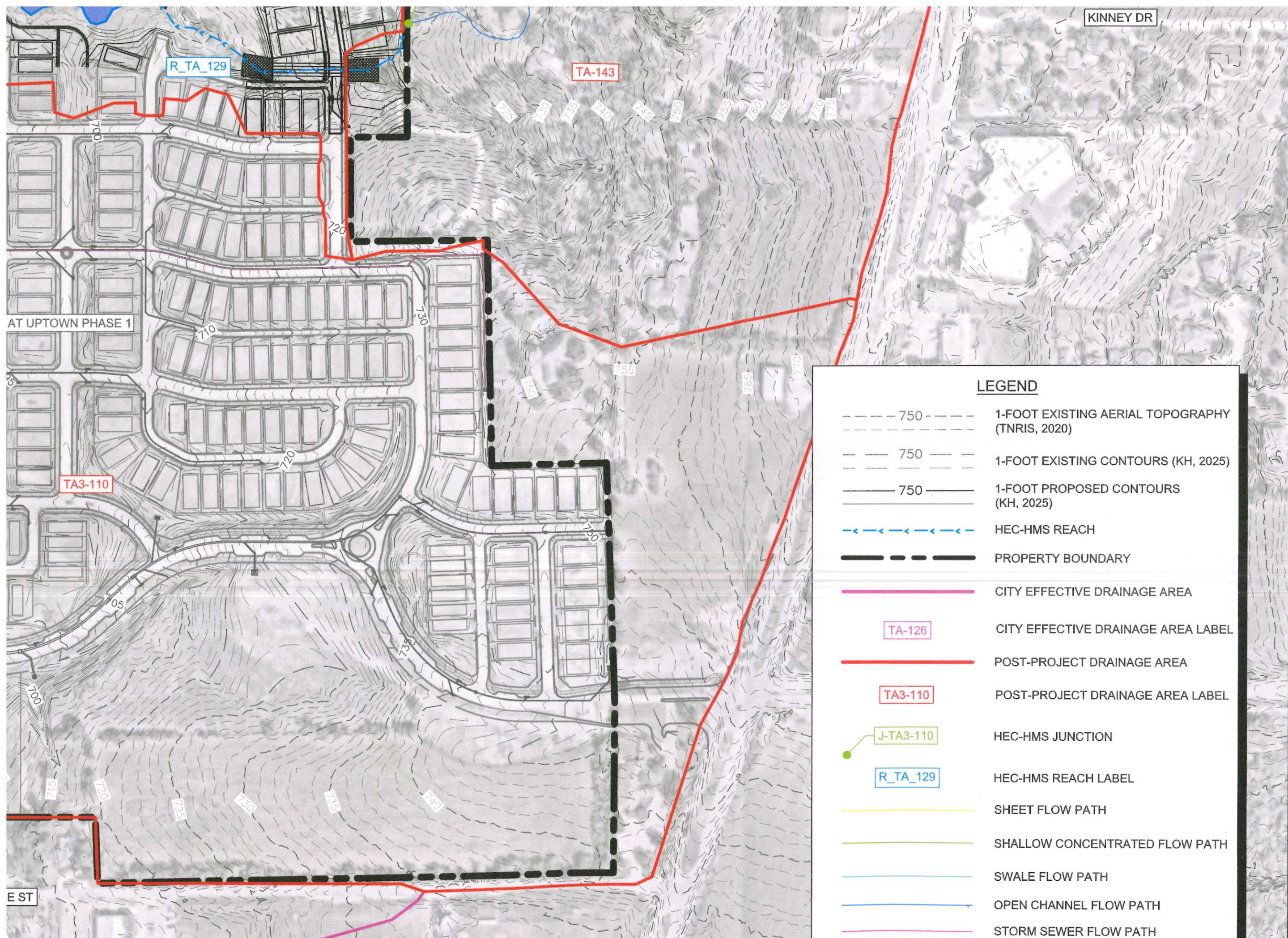
No.	REVISIONS	DATE	BY

**Kimley»Horn**

6160 Warren Parkway, SUITE 210  
FRISCO, TEXAS 75034  
PHONE: 972-335-3580 FAX: 972-335-3779  
TEXAS REGISTERED ENGINEERING FIRM F-928







