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**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT**

**ONE TRACT OF UNIMPROVED LAND, 63.86 ACRES  
HARRELL ROAD & SCHNEIDER ROAD  
HOWE, GRAYSON COUNTY, TEXAS 75459**

**TERRA-SOLVE PROJECT NO. 22690**

***PREPARED FOR:***

**D2 DEVELOPMENT, INC.  
MR. DAVID C. DAVIS, PRESIDENT.  
1830 SILVERSIDE DRIVE  
GRAPEVINE, TX 76051**

***PREPARED BY:***

**TERRA-SOLVE, INC.  
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May 12, 2022



5/12/2022

Prepared By:

Charles R. Robertson, CPG, P.G.  
President / Geologist



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May 12, 2022

Mr. David C. Davis  
President  
D2 Development, Inc.  
1830 Silverside Drive  
Grapevine, TX 76051

**RE: PHASE I ENVIRONMENTAL SITE ASSESSMENT**

**ONE TRACT OF UNIMPROVED LAND, 63.86 ACRES  
HARRELL ROAD & SCHNEIDER ROAD  
HOWE, GRAYSON COUNTY, TEXAS 75459**

**TERRA-SOLVE PROJECT NO. 22690**

Dear Mr. Davis:

In accordance with the authorization dated April 19, 2022, Terra-Solve, Inc., (Terra-Solve) has performed a Phase I Environmental Site Assessment (ESA) of the above-referenced property. The purpose of this assessment was to evaluate potential *recognized environmental conditions* from on-site or off-site sources. A review of available current and historical records was conducted to assess the use of the property regarding current and prior hazardous substances usage, storage, or disposal. Public information concerning nearby properties was also reviewed. The attached report provides a summation of the findings of this assessment. The scope of services for this project is in general accordance with the American Society for Testing and Materials (ASTM) document *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Designation: E 1527-13)* with modifications noted in Section 2.3.

We appreciate the opportunity to work with you on this project. If you have any questions or comments regarding this report, or if we can be of further service to you, please contact us at (972) 267-1900.

Respectfully Submitted,  
**Terra-Solve, Inc.**

Charles R. Robertson, CPG, P.G.  
President

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## 1.0 EXECUTIVE SUMMARY

### 1.1 General Information

**Project Information:**

One Tract of Improved Land, 63.86 acres  
Grayson County, Texas

**Site Information:**

Vacant Land  
Harrell Road & Schneider Road  
Howe, Texas

**Consultant Information:**

Terra-Solve Inc.  
P.O. Box 702522  
Dallas, Texas 75370

**Client Information:**

Mr. David C. Davis, President  
D2 Development, Inc.  
1830 Silverside Drive  
Grapevine, TX 76051

**Telephone:** (972) 267-1900

**Telephone:** (214) 532-5720

**Fax:** (462) 687-8583

**Fax:**

**Reconnaissance Date:** May 2, 2022

**Site Access Contact:**

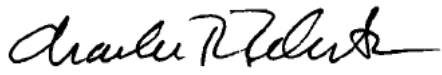
**Site Assessors:** Charles R. Robertson

**Environmental Professional:** Charles R. Robertson

**Telephone:**

**Environmental Professional Statement:**

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in § 312.10 part of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Charles R. Robertson, P.G.  
Site Assessor / Environmental Professional



5/12/2022

## 1.2 Summary

At the request of D2 Development, Inc., (Client), Terra-Solve Inc. (Terra-Solve) performed a Phase I Environmental Site Assessment (ESA) of the one tract of land, 63.86 acres (herein referred to as the property). The property is located on the west side of Harrell Road north of its intersection with Schneider Road and consists of one irregular-shaped tract of land with a total area of approximately 63.86 acres. The property is bounded by wooded land to the north; Harrell Road, vacant agricultural land, and residential land to the east; Schneider Road and residential land to the south; and vacant wooded land to the west in Howe, Grayson County, Texas, 75459.

The site reconnaissance was conducted by Mr. Charles R. Robertson of Terra-Solve, Inc., on May 2, 2022.

The main objective of the Phase I ESA was to identify the presence or likely presence, use, or release on the property of hazardous substances or petroleum products as defined in American Society for Testing and Materials (ASTM) Practice E 1527-13 as a recognized environmental condition.

### ***Records Review***

- The earliest historical records obtained by Terra-Solve was an aerial photograph from 1942 showing the site as vacant land with a farm residence and several outbuildings.
- According to the EPA's Radon database, Grayson County is located in Radon Zone 3, which indicates that the average indoor level of radon is predicted to be <2.0 pCi/L.
- The FEMA Flood Insurance Rate Map (FIRM) shows a small portion of the site is located in the 100-year flood zone.
- The National Wetland Inventory map shows that the site contains four identified wetlands and is bounded by a fifth.
- The site appears to have no cultural, historical, or critical habitat concerns.

### ***Site Reconnaissance***

- The site is currently vacant land with a small amount of dumped building materials.
- The site has one large pond and is bounded by a second pond on the northeast and by a creek on the west. It also has a creek with standing water on its southeastern corner.

### ***Conclusions***

This assessment has revealed evidence of no *recognized environmental conditions*, two areas of concern, and one *de minimis* condition in connection with the property:

- The flood insurance maps for the site indicate that while the vast majority of the site is located within Zone X, defined as an area of minimal flood hazard, the westernmost portion of the site (about 9 acres) is located in Zone A, defined as the hundred-year flood zone. This designation is

considered to present a concern to future development of this portion of the site and should be considered during any development of the site.

- The National Wetland Inventory map indicates that the site contains four identified wetlands and is bounded on the west by a fifth. Three ponds are shown (only two of which was observed on site on the southeastern quadrant and on the eastern boundary) as is a stream with an inundated area which was observed on the extreme southeast corner of the site. The western property boundary also classified as a wetland. This investigation did not include a formal determination relating to the presence of possible wetlands areas on-site. Terra-Solve recommends that this determination be made prior to future additional development of the site.
- The site currently contains minor amounts of dumped debris. These materials constitute only a *de minimis* condition to the property but should be properly disposed.

## 2.0 INTRODUCTION

This report documents the findings, opinions, and conclusions of a Phase I ESA of the property, which consists of one tract of land at the northwest corner of the intersection of Harrell Road and Schneider Road, a total area of approximately 63.86 acres in Howe, Grayson County, Texas, 75459.

### 2.1 Purpose

The purpose of this Phase I ESA was to identify *recognized environmental conditions* (presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to a release to the environment) in accordance with the scope of ASTM Practice E 1527-13 in connection with the property at the time of the site reconnaissance.

### 2.2 Scope

This Phase I ESA was conducted in general accordance with the ASTM Standard Practice E 1527-13, consistent with a level of care and skill ordinarily practiced by an environmental consulting profession currently providing similar services under similar circumstances. Significant additions, deletions, or exceptions to ASTM Practice E 1527-13 are noted below or in the corresponding sections of this report. The scope of this assessment included an evaluation of the following:

- Physical setting characteristics of the property through a review of referenced sources such as topographic maps and geologic, soils and hydrologic reports.
- Usage of the property, adjoining properties and surrounding area through a review of referenced sources such as land title records, fire insurance maps, city directories, aerial photographs, prior reports, and interviews.
- Observations and interviews regarding current property usage and conditions including the use, treatment, storage, disposal or generation of hazardous substances, petroleum products, hazardous wastes, nonhazardous solid wastes and wastewater.
- Usage of adjoining and surrounding area properties and the likely impact of known or suspected releases of hazardous substances or petroleum products from those properties on the property.
- Information in referenced environmental agency databases and records.

### 2.3 Limitations and Exceptions

Terra-Solve has prepared this Phase I ESA report using reasonable efforts to identify *recognized environmental conditions* associated with hazardous substances or petroleum products at the property. Findings contained within this report are based on information collected from observations made on the day(s) of the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

The ASTM Standard Practice E 1527-13 recognizes inherent limitations for Phase I ESAs, including, but not limited to:

- *Uncertainty Not Eliminated* – A Phase I ESA cannot wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with any property.
- *Not Exhaustive* – A Phase I ESA is not an exhaustive investigation of the property and environmental conditions on such property.
- *Past Uses of the Property* – Phase I requirements only require review of standard historical sources at five-year intervals. Therefore, past uses of property at less than five-year intervals may not be discovered.

Users of this report may refer to ASTM Standard Practice E 1527-13 for further information regarding these and other limitations. This report is not definitive and should not be assumed to be a complete and/or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions determined by surface observations, interviews, and reviews of historical sources. The most reliable method of evaluating subsurface conditions is through intrusive techniques, which are beyond the scope of this report. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other property construction purposes. Any use of this report by any party, beyond the scope and intent of the original parties, shall be at the sole risk and expense of such user.

Terra-Solve makes no representation or warranty that the past or current operations at the property are, or have been, in compliance with all applicable federal, state, and local laws, regulations, and codes. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Regardless of the findings stated in this report, Terra-Solve is not responsible for consequences or conditions arising from facts not fully disclosed to Terra-Solve during the assessment.

An independent data research company provided the government agency database referenced in this report. Information on surrounding area properties was requested for approximate minimum search distances and is assumed to be correct and complete unless obviously contradicted by Terra-Solve's observations or other credible referenced sources reviewed during the assessment. Terra-Solve shall not be liable for any such database firm's failure to make relevant files or documents properly available, to properly index files, or otherwise to fail to maintain or produce accurate or complete records.

Terra-Solve used reasonable efforts to identify evidence of aboveground and underground storage tanks and ancillary equipment on the property during the assessment. "Reasonable efforts" were limited to observation of accessible areas, review of referenced public records and interviews. These reasonable efforts may not identify subsurface equipment or evidence hidden from view by things including, but not limited to, snow cover, paving, construction activities, stored materials and landscaping.

Any estimates of costs or quantities in this report are approximations for commercial real estate transaction due diligence purposes and are based on the findings, opinions, and conclusions of this assessment, which are limited by the scope of the assessment, schedule demands, cost constraints, accessibility limitations, and other factors associated with performing the Phase I ESA. Subsequent determinations of costs or quantities may vary from the estimates in this report. The estimated costs or quantities in this report are not intended to be used for financial disclosure related to the Financial Accounting Standards Board (FASB) Statement No. 143, FASB Interpretation No. 47, Sarbanes/Oxley Act or any United States Securities and Exchange Commission reporting obligations, and may not be used for such purposes in any form without the express written permission of Terra-Solve.

Terra-Solve is not a professional title insurance or land surveyor firm and makes no guarantee, express or implied, that any land title records acquired or reviewed in this report, or any physical descriptions or depictions of the property in this report, represent a comprehensive definition or precise delineation of property ownership or boundaries.

The Environmental Professional Statement in Section 11.0 of this report does not “certify” the findings contained in this report and is not a legal opinion of such *Environmental Professional*. The *Environmental Professional* Statement is intended to document Terra-Solve’s opinion that an individual meeting the qualifications of an Environmental Professional was involved in the performance of the assessment and that the activities performed by, or under the supervision of, the *Environmental Professional* were performed in conformance with the standards and practices set forth in 40 CFR Part 312 per the methodology in ASTM Standard Practice E 1527-13 and the scope of work for this assessment.

Per ASTM Standard Practice E 1527-13, Section 6, User Responsibilities, the User of this assessment has specific obligations for performing tasks during this assessment that will help identify the possibility of *recognized environmental conditions* in connection with the property. Failure by the User to fully comply with the requirements may impact their ability to use this report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Terra-Solve makes no representations or warranties regarding a User’s qualification for protection under any federal, state, or local laws, rules, or regulations.

In accordance with the ASTM Standard Practice E 1527-13, this report is presumed to be valid for a six-month period. If the report is older than six months, the following information must be updated for the report to be valid: (1) regulatory review, (2) site visit, (3) interviews, (4) specialized knowledge and (5) environmental liens search. Reports older than one year may not meet the ASTM Standard Practice 1527-13 and therefore, the entire report must be updated to reflect current conditions and property-specific information.

Other limitations and exceptions that are specific to the scope of this report may be found in corresponding sections.

There were no deviations from the requirements of 40 CFR Part 312 with the scope and limitations set forth in ASTM Standard Practice E 1527-13 of which Terra-Solve is aware that would affect the conclusions of this Phase I ESA.

During the performance of this assessment, no significant data gaps were encountered. Information provided by others to Terra-Solve is assumed to be accurate and complete, and Terra-Solve has made reasonable inquiry into the accuracy of such information. As discussed above, there are limitations to these assumptions. The data gaps encountered consist of the following:

<b>Data Gap</b>	<b>Discussion</b>
No data from prior to 1942 was found.	Though this date is after the 1940 date of requirement, the land was mostly undeveloped at that time with only a farm residence with outbuildings. Therefore, sufficient information has been found to determine likely usage of site and site area.

#### 2.4 Special Terms and Conditions (User Reliance)

This report is for the use and benefit of, and may be relied upon by, D2 Development, Inc., and any of its affiliates, and third parties authorized in writing by D2 Development, Inc., and Terra-Solve, including the lender(s) in connection with a secured financing of the property, and their respective successors and assigns. Any third party agrees by accepting this report that any use or reliance on this report shall be limited by the exceptions and limitations in this report, and with the acknowledgment that actual site conditions may change with time, and that hidden conditions may exist at the property that were not discovered within the authorized scope of the assessment. Any use by or distribution of this report to third parties, without the express written consent of Terra-Solve, is at the sole risk and expense of such third party.

Terra-Solve makes no other representation to any third party except that it has used the degree of care and skill ordinarily exercised by environmental consultants in the preparation of the report and in the assembling of data and information related thereto. No other warranties are made to any third party, either expressed or implied. Unless otherwise agreed upon in writing by Terra-Solve and a third party, Terra-Solve's liability to any third party authorized to use or rely on this report with respect to any acts or omissions shall be limited to a total maximum amount of \$1,000,000.

### 3.0 SITE DESCRIPTION

#### 3.1 Location and Legal Description

The property is located on the west side of Harrell Road north of its intersection with Schneider Road and consists of one irregular-shaped tract of land with a total area of approximately 63.86 acres (**Appendix A, Photographs 1, 2, 3, 4, 5, 6, 7, and 8**). The property is bounded by wooded land to the north; Harrell Road, vacant agricultural land, and residential land to the east; Schneider Road and residential land to the south; and vacant wooded land to the west in Howe, Grayson County, Texas, 75459.

The latitude of the center of the property is approximately 33° 33' 46.27"N and the longitude is approximately 96° 34' 15.07"W. The legal description of the property is included in **Appendix D**.

The site is owned by a husband and wife, Mamidi Subrahmanyam and Satya Gayatri. Site Photographs are provided in **Appendix A**, a Site Vicinity Map is provided in **Appendix B**, and the Site Plan is included in **Appendix C**.

#### 3.2 Surrounding Area General Characteristics

The property is located in an area of vacant and rural residential properties northeast of Howe. The property is comprised of one tract of unimproved land totaling approximately 63.86 acres.

#### 3.3 Current Use of the Property

The property is owned by Mamidi Subrahmanyam and Satya Gayatri, husband and wife, and is currently vacant land. The property **does not appear** in the environmental databases as a Federally-listed facility or as a State-listed facility (see **Section 5.1.2**).

#### 3.4 Description of Property Improvements

The following table provides general descriptions of the property improvements.



<b>PROPERTY IMPROVEMENTS</b>	
<b>Size of Property (approximate)</b>	The entire property is approximately 63.86 acres in size.
<b>General Topography of Property</b>	The property is located at an elevation of approximately 780-690 feet above mean sea level (MSL). The site has a topographic high near its south-central portion with drainage to the northwest and west and to the southeast toward tributaries of Chocktaw Creek and Cedar Creek, respectively.
<b>Adjoining and/or Access/Egress Roads</b>	Access to the property is available from Harrell Road.
<b>Paved or Concrete Areas (including parking)</b>	None
<b>Unimproved Areas</b>	All
<b>Landscaped Areas</b>	None
<b>Surface Water</b>	Creek, wetlands
<b>Potable Water Source</b>	None currently
<b>Sanitary Sewer Utility</b>	None currently
<b>Storm Sewer Utility</b>	None
<b>Electrical Utility</b>	Oncor Energy (future)
<b>Natural Gas Utility</b>	Atmos Energy (future)
<b>Current Occupancy Status</b>	Unoccupied
<b>Unoccupied Buildings/Spaces/Structures</b>	None
<b>Number of Buildings:</b>	N/A
<b>General Building Description</b>	N/A
<b>Number of Floors:</b>	N/A
<b>Total Square Feet of Space (approximate)</b>	N/A
<b>Construction Completion Date (year)</b>	N/A
<b>Construction Type</b>	N/A
<b>Interior Finishes Description</b>	N/A
<b>Exterior Finishes Description</b>	N/A
<b>Cooling System Type</b>	N/A
<b>Heating System Type</b>	N/A
<b>Emergency Power</b>	N/A

### 3.5 Current Uses of Adjoining Properties

Current uses of the adjoining properties (including the nearest properties separated by a street or highway) were observed to be as follows:

- North** – The site is bordered by wooded land and a rural residence with rural residential property beyond (**Appendix A, Photographs 8 and 9**).
- East** – The property is bordered by agricultural land, a rural residence, and Harrell Road with rural single-family residences beyond (**Appendix A, Photograph 10**).
- South** – The property is bordered by a rural single-family residences and Schneider Road with additional rural residences beyond (**Appendix A, Photographs 11 and 12**).
- West** – The property is bordered by a creek and wooded area with vacant agricultural land and rural single-family residences beyond (**Appendix A, Photograph 13**).

These facilities are discussed further in **Section 5.1.2**.

#### **4.0 USER / OTHER PROVIDED INFORMATION**

The following section summarizes information included on the Client Questionnaire provided by Mamidi Subrahmanyam, the property owner (**Appendix J**).

##### **4.1 Title Records**

Terra-Solve was not contracted to secure or review title records regarding the property. Information available on the Grayson County Central Appraisal District indicates that a husband and wife, Mamidi Subrahmanyam and Satya Gayatri, are the property owners, having purchased the site in December 2020.

##### **4.2 Environmental Liens and Activity and Land Use Limitations (AULs)**

Terra-Solve contracted with Texas Environmental Research to secure a list of environmental liens regarding the property. No such liens were found (**Appendix D**).

##### **4.3 Specialized Knowledge**

Mr. Subrahmanyam indicated he has no specialized knowledge regarding *recognized environmental conditions* associated with the property or nearby properties in the questionnaire.

##### **4.4 Commonly Known or Reasonably Ascertainable Information**

Mr. Subrahmanyam indicated he is unaware of commonly known or reasonably ascertainable information about the property that would help to identify conditions indicative of releases or threatened releases. Mr. Patel has been associated with the property for over 1 year.

##### **4.5 Significant Valuation Reduction for Environmental Issues**

Mr. Subrahmanyam stated he is unaware of any environmental issues that would affect the fair market value of the property.

##### **4.6 Owner, Property Manager and Occupant Information**

The property is owned by a husband and wife, Mamidi Subrahmanyam and Satya Gayatri, and is currently vacant land.

##### **4.7 Reason for Performing Phase I ESA**

According to Mr. Deskins, the reason for conducting this Phase I ESA is the possible sale of the property.

##### **4.8 Other User Provided Documents**

Terra-Solve was provided a boundary survey (**Appendix J**).

## 5.0 RECORDS REVIEW

### 5.1 Standard Environmental Records

The regulatory agency database report discussed in this section, provided by Eris of Buffalo, New York, was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the property. Terra-Solve also reviews the “unmappable” (also referred to as “orphan”) listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property based on the partial street address, city, or zip code. Any unmappable site that was identified by Terra-Solve as a being within the approximate minimum search distance from the property based on the site reconnaissance and/or cross-referencing to mapped listings, is included in the discussion within this section. A copy of the regulatory database report is included in **Appendix H**. The following is a summary of the findings of the database review:

PHASE I ENVIRONMENTAL SITE ASSESSMENT  
 One Tract of Unimproved Land • 63.86 Acres  
 Harrell Road & Schneider Road; Howe, Texas 75459

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b>Standard Environmental Records</b>								
<b>Federal</b>								
DOE FUSRAP	Y	1	0	0	0	0	0	0
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0

PHASE I ENVIRONMENTAL SITE ASSESSMENT  
 One Tract of Unimproved Land • 63.86 Acres  
 Harrell Road & Schneider Road; Howe, Texas 75459

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
<b>State</b>								
SUPERFUND	Y	1	0	0	0	0	0	0
SHWS	Y	1	0	0	0	0	0	0
DELISTED SHWS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
CLI	Y	0.5	0	0	0	0	-	0
HGAC CLI	Y	0.5	0	0	0	0	-	0
AACOG CLI	Y	0.5	0	0	0	0	-	0
IHW	Y	0.25	0	0	0	-	-	0
IHW RECEIVER	Y	0.5	0	0	0	0	-	0
RWS	Y	0.5	0	0	0	0	-	0
LPST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
PST	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	0	-	-	0
UST AUSTIN	Y	0.25	0	0	0	-	-	0
PETROL CAVERN	Y	0.25	0	0	0	-	-	0
DTNK	Y	0.25	0	0	0	-	-	0
AUL	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
VCP RRC	Y	0.5	0	0	0	0	-	0
OP CLEANUP	Y	0.5	0	0	0	0	-	0
IOP	Y	0.5	0	0	0	0	-	0
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
BROWN RRC	Y	0.5	0	0	0	0	-	0
MSD	Y	0.5	0	0	0	0	-	0

PHASE I ENVIRONMENTAL SITE ASSESSMENT  
 One Tract of Unimproved Land • 63.86 Acres  
 Harrell Road & Schneider Road; Howe, Texas 75459

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b>Tribal</b>								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED ILST	Y	0.5	0	0	0	0	-	0
DELISTED IUST	Y	0.25	0	0	0	-	-	0

**County** *No County standard environmental record sources available for this State.*

**Additional Environmental Records**

<b>Federal</b>								
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
URANIUM	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0

PHASE I ENVIRONMENTAL SITE ASSESSMENT  
 One Tract of Unimproved Land • 63.86 Acres  
 Harrell Road & Schneider Road; Howe, Texas 75459

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCB	Y	0.5	0	0	0	0	-	0
<b>State</b>								
PRIORITY CLEAN	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
GWCC	Y	0.125	0	0	-	-	-	0
GWCC HIST	Y	0.125	0	0	-	-	-	0
APAR	Y	0.5	0	0	0	0	-	0
SPILLS	Y	0.125	0	0	-	-	-	0
IHW CORR ACTION	Y	1	0	0	0	0	1	1
PFAS	Y	0.5	0	0	0	0	-	0
LAND APPL	Y	0.25	0	0	0	-	-	0
NOV	Y	0.25	0	0	0	-	-	0
NOE	Y	0.25	0	0	0	-	-	0
LIENS	Y	PO	0	-	-	-	-	0
ORD	Y	0.25	0	0	0	-	-	0
HIST RCRA GEN	Y	0.125	0	0	-	-	-	0
RTOL	Y	0.25	0	0	0	-	-	0
UIC	Y	0.25	0	0	0	-	-	0
IHW GENERATOR	Y	0.125	0	0	-	-	-	0
IHW TRANSPORT	Y	0.125	0	0	-	-	-	0
AIR PERMITS	Y	0.25	0	0	0	-	-	0
TIER 2	Y	0.125	0	0	-	-	-	0
EDWARDS AQUIFER	Y	PO	0	-	-	-	-	0

**Tribal** *No Tribal additional environmental record sources available for this State.*

**County** *No County additional environmental record sources available for this State.*

**Total:** 0 0 0 0 1 1

\* PO – Property Only  
 \* 'Property and adjoining properties' database search radii are set at 0.25 miles.

### 5.1.1 Federal Agency and Tribal Database Findings

The site **is not listed** in the federal databases searched by Eris. No locations were identified within the search radius.

### 5.1.2 State Agency Database Findings

The site **is not listed** in the State Agency database. The following locations were identified within the search radius:

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#### Howe Site

1522 Bennett Road  
Howe, Texas 75459

**Databases:** IHW CORR ACTION

**Approximate Distance from the Property:** 3,150 feet southwest

**Assumed Groundwater Gradient:** upgradient

**Regulatory Data Summary:** The site is listed as an inactive site which has completed its corrective action workload in 2019.

**Discussion:** Due to the nature of the listing and its closed and completed status, this listing is considered to **not** represent a *recognized environmental condition* to the property.

### 5.1.3 Local Regulatory Agency Findings

Terra-Solve filed an Open Records Request with The City of Howe for various departments in an effort to obtain information regarding tanks, chemical spills, hazardous materials incidents, stormwater compliance, building inspections, code compliance, certificates of occupancy, permits, and any other items on-file for the property. Responses are included in **Appendix L**.

Ms. Kerri Pruitt, Howe City Secretary, indicated that the department had no responsive records and indicated that the site is not in the City of Howe's ETJ. Andrew Brazie, Assistant Fire Marshal with Grayson County, also indicated they had no records relating to the site.

Residents and businesses in Howe receive its drinking water from treated groundwater from wells located in Grayson County which produce from the Woodbine Aquifer. The city's drinking water meets or exceeds all federal drinking water requirements. The EPA Safe Drinking Water Information System (SDWIS) report indicated that 0 health-based violations and 2 reporting violations have occurred in the last 10 years. A copy of this information is included in **Appendix K**.

No additional local environmental records sources were reviewed.

## 5.2 Physical Setting Sources

### 5.2.1 Topography

Based on Terra-Solve's review of the United States Geological Survey (USGS) 7.5 Minute Topographic Maps of the *Howe, Texas*, Quadrangle (1995), the property is located at an elevation of approximately of approximately 780-690 feet above mean sea level (MSL). The site has a topographic high near its south-



central portion with drainage to the southeast and to the west and northwest toward tributaries of Cedar Creek and Chocktaw Creek, respectively. A copy of the topographic map is included in **Appendix H**.

### 5.2.2 Geology

According to the *Geologic Atlas of Texas, Sherman Sheet* (1967, revised 1991) the property is located on Cretaceous-age Austin Chalk. This formation consists of chalk interbedded with calcareous clay in its upper and lower parts and thin-bedded marl in its middle part. This formation is about 600 feet thick and overlies the Eagle Ford Formation which in turn overlies the Woodbine Formation.

### 5.2.3 Soils

The *Soil Survey of Grayson County, Texas* as researched by an inquiry to the USDA National Resources Conservation Service (NRCS) database indicates that soil underlying the site is classified as one of the following six soil types, moving from west to east across the site:

*Elbon soils, frequently flooded* - These soils are present along the stream which comprises the western property boundary and constitute about 6% of the site. These soils are comprised of 98% Elbon soils and 2% minor components. Elbon soils are present on flood plains and are derived from clayey alluvium of Holocene age derived from mixed sources. These soils consist of clay from 0-20 inches overlying silty clay loam from 20-53 inches and clay from 53-72 inches. These soils are moderately well-drained with moderately-high water capacity.

*Whitewright-Eddy-Howe complex, 5 to 12 percent slopes* - These soils are present in the northern half of the site and constitute about 34% of the site. These soils are comprised of 41% Whitewright soils, 28% Eddy soils, 25% Howe soils, and 6% minor components. All three soils are present on ridges and are derived from residuum weathered from Austin Chalk. Whitewright soils consist of silty clay loam from 0-16 inches overlying bedrock from 16-20 inches. These soils are well-drained with moderately low to moderately-high water capacity. Eddy soils consist of silty clay loam from 0-16 inches overlying bedrock from 16-20 inches. These soils are well-drained with moderately low to moderately-high water capacity. Howe soils consist of silty clay loam from 0-22 inches overlying bedrock from 22-30 inches. These soils are well-drained with moderately low to high water capacity.