PROJECT NO.	063237207
DATE:	MARCH 2025
SCALE:	AS SHOWN
DESIGNED BY:	CMK
DRAWN BY:	CMK
CHECKED BY:	CJM

# HEIGHTS AT UPTOWN PHASE 2 CITY OF CELINA, COLLIN COUNTY, TEXAS

## POST-PROJECT DRAINAGE AREA MAP

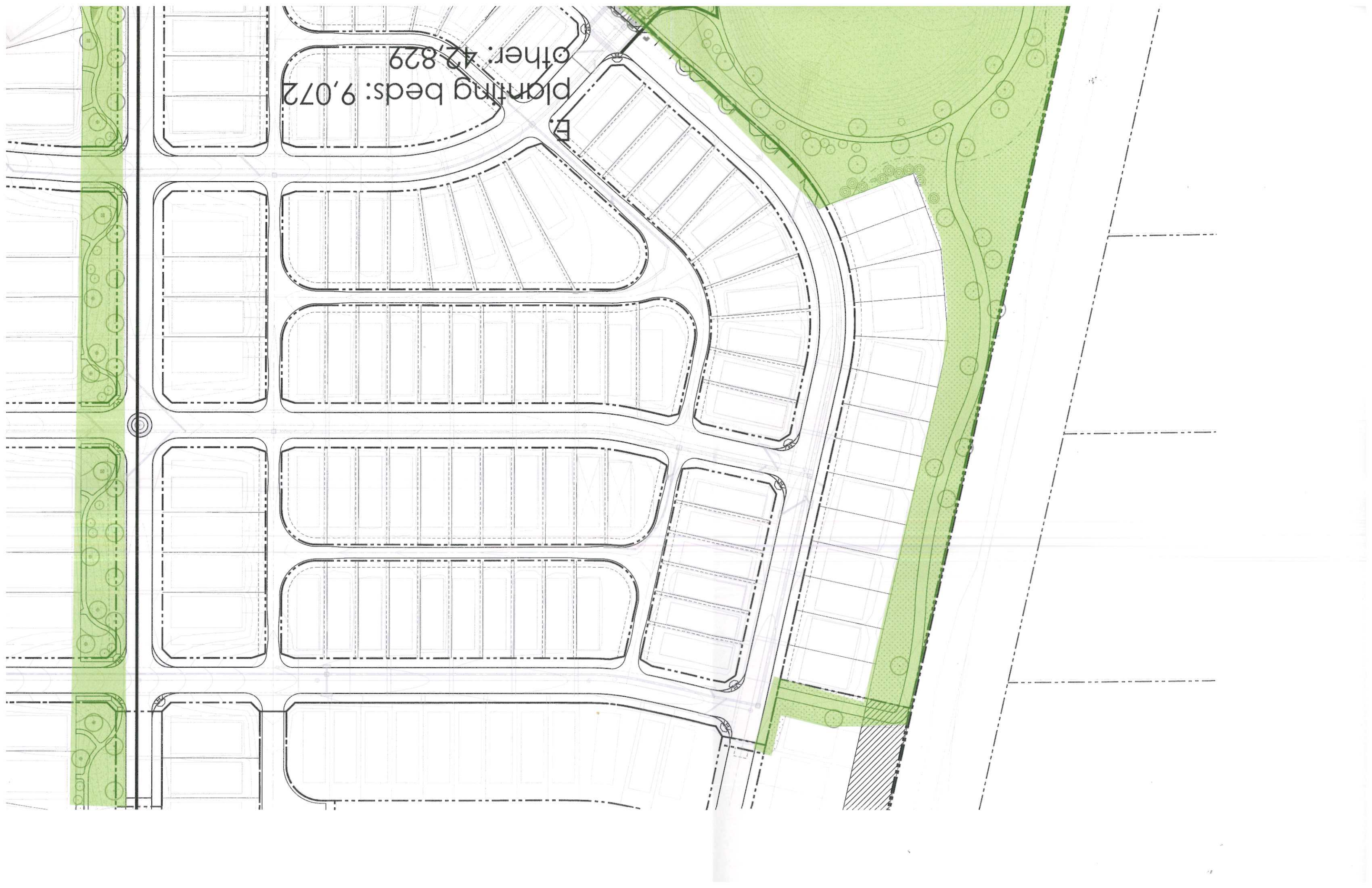