*Whitewright-Gullied land complex* - These soils are present on the southwestern portion of the site and constitute about 23% of the site. These soils are comprised of 43% Whitewright soils, 30% Gullied land, and 27% minor components. Whitewright soils are present on ridges and are described above. Gullied land is present on ridges is also derived from residuum weathered from Austin Chalk. These soils have a variable profile and drainage and water capacity.

*Fairlie and Houston Black clays, 1 to 3 percent soils* - These soils are present on the south-central portion of the site and constitute about 19% of the site. These soils are comprised of 58% Fairlie soils, 36% Houston Black soils, and 6% minor components. Fairlie soils are present on ridges and are derived from residuum weathered from Austin Chalk. These soils consist of clay from 0-46 inches overlying bedrock from 46-55 inches. The soils are moderately well-drained with very low to moderately low water capacity. Houston Black soils are also present on ridges and are derived from residuum weathered form calcareous shale. These soils consist of clay from 0-65 inches and are moderately well-drained with very low to moderately low water capacity.

*Vertel clay, 5 to 12 percent slopes* - These soils are present near the large pond on the southeastern portion of the site and constitute about 7% of the site. These soils are comprised of 100% Vertel soils. Vertel clay soils are present on ridges and are derived from clayey residuum weathered from shale. It consists of clay from 0-40 inches. These soils are well-drained with very low to moderately low water capacity.

*Howe silty clay, 5 to 8 percent slopes* - These soils are present on the southeastern portion of the site and constitute about 11% of the site. These soils are comprised of 100% Howe soils. Howe soils are present on ridges and are derived from residuum weathered from Austin Chalk. These soils consist of silty clay from 0-26 inches overlying bedrock from 26-32 inches. These soils are well-drained with very low to moderately low to high water capacity.

A subsurface soil investigation would be needed to verify actual soil types and conditions. Such an evaluation was beyond the scope of this assessment. Copies of the above information are included in **Appendix K**.

#### **5.2.4 Hydrology**

As interpreted from the USGS topographic map and based on local well reports, local shallow groundwater in the property area is anticipated to be between 20 feet and 30 feet below ground surface. Groundwater flow direction is likely generally to the north-northwest toward Chocktaw Creek. Therefore, in assessing potential external environmental impact, properties located south-southeast of the property are of greater primary concern due to their inferred up gradient locations. However, actual groundwater gradient is often locally influenced by factors such as underground structures, seasonal fluctuations, soil and bedrock geology, production wells, and other factors beyond the scope of this study.

Based on Terra-Solve's review of the Ground-Water Quality of Texas (1989), the property is underlain by the Trinity major aquifer and Woodbine minor aquifer. The Trinity Aquifer consists of the early Cretaceous age Paluxy, Glen Rose, and Twin Mountains-Travis Peak formations. Extensive historical development of the Trinity Aquifer in the Dallas-Fort Worth region has caused the water level to drop as much as 550 feet. Since the mid-1970s, many public water supply wells have been abandoned, and surface water is currently the primary water source for the area. The Woodbine Aquifer is a minor aquifer which overlies the Trinity Aquifer in northeast Texas and consists of sandstone interbedded with shale and clay that form three distinct water-bearing zones. The Woodbine Aquifer reaches 600 feet in thickness in subsurface areas, and freshwater saturated thickness averages about 160 feet. Water quality and yield vary with the depth of the aquifer. The aquifer provides water for municipal, industrial, domestic, livestock, and small irrigation supplies.

No registered water wells are located within 0.5-mile of the site. The nearest identifiable registered water well as shown on the Texas Water Development Board Online viewer is a 1,260-foot deep public supply well installed in 1967; this well is located approximately 2,850 feet southwest of the site and is an active well owned by Luella Water Supply Corp. (**Appendix K**). Estimated groundwater levels and/or flow directions may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations, and can be more accurately determined through the installation of groundwater monitoring wells. Terra-Solve did not obtain any additional information concerning the hydrology of the subject property during the course of this investigation.

### 5.2.5 Flood Plain Map

Terra-Solve reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for Grayson County, Texas, and Incorporated Areas, Panel Numbers 48181C0405F and 48181C0425F dated September 29, 2010. From the maps, it is apparent that while the vast majority of the site is located within Zone X, defined as an area of minimal flood hazard, the westernmost portion of the site (about 9 acres) is located in Zone A, defined as the hundred-year flood zone. This designation is considered to present a concern to future development of this portion of the site and should be considered during any development of the site. A copy of the FEMA map is located in **Appendix K**.

### 5.2.6 Naturally Occurring Asbestos, Methane Gas, and Radon

1) *Radon Gas* - Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of radioactive materials potentially present in bedrock and soil. Radon gas may enter the lowest level of a building through floor cracks, structural joints, or plumbing conduits. The EPA guidance action level for annual residential exposure to radon is 4.0 Pico Curies per liter of air (pCi/L). The guidance action level is not a regulatory requirement for private owners of commercial real estate, but is commonly used for comparison purposes to suggest whether further action at a building may be prudent.

Terra-Solve's review of published propensity data revealed that the property is located in USEPA Radon Zone 3, which indicates that the average indoor level of radon is predicted to be <2.0 pCi/L. Documentation of this information is provided in **Appendix K**. Based on this information and the unimproved nature of the property, it was not necessary to conduct radon tests and no additional investigation with regard to radon is recommended at this time.

2) *Naturally Occurring Asbestos* - Based on review of the geologic information for this area, no serpentine occurs at or near (within 2,000 feet) of the ground surface on the property or in surrounding areas. Therefore, the potential for naturally occurring asbestos in the rocks or soil at the property is considered to be low.

3) *Methane* - Terra-Solve's review of the Railroad Commission of Texas on-line database of pipelines, oil wells, and gas wells and of the aerial photographs back to 1942 (see **Section 5.3.1**) indicates no natural gas or oil gathering or transmission pipelines or wells in the site area. A copy of the Railroad Commission map is included in **Appendix K**.

Based on the information reviewed, the potential for naturally occurring methane gas at the property is considered **low**.

### 5.2.7 Water Supply Wells

Terra-Solve's review of the Texas Water Development Board on-line well viewer revealed that no existing water supply wells and no public supply wells are located within 0.5 mile of the site. A copy of the TWDB map is included in **Appendix K**.

### 5.2.8 Meteorological Trends

Terra-Solve reviewed the Weatherbase website which collects data from the National Oceanic & Atmospheric Administration pertaining to the climate of the property. According to the database, Sherman, the nearest station to the site, has had a mean high temperature of 75 degrees Fahrenheit and a

mean low temperature of 54 degrees Fahrenheit and an average annual precipitation of 38.1 inches for the past 58 years. This information is included in **Appendix K**.

### **5.2.9 Coastal Barrier Improvement Act**

Grayson County is located greater than 100 miles from the shoreline and therefore is not situated near a coastal barrier.

### **5.2.10 Historical Preservation Classification**

Terra-Solve reviewed information from the Texas Historical Commission for information regarding National Historic Landmarks, National Register of Historic Places, Recorded Texas Historic Landmarks, and Historic Texas Cemeteries. According to the Texas Historical Commission website, there are no historical preservation sites associated with the property. A copy of the Historical Commission map is included in **Appendix D**.

### **5.2.11 Natural Resources (Critical Habitat and Endangered Species and Wetlands)**

1) *Critical Habitat and Endangered Species* - Terra-Solve reviewed the Texas Parks and Wildlife Departments on-line database of Rare, Threatened, and Endangered Species for information regarding the possible occurrence of such species on the property. Based on the information from the Texas Parks and Wildlife Department, it is possible that endangered amphibians (4 species), birds (11 species), fish (9 species), insects (2 species), mammals (10 species), mollusks (1 species), reptiles (9 species), and plants (3 species) could be encountered on the property. As the site is relatively large and undeveloped and treed, it is conceivable though unlikely that one or more of the listed species could be present. A copy of this information is included in **Appendix K**.

2) *Wetlands* - Terra-Solve reviewed the U.S. Department of the Interior, Fish & Wildlife Service's National Wetland Inventory using its online mapping tool. The map indicates that the site contains four identified wetlands and is bounded on the west by a fifth. Three ponds are shown (only two of which was observed on site on the southeastern quadrant and on the eastern boundary) which are classified as PUBHh (**Appendix K**). This designation refers to a palustrine (marsh) which has an unconsolidated bottom and is permanently flooded and is impounded. A stream with an inundated area was observed on the extreme southeast corner of the site; it is classified as R4SBC. This designation describes an intermittent riverine (streambed) that is seasonally flooded. The area was observed to inundated after a recent rainfall. Finally, the western property boundary is designated as PFO1A. This designation refers to a marshy area characterize by broad-leaved deciduous trees that is temporarily flooded. Please note that this investigation did not include a formal determination relating to the presence of possible wetlands areas on-site; this determination should be made prior to future development of the site.

### **5.2.12 Cultural Resources**

Terra-Solve reviewed information with the Texas Historical Commission for information regarding National Historic Landmarks, National Register of Historic Places, Recorded Texas Historic Landmarks, and Historic Texas Cemeteries. No historical preservation sites are associated with the property. A copy of the Historical Commission map is included in **Appendix D**.

### 5.3 Historical Use Information

The following table summarizes the findings of the research presented below pertaining to historical property and surrounding area uses.

<b>HISTORICAL USE SUMMARY</b>				
<b>Period</b>	<b>Identified Historical Uses</b>		<b>Source(s)</b>	<b>Intervals/ Comments</b>
	<b>Property</b>	<b>Surrounding Area</b>		
Prior to 1942	Farm residence with outbuildings	Vacant farm and pastureland with scattered rural residences	Aerial Photograph (1942)	Data failure
1942 to ca. 1995	Farm residence with outbuildings	Vacant farm and pastureland with scattered rural residences	Aerial Photographs (1952, 1964, 1972, 1974, 1981, 1989, 1995), Topo Maps (1958, 1974)	
Ca. 1995 to present	Current configuration with channelized creek	Mostly current configuration by 2004	Aerial Photographs (2004, 2005, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020); Topo Maps (2008, 2013)	

Terra-Solve encountered data failure for years prior to 1942 as none of the historical sources utilized as part of this assessment covered this period. No additional historical sources that were deemed reasonably ascertainable and likely to be sufficiently useful were identified at the time of this assessment. However, it is not expected that this limitation would alter the conclusions of this report.

#### 5.3.1 Aerial Photographs

Terra-Solve reviewed available aerial photographs of the property and surrounding areas as provided by Eris. The following are descriptions and interpretations from review of the aerial photographs. Copies of these aerial photographs are included in **Appendix E**.

<b>AERIAL PHOTOGRAPH SUMMARY</b>		
<b>Year</b>	<b>Scale</b>	<b>Comments</b>
1942	1 inch = 500 feet	<p><b>Property:</b> The site is mostly vacant land with pasture in the northern portion and a wooded area in the south with a farm residence with outbuildings in the far southeastern portion. A creek is present on the western property boundary.</p> <p><b>Surrounding Area:</b> The surrounding area is all vacant farmland and pastureland with scattered farm residences, including the still-existing one east of the central portion of the site.</p>
1952	1 inch = 500 feet	<p><b>Property:</b> The property is as above. The treed portion has been reduced in favor of expanded pastureland.</p> <p><b>Surrounding Area:</b> The site area is as above.</p>
1964	1 inch = 500 feet	<p><b>Property:</b> The property is as above. Ponds are now visible on the northwestern and southeastern portions of the site.</p> <p><b>Surrounding Area:</b> The site area is as above.</p>
1972	1 inch = 500 feet	<p><b>Property:</b> The property is as above with a pond now in place near the homestead area.</p> <p><b>Surrounding Area:</b> The site area is as above.</p>

<b>AERIAL PHOTOGRAPH SUMMARY</b>		
<b>Year</b>	<b>Scale</b>	<b>Comments</b>
1974	1 inch = 500 feet	<b>Property:</b> The property is as above. <b>Surrounding Area:</b> The site area is as above.
1981	1 inch = 500 feet	<b>Property:</b> The property is as above. The pond near the homestead is now gone replaced by a straightened creek. <b>Surrounding Area:</b> The site area is as above.
1989	1 inch = 500 feet	<b>Property:</b> The property is as above. <b>Surrounding Area:</b> The site area is as above.
1995	1 inch = 500 feet	<b>Property:</b> The property is now essentially in its current configuration as the homestead is no longer visible and the northwestern pond is no longer visible. <b>Surrounding Area:</b> The site area is much as above with continued infill north and east of the site
2004	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is much in its current configuration with the construction of the rural residences to the south of the site.
2005	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2006	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2008	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2010	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2012	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2014	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2016	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2018	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.
2020	1 inch = 500 feet	<b>Property:</b> The property appears as above. <b>Surrounding Area:</b> The site area is as above.

### 5.3.2 Fire Insurance Maps

Terra-Solve reviewed the availability of Sanborn Fire Insurance Maps for the location. No coverage was found.

### 5.3.3 Property Tax Files

Tax records for the property were reviewed. Copies of these records are included in **Appendix D**.

#### **5.3.4 Recorded Land Title Records**

Terra-Solve was not contracted to secure or review title records regarding the property.

#### **5.3.5 Historical USGS Topographic Quadrangles**

Terra-Solve viewed historical topographic maps from the years 1958, 1974, 2008, and 2013 on the University of Texas Perry-Casteñada Library website. The 1958 and 1974 maps show the site and site area as mostly vacant land with a single structure at its extreme southeastern corner. The 2008 map has an aerial photograph base map; the structure cannot be seen while the 2013 map design shows only elevations and natural features.

#### **5.3.6 City Directories**

Due to the rural nature of the site location, no city directories showing the site appear to exist.

#### **5.3.7 Building Department Records**

See Section 5.1.3.

#### **5.3.8 Zoning/Land Use Records**

See Section 5.1.3.

#### **5.3.9 Prior Reports**

No prior reports were furnished.

#### **5.3.10 Other Historical Sources**

No other records were reviewed as no additional sources were deemed reasonably ascertainable and likely to be sufficiently useful at the time of this assessment. However, it is not expected that this limitation would alter the conclusions of this report.

## 6.0 SITE RECONNAISSANCE

The site reconnaissance was conducted by Mr. Charles Robertson of Terra-Solve on May 2, 2022. The following is a summary of visual and/or physical observations of the property on the day of the site visit. Site photographs can be found in **Appendix A**.

### 6.1 Methodology and Limiting Conditions

The site reconnaissance consisted of visual and/or physical observations of the property and improvements; adjoining sites as viewed from the property and public thoroughfares; and the surrounding area based on visual observations made during the trip to and from the property. The methodology for observation is that unimproved portions of the property are observed along the perimeter and in a general grid pattern in safely accessible areas. Building exteriors, if present, are observed along the perimeter from the ground, unless described otherwise. Building interiors, if present, are observed as they were made safely accessible, unless described otherwise. The weather was warm and overcast at the time of the site visit, with overgrown and boggy areas near the western, northern, and northeastern portions presenting additional visibility limitations.

### 6.2 General Site Setting

The property is located on the west side of Harrell Road north of its intersection with Schneider Road and consists of one irregular-shaped tract of land with a total area of approximately 63.86 acres (**Appendix A, Photographs 1, 2, 3, 4, 5, 6, 7, and 8**). The property is bounded by wooded land to the north; Harrell Road, vacant agricultural land, and residential land to the east; Schneider Road and residential land to the south; and vacant wooded land to the west in Howe, Grayson County, Texas, 75459 (**Appendix A, Photographs 8, 9, 10, 11, 12, and 13**).

### 6.3 Hazardous Substance Use/Storage

Terra-Solve determined that the site currently contains no hazardous substances.

### 6.4 Storage Tanks

The site contains no storage tanks.

### 6.5 Other Petroleum Products

During the site reconnaissance, Terra-Solve observed the presence of no other petroleum products.

### 6.6 Polychlorinated Biphenyls (PCBs)

PCBs are toxic coolants or lubricating oils used in some electrical transformers, light ballasts, electrical panels, or other similar equipment. PCB content in electrical transformers has been grouped into three categories by the USEPA:

< 50 ppm	Non-PCB
50 to 499 ppm	PCB-contaminated
500 ppm and greater	PCB transformer

No transformers were observed on the site.



**6.7 Unidentified Substance Containers**

Terra-Solve observed no unidentified containers on the property. A small amount of wood and roofing shingles was observed within the trees in the north-central portion of the site (**Appendix A, Photographs 14 and 15**).

**6.8 Waste Generation, Storage and Disposal**

Terra-Solve observed the following evidence of the generation, storage, and/or disposal of wastes (hazardous or non-hazardous) on the property as summarized below.

<b>GENERATED WASTES</b>			
<b>Type of Waste</b>	<b>Generation Process</b>	<b>Type of Storage</b>	<b>Disposal Method &amp; Frequency</b>
<b>Non-hazardous Solid</b>			
Trash	N/A	N/A	N/A
<b>Non-hazardous Liquid</b>			
N/A	N/A	N/A	N/A
<b>Hazardous Solid or Liquid</b>			
N/A	N/A	N/A	N/A
<b>Non-hazardous/ Regulated Medical</b>			
N/A	N/A	N/A	N/A

**6.9 Waste Pits, Ponds, and Lagoons**

No waste pits, ponds, or lagoons were observed on the site. A pond is located on the southeastern portion of the site (**Appendix A, Photograph 16**) and another on the northeastern property line (**Appendix A, Photograph 17**). Also, an area of standing water is present on the extreme southeastern portion of the site along a creek which leads to a pond southeast of the site (**Appendix A, Photographs 1 and 18**).

**6.10 Sumps**

No sumps were observed on the site.

**6.11 Septic Systems**

The site contains no septic system.

**6.12 Storm Water Management System**

No stormwater management system is present; the pond in on the southeastern portion of the site flows outward to the southwest (**Appendix A, Photographs 19 and 20**).

**6.13 Wells**

No water wells were observed on the site.

**7.0 INTERVIEWS**

**7.1 Interview Summary**

The following persons were interviewed to obtain information regarding *recognized environmental conditions* in connection with the property and adjacent properties:

Interview Summary				
Role	Name	Title/Company	Years Assoc. With Property	Interview Type
N/A	N/A	N/A	N/A	N/A

The interviews listed in the above table and throughout this report were conducted by Mr. Robertson of Terra-Solve. Pertinent information from the interviews is discussed in applicable sections of this report with additional documentation in **Appendix L**.

**7.2 Attempted Interviews**

Terra-Solve had no attempted interviews.

**8.0 ADDITIONAL SERVICES**

**8.1 Asbestos-Containing Materials (ACM)**

An Asbestos Survey was not performed at the property.

**8.2 Lead in Drinking Water**

No screening for Lead in Drinking Water was conducted at the property.

**8.3 Lead-Based Paint (LBP)**

No screening for Lead-Based Paint was performed at the property.

**8.4 Observations of Mold**

No screening for mold was performed at the property.

## 9.0 CONCLUSIONS

Terra-Solve has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E 1527-13 of the Property, one tract with a total area of approximately 63.86 acres in Howe, Grayson County, Texas, 75459. Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report.

This assessment has revealed evidence of no *recognized environmental conditions*, two areas of concern, and one *de minimis* condition in connection with the property:

- The flood insurance maps for the site indicate that while the vast majority of the site is located within Zone X, defined as an area of minimal flood hazard, the westernmost portion of the site (about 9 acres) is located in Zone A, defined as the hundred-year flood zone. This designation is considered to present a concern to future development of this portion of the site and should be considered during any development of the site.
- The National Wetland Inventory map indicates that the site contains four identified wetlands and is bounded on the west by a fifth. Three ponds are shown (only two of which was observed on site on the southeastern quadrant and on the eastern boundary) as is a stream with an inundated area which was observed on the extreme southeast corner of the site. The western property boundary also classified as a wetland. This investigation did not include a formal determination relating to the presence of possible wetlands areas on-site. Terra-Solve recommends that this determination be made prior to future additional development of the site.
- The site currently contains minor amounts of dumped debris. These materials constitute only a *de minimis* condition to the property but should be properly disposed.

## 10.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Terra-Solve Inc. (Terra-Solve) has performed a Phase I Environmental Site Assessment (ESA) of the property located at the northwest corner of the intersection of Harrell Road & Schneider Road, one tract with a total area of approximately 63.86 acres in Howe, Grayson County, Texas, 75459. The scope of the Phase I ESA was consistent with American Society for Testing and Materials (ASTM) Standard Practice E 1527-13. The resume for the following environmental professional is included in **Appendix I**.

### Terra-Solve, Inc.



---

Charles R. Robertson, P.G.  
Site Assessor / Environmental Professional



5/12/2022

## 11.0 REFERENCES

American Society for Testing and Materials (ASTM), *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E 1527-13, Published November 1, 2013.

Environmental Protection Agency, Safe Drinking Water Information System; [http://www.epa.gov/enviro/html/sdwis/sdwis\\_ov.html](http://www.epa.gov/enviro/html/sdwis/sdwis_ov.html)

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), for Grayson, Texas, and Incorporated Areas; Panel Numbers 48181C0425F and 48181C0405F dated September 29, 2010.

*Geologic Atlas of Texas, Sherman Sheet*; University of Texas, Bureau of Economic Geology, 1967; revised 1991.

Eris, Database Report, Order Number 22041901072, April 29, 2022.

Eris, Historical Aerials, Order Number 22041901072, May 3, 2022.

Grayson County Radon Information; <http://county-radon.info/TX/Grayson.html>

National Oceanic & Atmospheric Administration, National Climatic Data Center; <http://www.noaa.com>.

Railroad Commission of Texas, Public GIS Map Viewer, <http://gis2.rrc.state.tx.us/public>.

Texas Historical Commission, Texas Historic Sites Atlas, <http://www.thc.state.tx.us/index.html>.

Texas Parks and Wildlife Department, *Rare, Threatened, and Endangered Species of Texas, Grayson County*; <http://gis.tpwd.state.tx.us/TpwEndangeredSpecies/>

United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS), *Soil Survey of Grayson County, Texas*; on-line data, 2022.

University of Texas, Perry-Casteñada Library Map Collection, Historical Topographic Map Collection; *Arlington, Texas, Quadrangle*, 1968, 1974, 2008, and 2013. <http://www.lib.utexas.edu/maps/topo/texas/>

Weatherbase.com, Weather for Arlington, Texas. [www.weatherbase.com](http://www.weatherbase.com)

### User / Other Supplied

Client Questionnaire, *Harrell Road & Schneider Road, Howe, Texas*; May 9, 2022. Completed by Mr. Mamidi Subrahmanyam.

## 12.0 APPENDICES

- Appendix A - Site Photographs**
- Appendix B - Site Vicinity Map**
- Appendix C - Site Plan**
- Appendix D - Historical Research Documentation**
- Appendix E - Aerial Photographs**
- Appendix F - Laboratory Reports (N/A)**
- Appendix G - Prior Reports (N/A)**
- Appendix H - Regulatory Database Report**
- Appendix I - Resumes/Certifications**
- Appendix J - User Provided Documentation**
- Appendix K - Other Supporting Documentation**
- Appendix L - Records of Communication**
- Appendix M - Terminology**

**APPENDIX A**  
**SITE PHOTOGRAPHS**





Photograph 1: View looking northwest of the southeastern corner of the site.



Photograph 2: View looking west of the southeastern portion of the site.





Photograph 3: View looking south of the east-central portion of the site.



Photograph 4: View looking south of the southwestern portion of the site.





Photograph 5: View looking west of the west-central southern portion of the site.



Photograph 6: View looking east of the northeastern portion of the site.





Photograph 7: View looking west of the northern portion of the site.



Photograph 8: View looking north of the northern portion of the site. Wooded land and rural residences are located beyond.





Photograph 9: View looking north of the rural residence north of the eastern portion of the site.



Photograph 10: View looking northeast of the rural residences east of the site across Harrell Road.





Photograph 11: View looking southwest of the rural residences south of the site across Schneider Road.



Photograph 12: View looking south of the single-family residences south of the western portion of the site..





Photograph 13: View looking west of the creek on the western border of the site with the wooded area beyond.



Photograph 14: View of the shingles and building material debris located in the tree line on the north-central portion of the site.





Photograph 15: View of the shingles and building material debris located in the tree line on the north-central portion of the site.



Photograph 16: View looking north of the pond on the southeastern portion of the site.





Photograph 17: View looking east showing the pond located on the east-central property line.



Photograph 18: View looking west of the inundated creek area at the southeastern corner of the site.





Photograph 19: View looking northwest showing the stream leading from the pond located on the southeast portion of the site.



Photograph 20: View south of the drainage depression leading from the pond located on the southeastern corner of the site.

**APPENDIX B**  
**SITE VICINITY MAP**

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**TERRA • SOLNE**  
 ENVIRONMENTAL CONSULTANTS  
 3216 COMMANDER DRIVE, SUITE 103  
 CARROLLTON, TX 75006-2518  
 PHONE (972) 267-1900  
 FAX (972) 267-1902

**SITE VICINITY MAP**  
 ONE TRACT OF UNIMPROVED LAND, 63.86 ACRES  
 HARRELL ROAD & SCHNEIDER ROAD  
 HOWE, GRAYSON COUNTY, TEXAS 75459

DATE:  
 MAY 2022

PROJECT NO.:  
 22690

SCALE:  
 SEE ABOVE

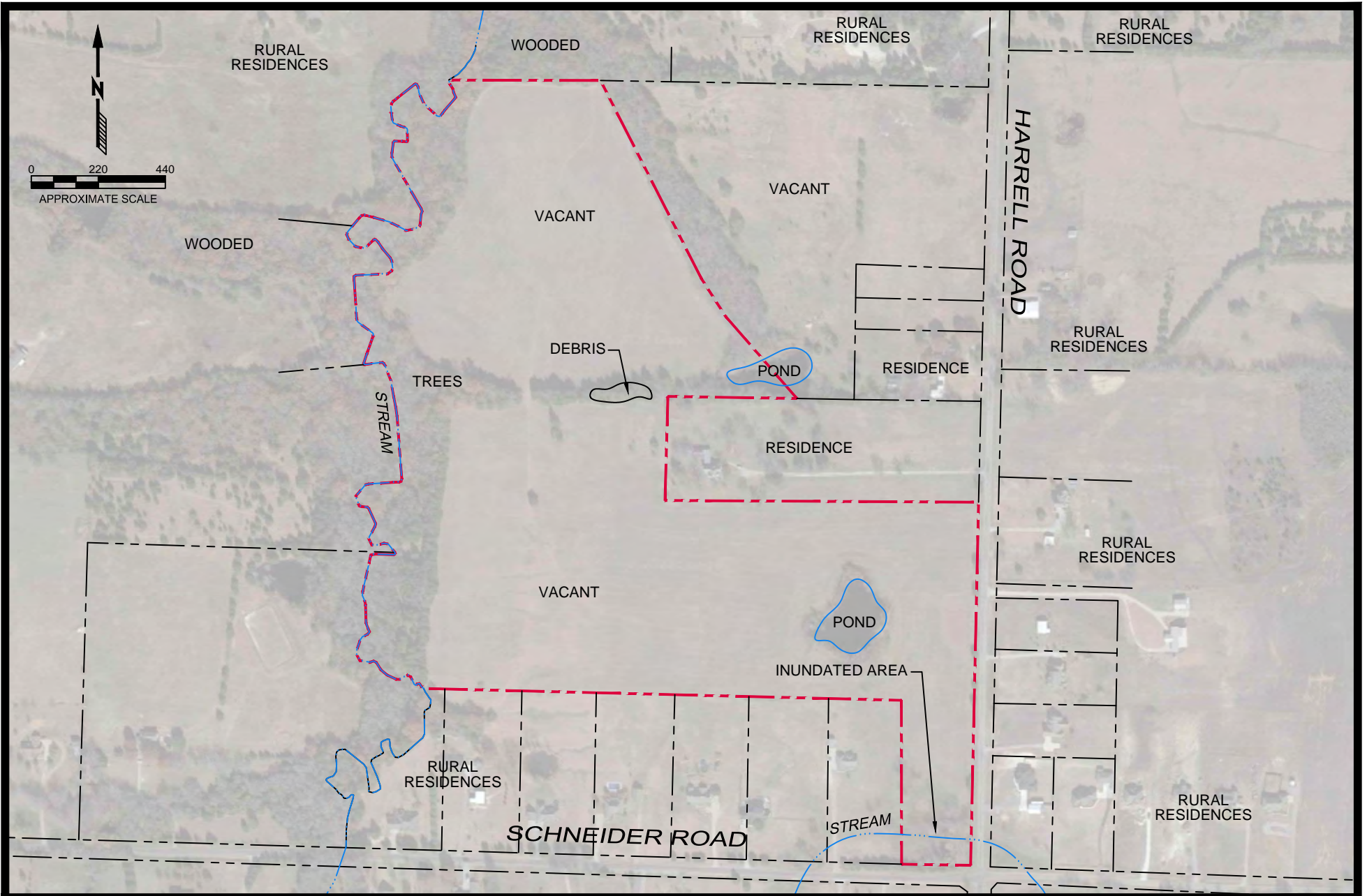
FIGURE NO.:  
 1

**APPENDIX C**

**SITE PLAN**

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**TERRA · SOLNE**  
 ENVIRONMENTAL CONSULTANTS  
 3216 COMMANDER DRIVE, SUITE 103  
 CARROLLTON, TX 75006-2518  
 PHONE (972) 267-1900  
 FAX (972) 267-1902