SHEET NUMBER



# ATTACHMENT C

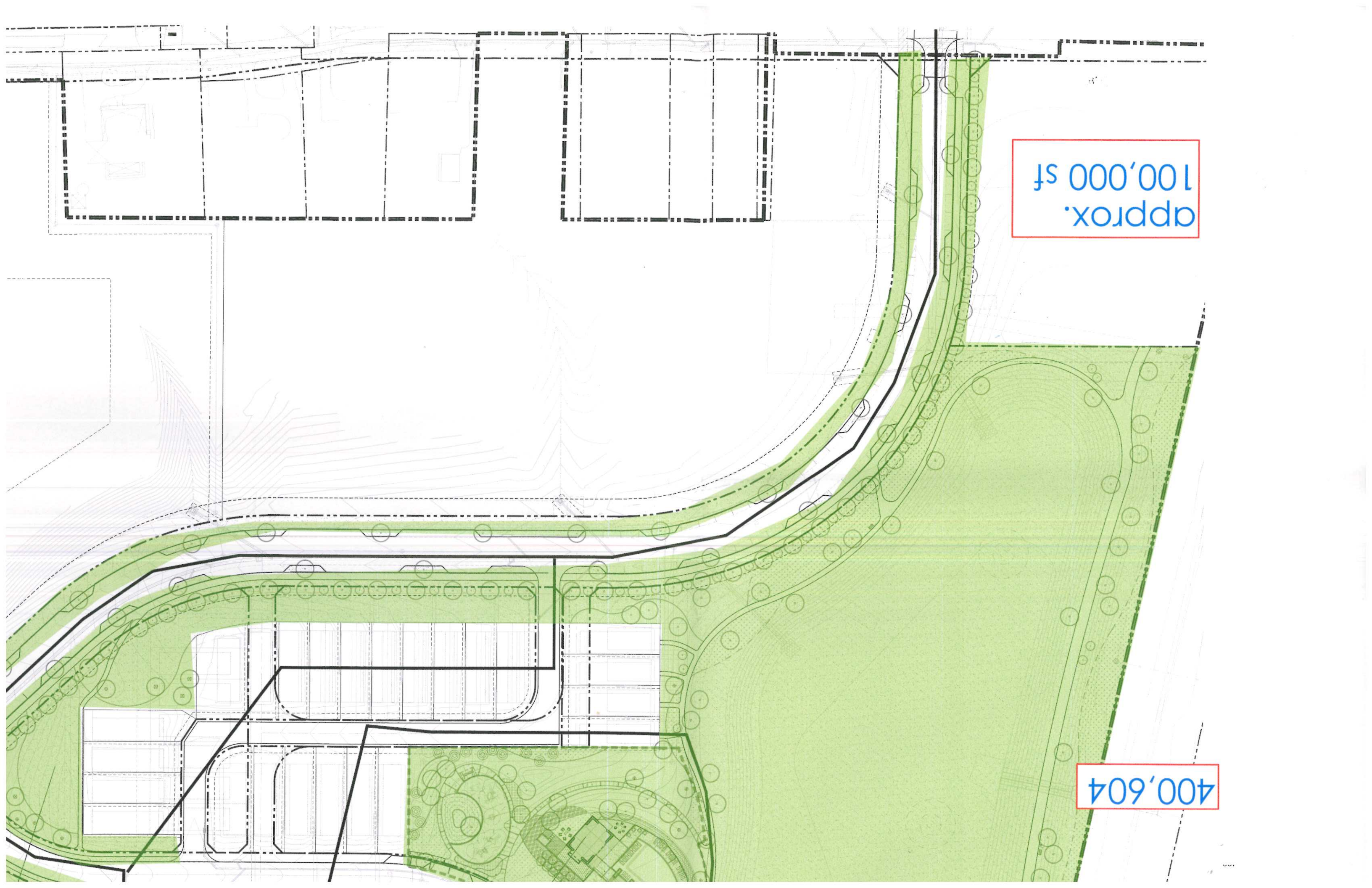
## IRRIGATION INFORMATION





planting beds: 9,072  
other: 42,829

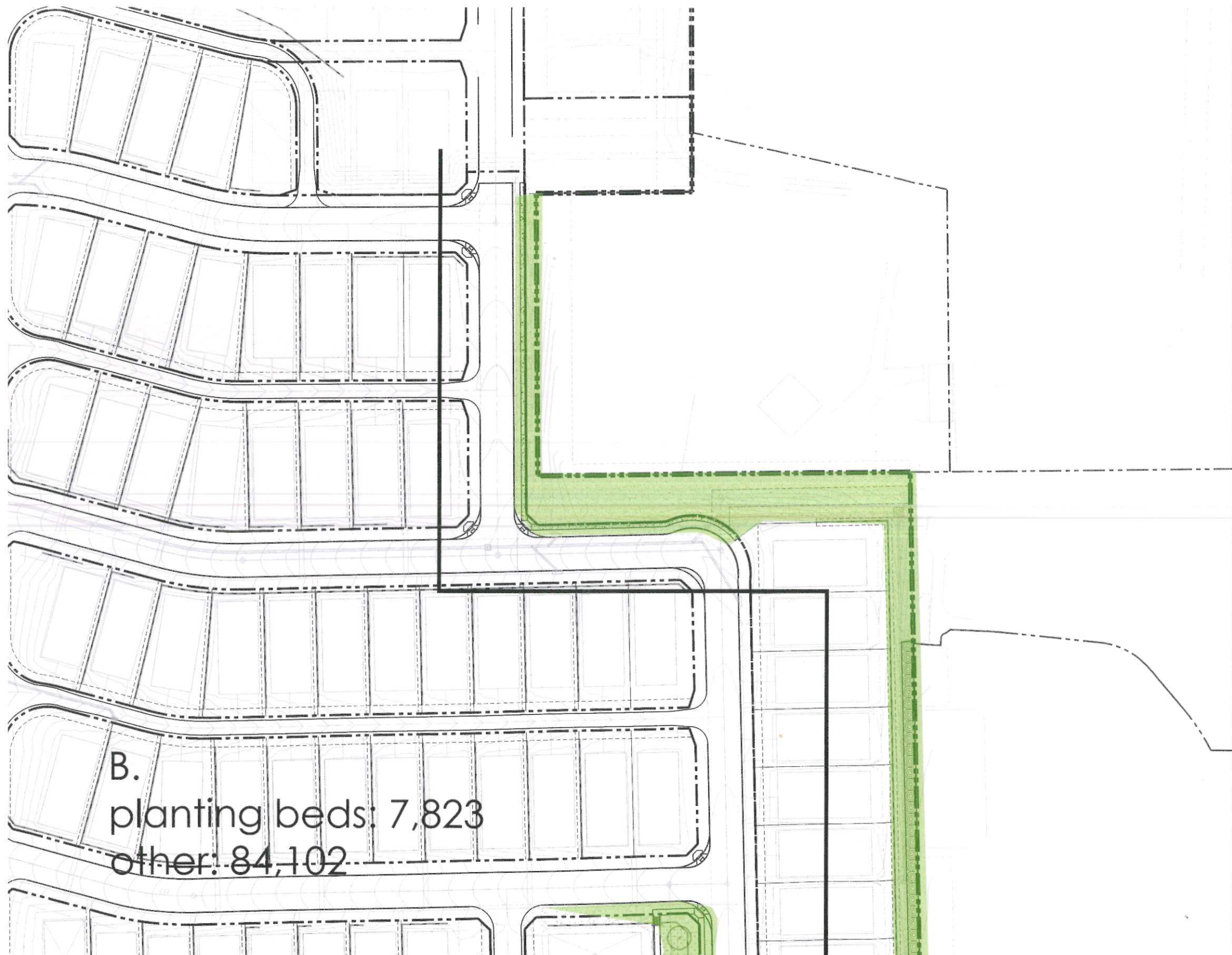




approx.  
100,000 sf

400,604





B.  
planting beds: 7,823  
other: 84,102





er: 52,270

A.  
planting beds:  
other: 77,808

D.  
planting beds: 5,521  
other: 49,378

A-F:  
phase 1: 740,309 sf  
phase 2: 488,594 sf











total: 488,594 sf