**SITE PLAN**  
 ONE TRACT OF UNIMPROVED LAND, 63.86 ACRES  
 HARRELL ROAD & SCHNEIDER ROAD  
 HOWE, GRAYSON COUNTY, TEXAS 75459

DATE: MAY 2022	SCALE: SEE ABOVE
PROJECT NO.: 22690	FIGURE NO.: 2

**APPENDIX D**  
**HISTORICAL RESEARCH DOCUMENTATION**

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 Map

 Property Details

<b>Account</b>	
<b>Property ID:</b>	127452
<b>Legal Description:</b>	G-0774 MCDANIEL JEREMIAH A-G0774, ACRES 63.86
<b>Geographic ID:</b>	204 0774020
<b>Agent:</b>	
<b>Type:</b>	Real
<b>Location</b>	
<b>Address:</b>	HARRELL RD HOWE, TX
<b>Map ID:</b>	204
<b>Neighborhood CD:</b>	N
<b>Owner</b>	
<b>Owner ID:</b>	457522
<b>Name:</b>	MAMIDI SUBRAHMANYAM ETUX SATYA GAYATRI
<b>Mailing Address:</b>	22030 LONGVIEW RD IRVING, TX 75063
<b>% Ownership:</b>	100.0%
<b>Exemptions:</b>	For privacy reasons not all exemptions are shown online.



## Property Values

<b>Improvement Homesite Value:</b>	\$0
<b>Improvement Non-Homesite Value:</b>	\$0
<b>Land Homesite Value:</b>	\$0
<b>Land Non-Homesite Value:</b>	\$0
<b>Agricultural Market Valuation:</b>	\$1,018,531
<b>Market Value:</b>	\$1,018,531
<b>Ag Use Value:</b>	\$1,680
<b>Appraised Value:</b>	\$1,680
<b>Homestead Cap Loss: ⓘ</b>	\$0
<b>Assessed Value:</b>	\$1,680

**VALUES DISPLAYED ARE 2022 PRELIMINARY VALUES AND ARE SUBJECT TO CHANGE PRIOR TO CERTIFICATION.**

Information provided for research purposes only. Legal descriptions and acreage amounts are for appraisal district use only and should be verified prior to using for legal purpose and or documents. Please contact the Appraisal District to verify all information for accuracy.

## Property Taxing Jurisdiction

Entity	Description	Tax Rate	Market Value	Taxable Value	Estimated Tax	Freeze Ceiling
CAD	Central Appraisal District	0.000000	\$1,018,531	\$1,680	\$0.00	
CHW	Choctaw Water	0.004412	\$1,018,531	\$1,680	\$0.07	
GRA	Grayson County	0.339000	\$1,018,531	\$1,680	\$5.70	
JRC	Jr College	0.168053	\$1,018,531	\$1,680	\$2.82	
SHO	Howe School District	1.330000	\$1,018,531	\$1,680	\$22.34	

**Total Tax Rate:** 1.841465

**Estimated Taxes With Exemptions:** \$30.94

**Estimated Taxes Without Exemptions:** \$18,755.89

## Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
GDCROP7	GOOD CROP (B SOIL) NATP	0.37	16,117.20	0.00	0.00	\$5,901	\$16
MACROP7	MARGINAL CROP (D SOIL) NATP	7.2	313,632.00	0.00	0.00	\$114,836	\$238
PASTUR7	PASTURE (E SOIL) NATP	4.6	200,376.00	0.00	0.00	\$73,367	\$133
PRPAST7	POOR PASTURE (F SOIL) NATP	34.62	1,508,047.20	0.00	0.00	\$552,170	\$866
PRPAST7	POOR PASTURE (F SOIL) NATP	17.07	743,569.20	0.00	0.00	\$272,257	\$427

## Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2022	\$0	\$1,018,531	\$1,680	\$1,680	\$0	\$1,680
2021	\$0	\$707,313	\$1,737	\$1,737	\$0	\$1,737
2020	\$0	\$658,204	\$2,404	\$2,404	\$0	\$2,404
2019	\$0	\$654,566	\$2,602	\$2,602	\$0	\$2,602
2018	\$0	\$542,810	\$2,667	\$2,667	\$0	\$2,667
2017	\$0	\$578,545	\$2,808	\$2,808	\$0	\$2,808
2016	\$0	\$374,309	\$2,808	\$2,808	\$0	\$2,808
2015	\$990	\$397,387	\$2,731	\$3,721	\$0	\$3,721
2014	\$990	\$255,820	\$2,743	\$3,733	\$0	\$3,733
2013	\$990	\$255,820	\$2,680	\$3,670	\$0	\$3,670
2012	\$990	\$255,820	\$2,743	\$3,733	\$0	\$3,733
2011	\$990	\$255,820	\$3,509	\$4,499	\$0	\$4,499

## Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
12/18/2020	WDVL	WARRANTY DEED W/VENDOR'S LIEN	CHOCTAW 63 LTD	MAMIDI SUBRAHMANYAM ETUX SATYA GAYATRI			2020-35427
3/16/2007	WDVL	WARRANTY DEED W/VENDOR'S LIEN	NELSON STEPHEN RAY & LINDA HOLLAND	CHOCTAW 63 LTD	4212	129	
6/17/2005	WDVL	WARRANTY DEED W/VENDOR'S LIEN	LOPEZ NOE	NELSON STEPHEN RAY & LINDA HOLLAND	3881	347	
6/17/2005	WDVL	WARRANTY DEED W/VENDOR'S LIEN	LOPEZ SERGIO	NELSON STEPHEN RAY & LINDA HOLLAND	3881	347	

5/27/2005	WD	WARRANTY DEED	AKE JULE & LOPEZ NOE & LOPEZ SERGIO	LOPEZ NOE	3881	341	
5/27/2005	WD	WARRANTY DEED	AKE JULE & LOPEZ NOE & LOPEZ SERGIO	LOPEZ SERGIO	3881	341	
5/3/2002	WDVL	WARRANTY DEED W/VENDOR'S LIEN	PEMBERTON NORMAN TRUSTEE	AKE JULE & LOPEZ NOE & LOPEZ SERGIO	3245	287	0
4/22/1999	WD	WARRANTY DEED	PEMBERTON TOMMIE M	PEMBERTON NORMAN L TRUSTEE OF	2782	298	0
7/26/1995	PB	PROBATE	PEMBERTON ALBERT W ESTATE	PEMBERTON TOMMIE MAE	565	648	0
1/9/1976	WD	WARRANTY DEED	FALLON, JOSEPH E.	PEMBERTON, A. W. AND	1332	251	0
9/28/1973	WD	WARRANTY DEED		FALLON, JOSEPH R.	1264	267	0

DATE : 5-6-2022

RICK ROBERTSON

TERRA-SOLVE INCORPORATED

P.O. BOX 702522

DALLAS, TEXAS 75370-2522

HARRELL ROAD

HOWE, TEXAS

## TEXAS ENVIRONMENTAL RESEARCH

126 SCEPTRE DRIVE                      TEL: (972) 772-4283  
ROCKWALL, TEXAS 75032                FAX: (972) 772-4283

### ENVIRONMENTAL LIEN SEARCH

THE ATTACHED REPORT IS BEING PROVIDED TO APPLICANT SOLELY FOR THE PURPOSE OF FACILITATING LANDOWNER OR PURCHASE DEFENSES WHICH MAY BE AVAILABLE UNDER THE LIABILITY ACT OF 1980. AS AMENDED IT IS PROVIDED FOR THE SOLE USE AND BENEFIT OF APPLICANT AND MAY NOT BE USED OR RELIED UPON BY ANY OTHER PARTY FOR ANY REASON.

NOTE: THIS SEARCH REPRESENTS SURFACE CONVEYANCES ONLY.  
TOTAL LIABILITY OF TEXAS ENVIRONMENTAL RESEARCH COMPANY  
IS LIMITED TO THE AMOUNT PAID FOR THIS REPORT.

THIS REPORT WAS PREPARED FOR THE PURPOSE OF ASSISTING IN AN  
ENVIRONMENTAL HAZARD INSPECTION OF THE FOLLOWING  
DESCRIBED PROPERTY.

**LEGAL DESCRIPTION**

Parcel: 127452, G-0774, McDaniel Jeremiah A-G0744, Harrell Road, Howe, Grayson County,  
Texas.

**CURRENT OWNER**

Subrahmanyam Mamidi and et ux, Satya Gayatri

<b>DATE</b>	<b>GRANTOR</b>	<b>GRANTEE</b>	<b>DOCUMENT TYPE</b>
12-18-20	Choctaw 63 Limited	Subrahmanyam and et ux, Satya Gayatri	Warranty Deed File No. 354278

## ENVIRONMENTAL LIEN RESEARCH

AFTER COMPLETING AN ENVIRONMENTAL LIEN SEARCH A  
FINDING THAT NO ENVIRONMENTAL LIENS HAVE BEEN FILED  
OF PUBLIC RECORD AND THAT IT HAS BEEN DETERMINED THAT  
THE PROPERTY RESEARCHED IN THIS REPORT COMPLIES WITH  
ASTM E 1527-21-SEC. 8.3.4.9 AND SECTION 6.2

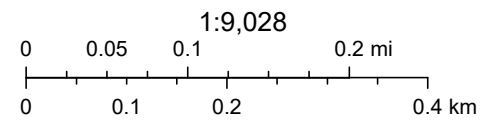
THIS REPORT MEETS OR EXCEEDS A.S.T.M. E 1527-21.



# Historical Map



May 2, 2022



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

**APPENDIX E**  
**AERIAL PHOTOGRAPHS**

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# HISTORICAL AERIALS

**Project Property:** Undeveloped Land  
Harrell Road & Schneider Road  
Howe TX

**Project No:** 22690

**Requested By:** Terra-Solve

**Order No:** 22041901072

**Date Completed:** May 03,2022

Aerial Maps included in this report are produced by the sources listed above and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property. ERIS provides no warranty of accuracy or liability. The information contained in this report has been produced using aerial photos listed in above sources by ERIS Information Inc. (in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS'. The maps contained in this report do not purport to be and do not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

## **Environmental Risk Information Services**

*A division of Glacier Media Inc.*

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)

<b>Date</b>	<b>Source</b>	<b>Scale</b>	<b>Comments</b>
2020	United States Department of Agriculture	1" = 500'	
2018	United States Department of Agriculture	1" = 500'	
2016	United States Department of Agriculture	1" = 500'	
2014	United States Department of Agriculture	1" = 500'	
2012	United States Department of Agriculture	1" = 500'	
2010	United States Department of Agriculture	1" = 500'	
2008	United States Department of Agriculture	1" = 500'	
2006	United States Department of Agriculture	1" = 500'	
2005	United States Department of Agriculture	1" = 500'	
2004	United States Department of Agriculture	1" = 500'	
1995	United States Geological Survey	1" = 500'	
1989	Texas Department of Transportation	1" = 500'	
1981	United States Geological Survey	1" = 500'	
1974	United States Geological Survey	1" = 500'	
1972	Agricultural Stabilization & Conserv. Service	1" = 500'	
1964	Agricultural Stabilization & Conserv. Service	1" = 500'	
1952	Army Mapping Service	1" = 500'	
1942	Agricultural Stabilization & Conserv. Service	1" = 500'	

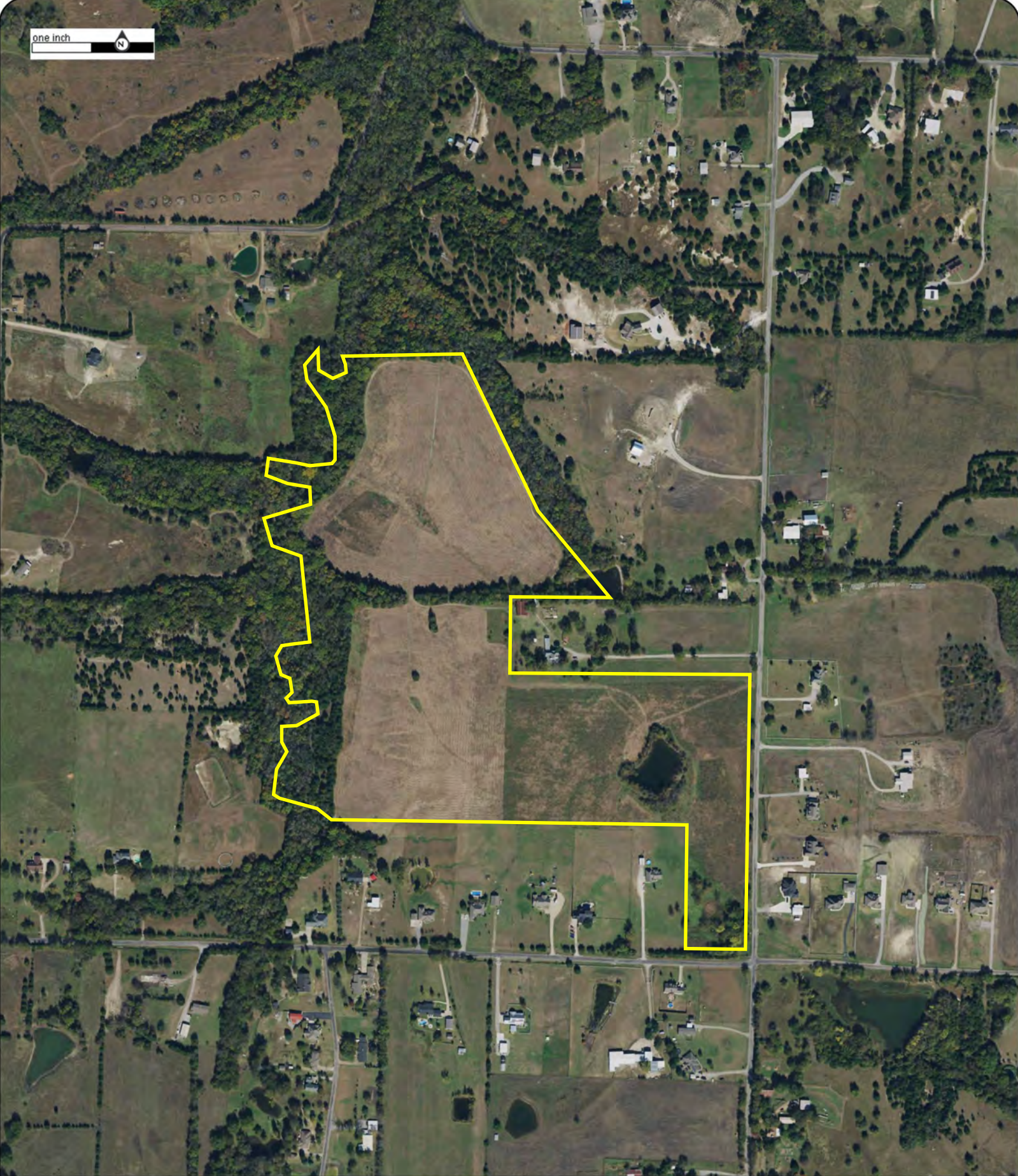
**Environmental Risk Information Services**

*A division of Glacier Media Inc.*

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)



one inch



Year: 2020  
Source: USDA  
Scale: 1" = 500'  
Comment:

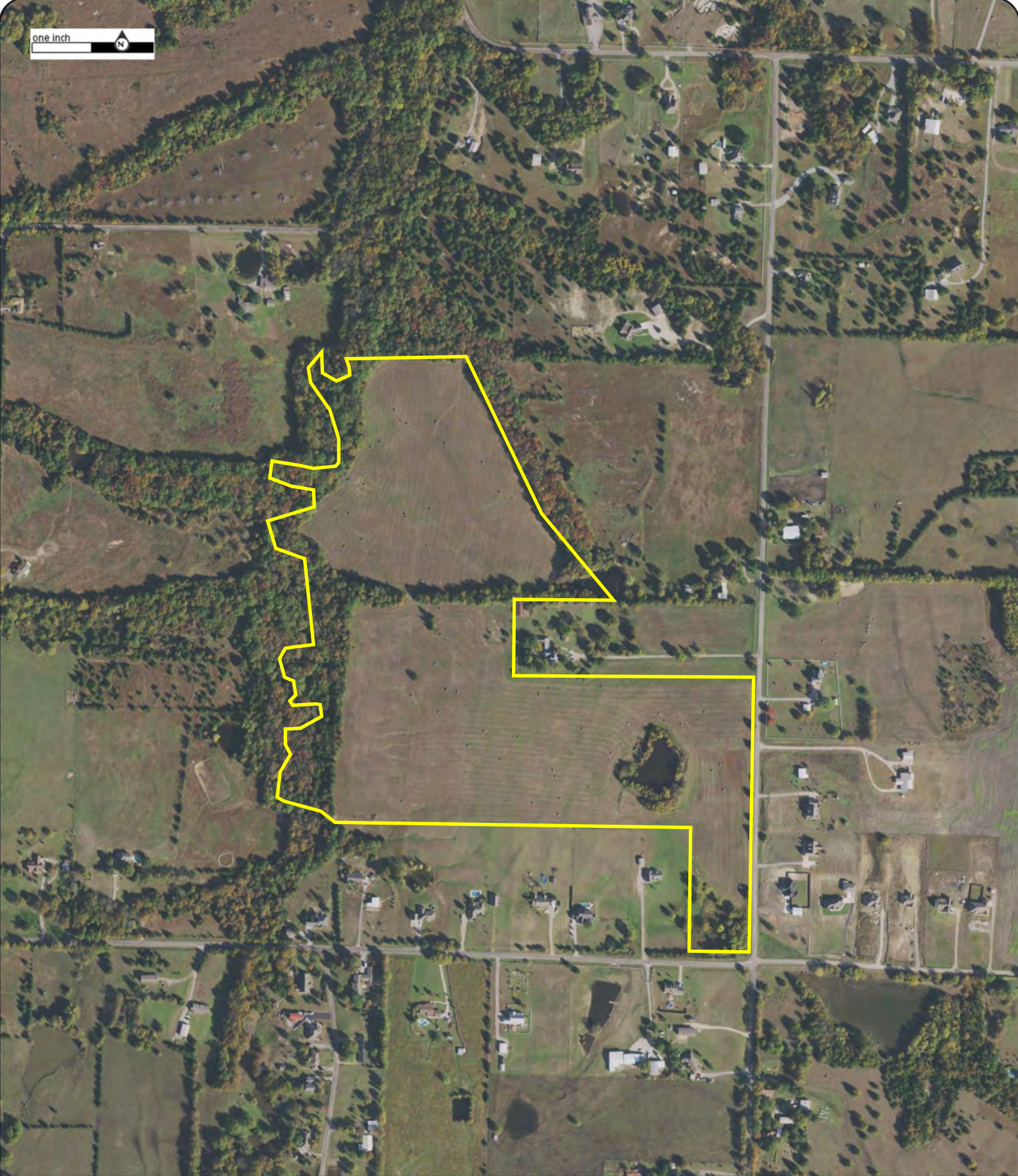
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



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Comment:

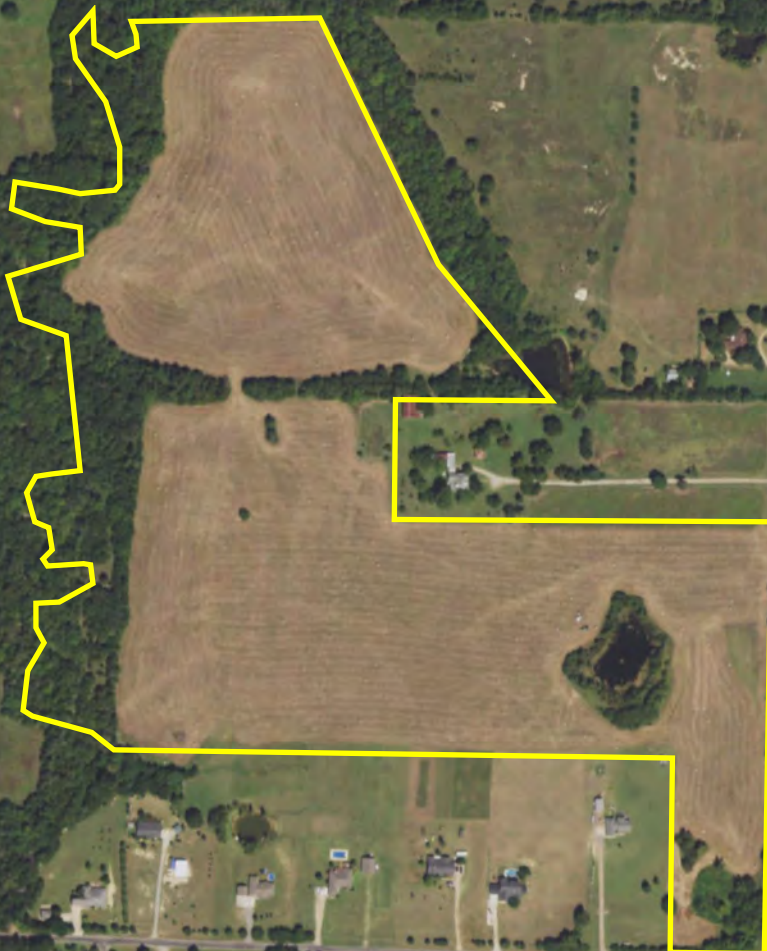
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Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



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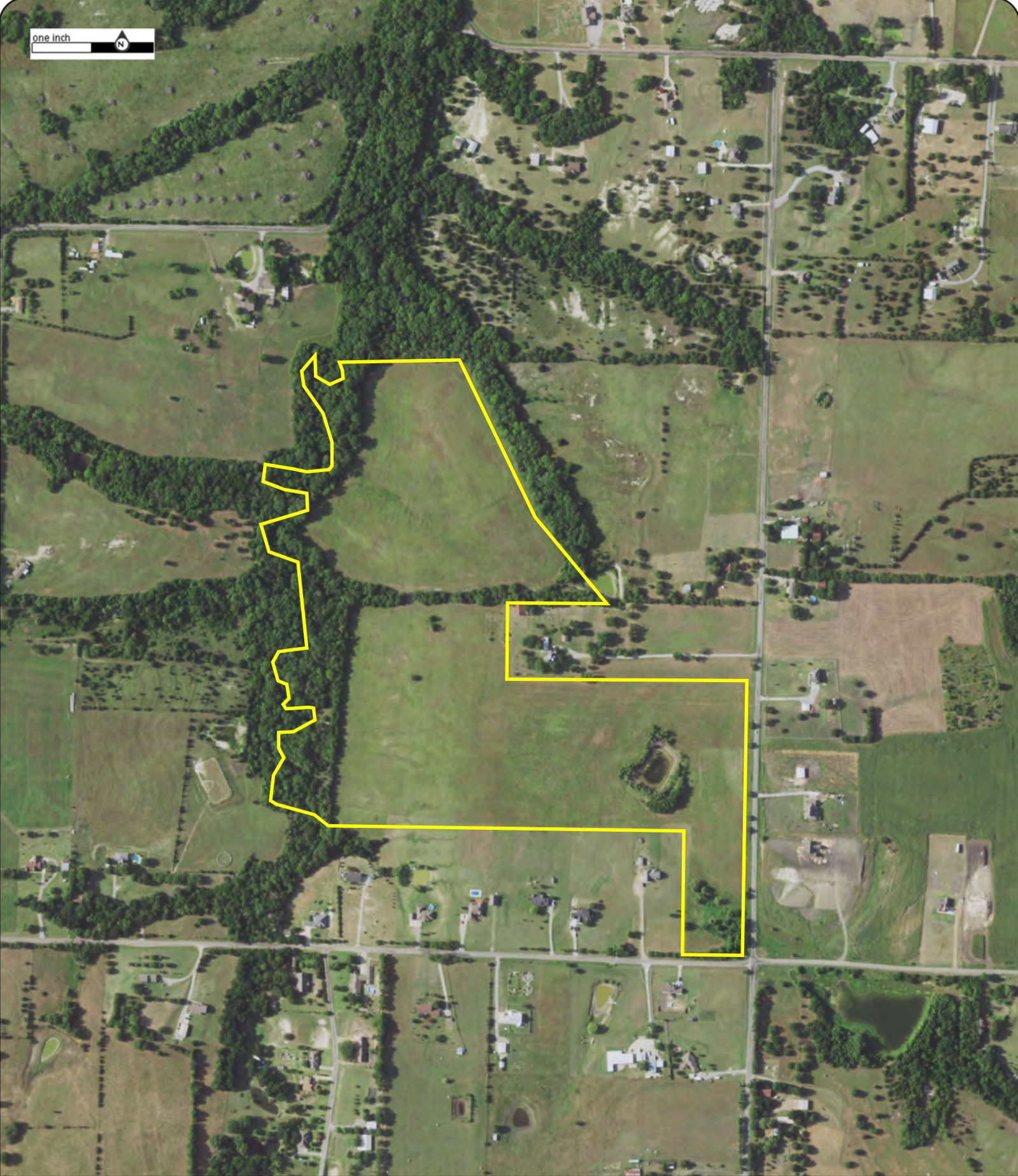
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Order No: 22041901072





one inch



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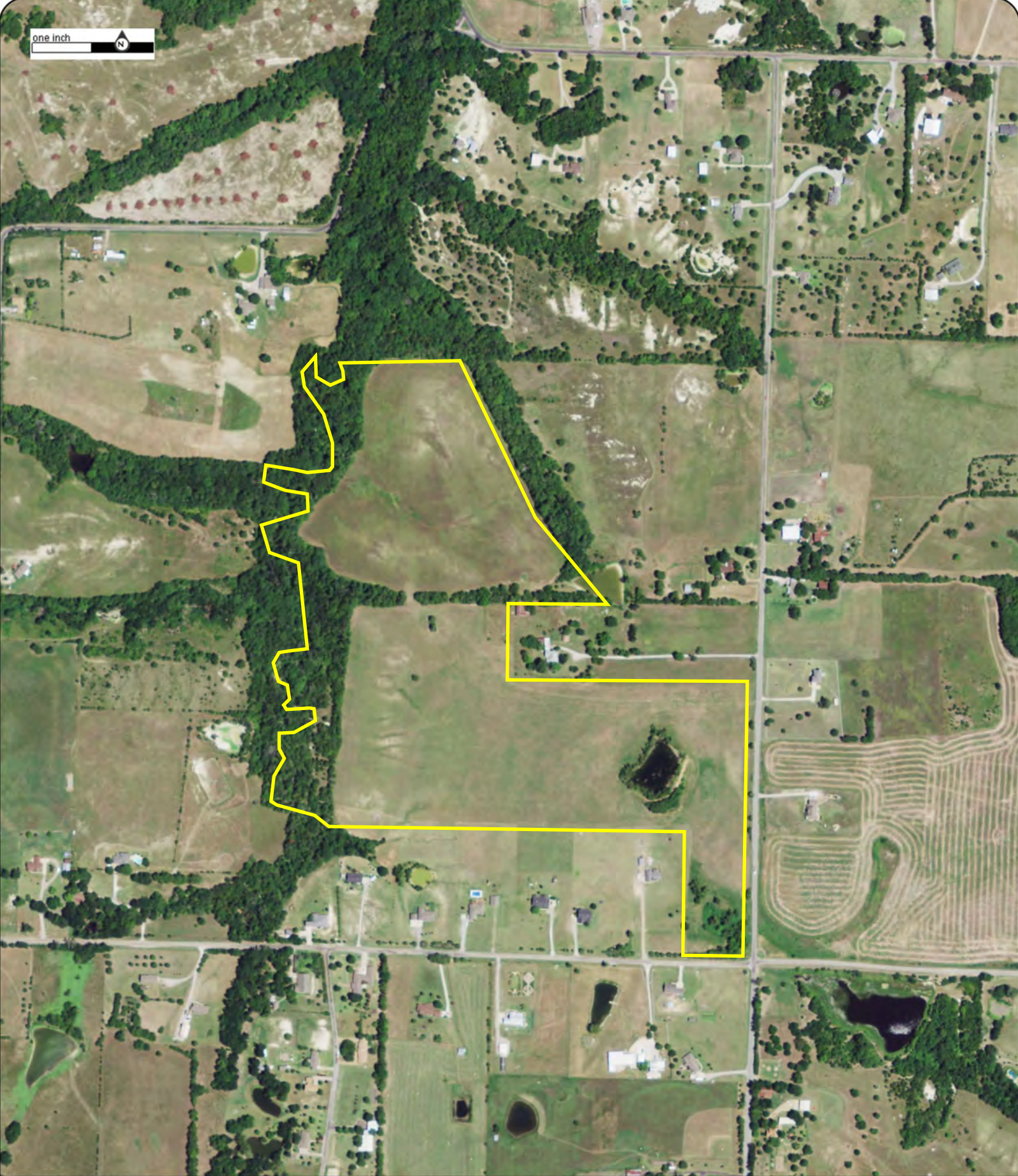
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Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



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Source: USDA  
Scale: 1" = 500'  
Comment:

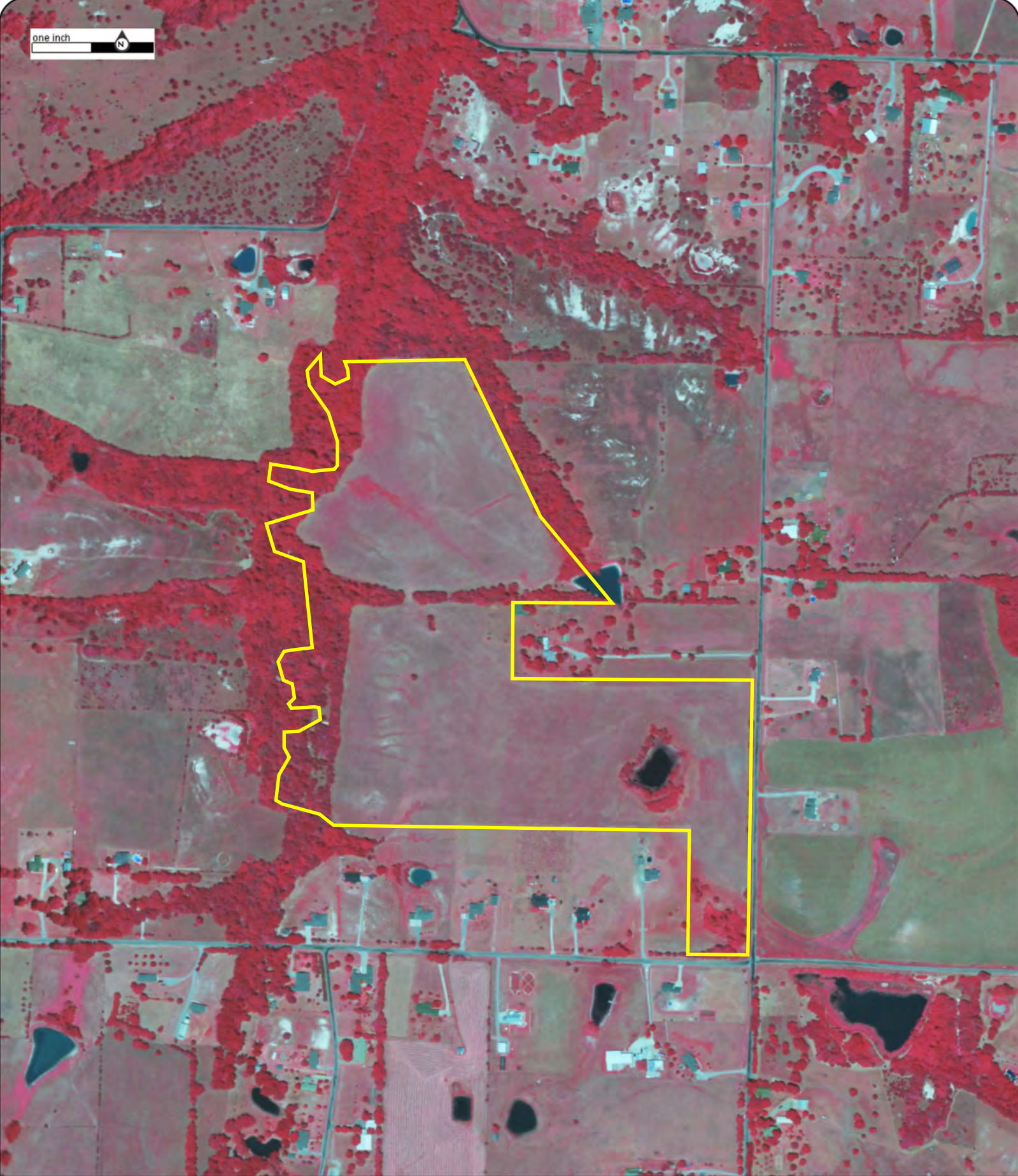
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 2010  
Source: USDA  
Scale: 1" = 500'  
Comment:

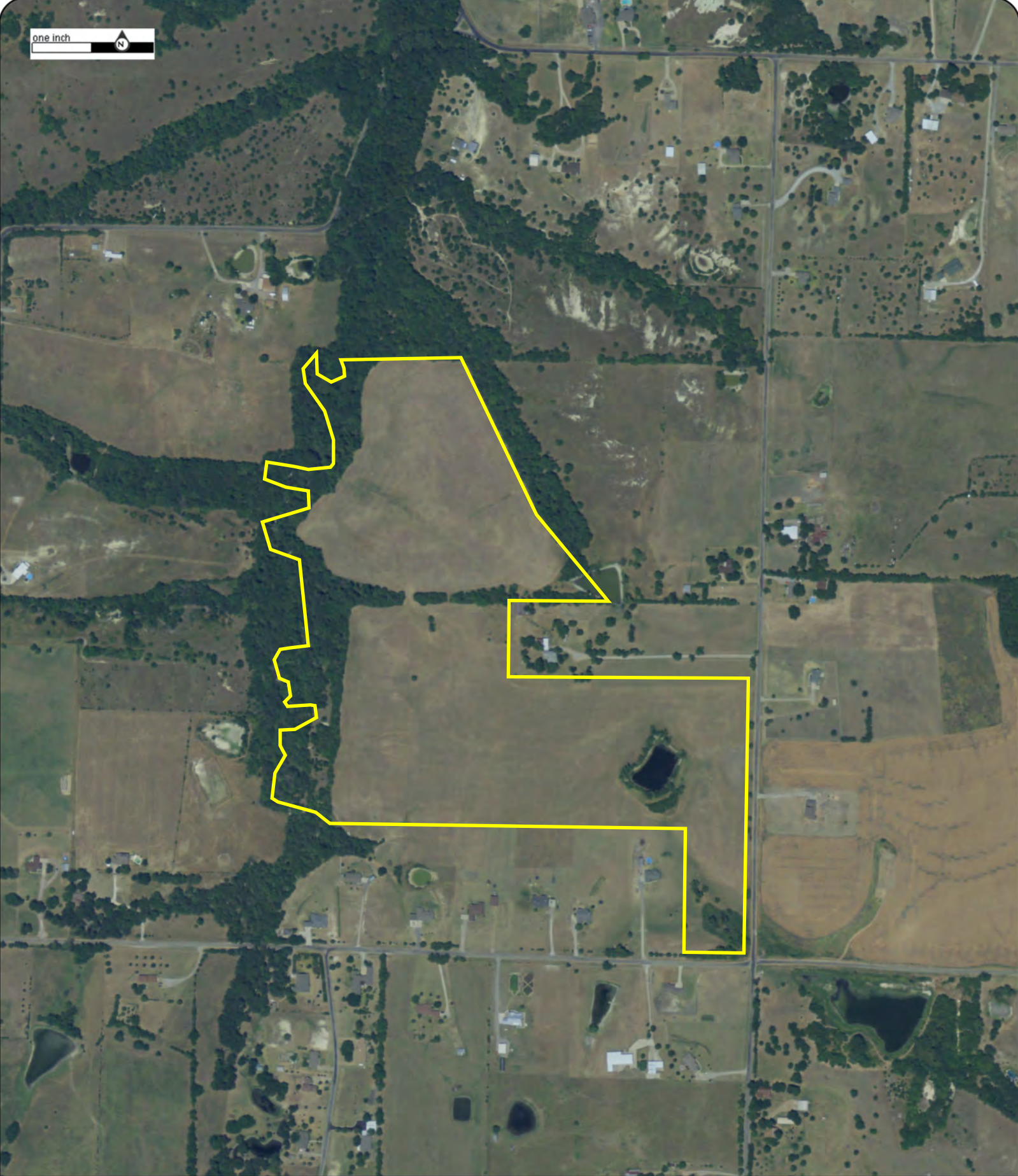
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 2008  
Source: USDA  
Scale: 1" = 500'  
Comment:

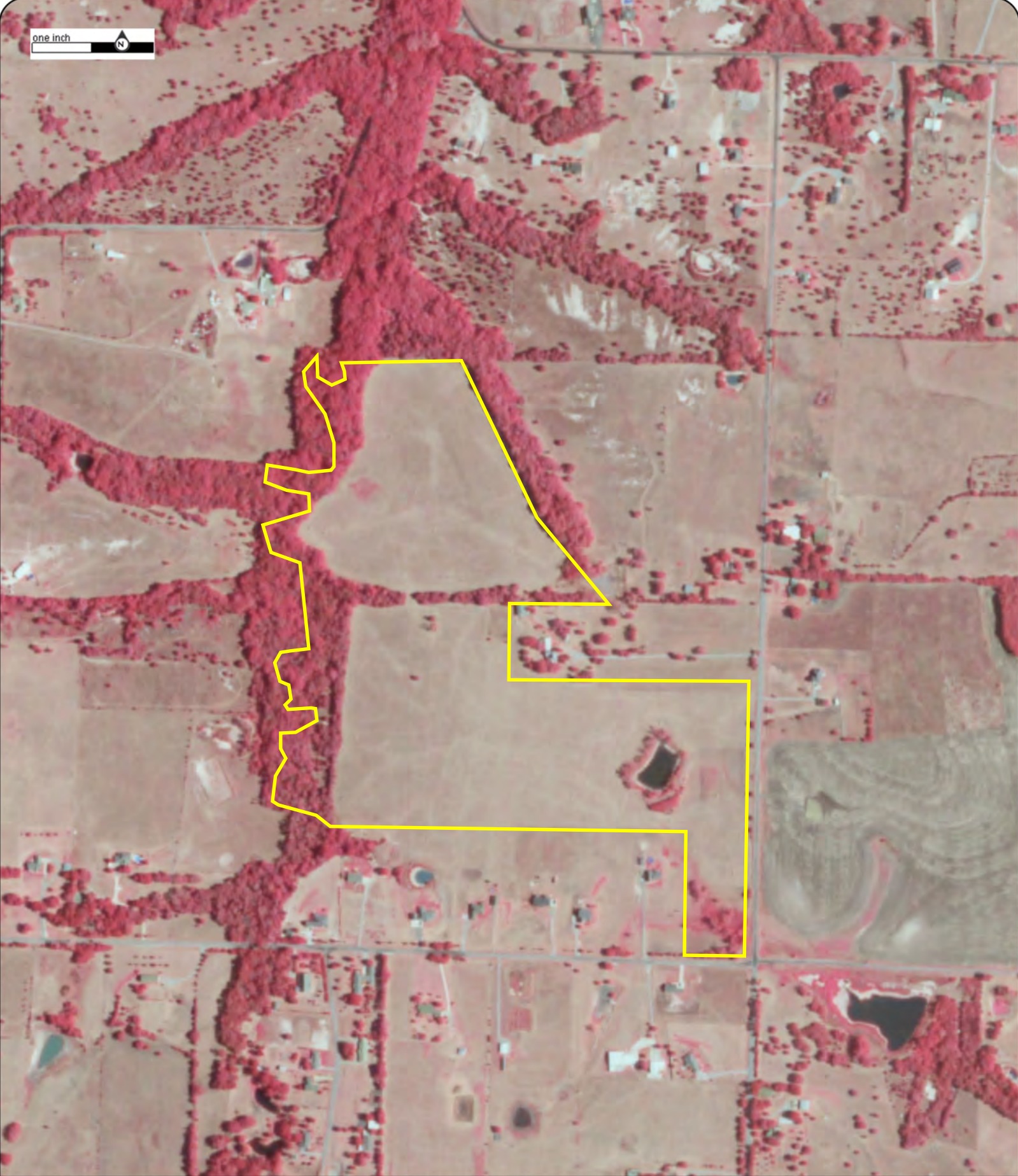
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 2006  
Source: USDA  
Scale: 1" = 500'  
Comment:

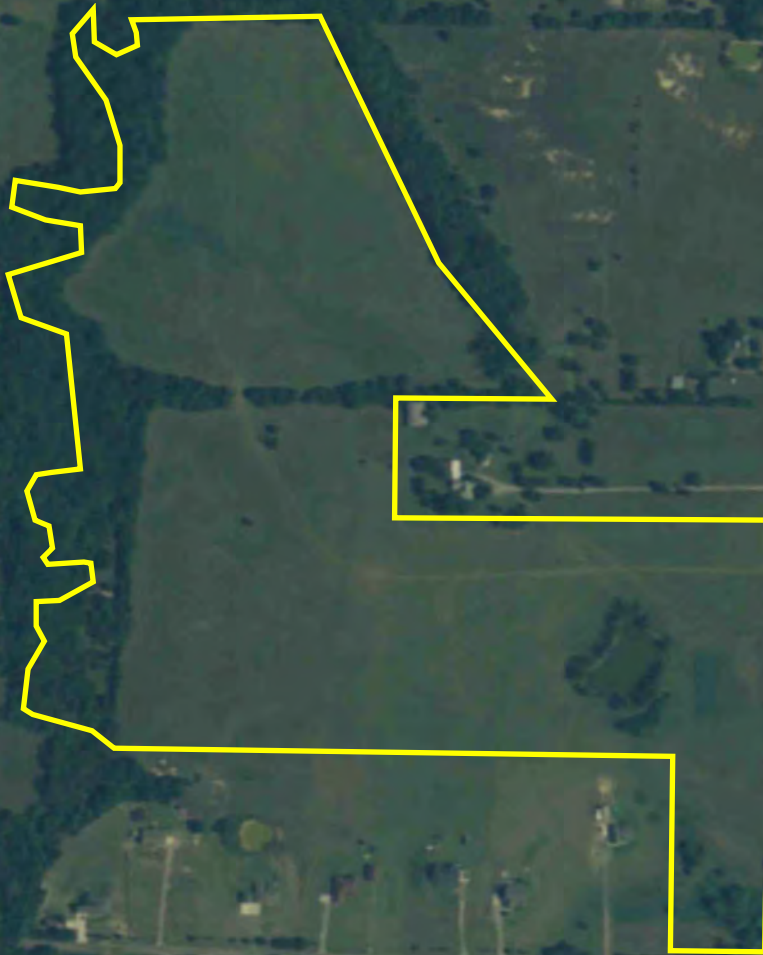
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 2005  
Source: USDA  
Scale: 1" = 500'  
Comment:

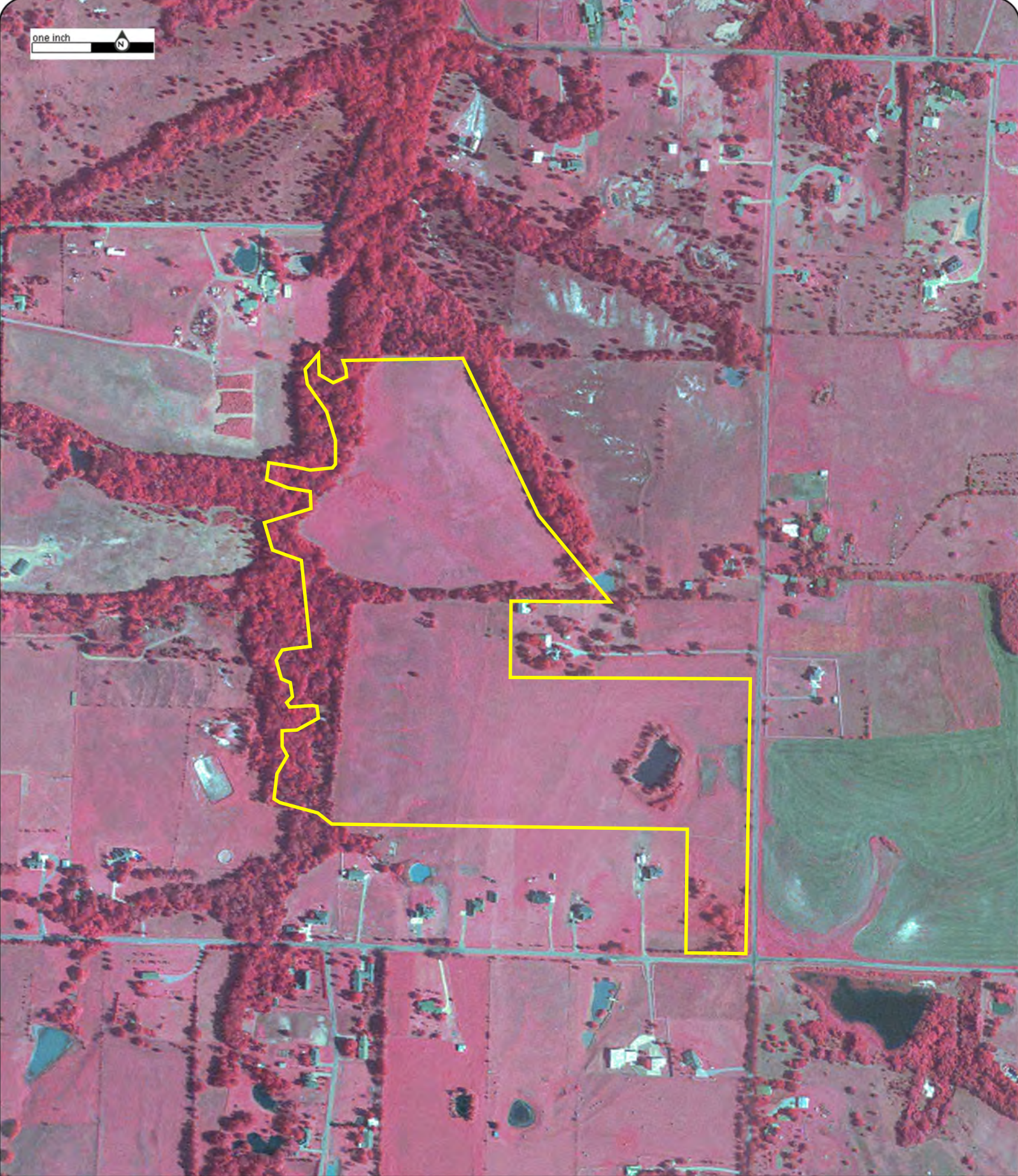
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 2004  
Source: USDA  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1995  
Source: USGS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1989  
Source: TXDOT  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1981  
Source: USGS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1974  
Source: USGS  
Scale: 1" = 500'  
Comment:

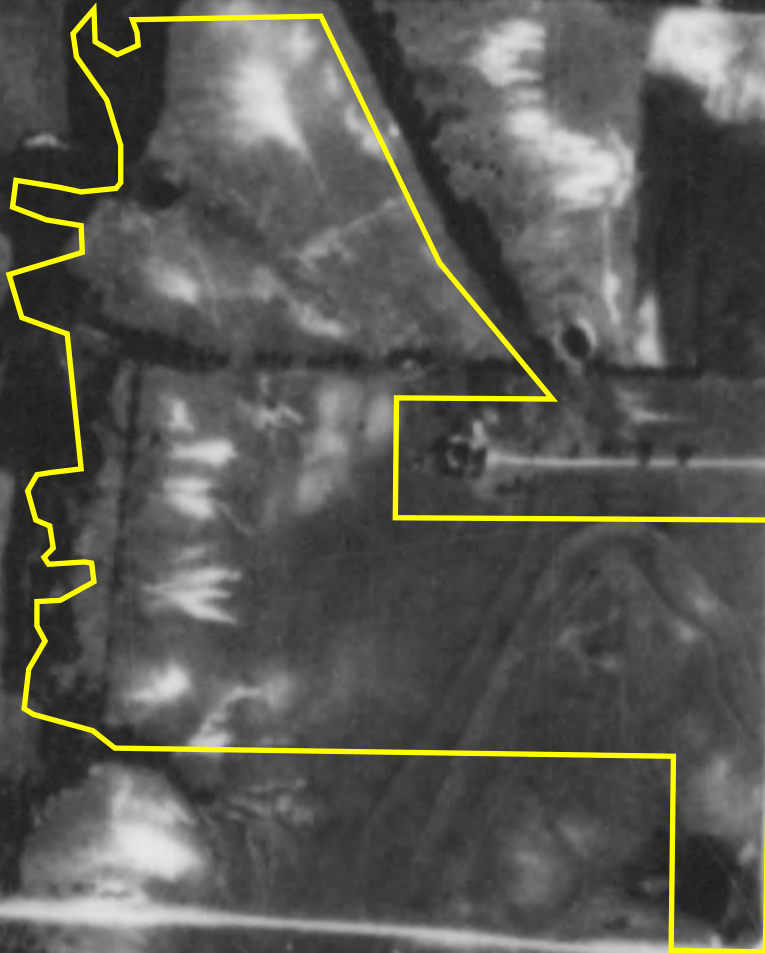
Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1972  
Source: ASCS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072



one inch



Year: 1964  
Source: ASCS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1952  
Source: AMS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072





one inch



Year: 1942  
Source: ASCS  
Scale: 1" = 500'  
Comment:

Address: Harrell Road & Schneider Road, Howe, TX  
Approx Center: -96.57107267,33.56269588

Order No: 22041901072



**APPENDIX F**  
**LABORATORY REPORTS**  
**(N/A)**

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**APPENDIX G**  
**PRIOR REPORTS**  
**(N/A)**

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**APPENDIX H**  
**REGULATORY DATABASE REPORT**

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# DATABASE REPORT

**Project Property:** *Undeveloped Land  
Harrell Road & Schneider Road  
Howe TX*

**Project No:** *22690*

**Report Type:** *Database Report*

**Order No:** *22041901072*

**Requested by:** *Terra-Solve*

**Date Completed:** *April 29, 2022*



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# Executive Summary

## Property Information:

**Project Property:** *Undeveloped Land  
Harrell Road & Schneider Road Howe TX*

**Project No:** 22690

### **Coordinates:**

**Latitude:** 33.56269588  
**Longitude:** -96.57107267  
**UTM Northing:** 3,716,313.45  
**UTM Easting:** 725,475.51  
**UTM Zone:** 14S

**Elevation:** 765 FT

## Order Information:

**Order No:** 22041901072  
**Date Requested:** April 19, 2022  
**Requested by:** Terra-Solve  
**Report Type:** Database Report

## Historicals/Products:

**Aerial Photographs** *Historical Aerials (with Project Boundaries)*  
**ERIS Xplorer** [ERIS Xplorer](#)  
**Excel Add-On** *Excel Add-On*

# Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b>Standard Environmental Records</b>								
<b>Federal</b>								
DOE FUSRAP	Y	1	0	0	0	0	0	0
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0



<b>Database</b>	<b>Searched</b>	<b>Search Radius</b>	<b>Project Property</b>	<b>Within 0.12mi</b>	<b>0.125mi to 0.25mi</b>	<b>0.25mi to 0.50mi</b>	<b>0.50mi to 1.00mi</b>	<b>Total</b>
FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
<b>State</b>								
SUPERFUND	Y	1	0	0	0	0	0	0
SHWS	Y	1	0	0	0	0	0	0
DELISTED SHWS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
CLI	Y	0.5	0	0	0	0	-	0
HGAC CLI	Y	0.5	0	0	0	0	-	0
AACOG CLI	Y	0.5	0	0	0	0	-	0
IHW	Y	0.25	0	0	0	-	-	0
IHW RECEIVER	Y	0.5	0	0	0	0	-	0
RWS	Y	0.5	0	0	0	0	-	0
LPST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
PST	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	0	-	-	0
UST AUSTIN	Y	0.25	0	0	0	-	-	0
PETROL CAVERN	Y	0.25	0	0	0	-	-	0
DTNK	Y	0.25	0	0	0	-	-	0
AUL	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
VCP RRC	Y	0.5	0	0	0	0	-	0
OP CLEANUP	Y	0.5	0	0	0	0	-	0
IOP	Y	0.5	0	0	0	0	-	0
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
BROWN RRC	Y	0.5	0	0	0	0	-	0
MSD	Y	0.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b>Tribal</b>								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED ILST	Y	0.5	0	0	0	0	-	0
DELISTED IUST	Y	0.25	0	0	0	-	-	0

**County** *No County standard environmental record sources available for this State.*

**Additional Environmental Records**

<b>Federal</b>								
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
URANIUM	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCB	Y	0.5	0	0	0	0	-	0
<b>State</b>								
PRIORITY CLEAN	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
GWCC	Y	0.125	0	0	-	-	-	0
GWCC HIST	Y	0.125	0	0	-	-	-	0
APAR	Y	0.5	0	0	0	0	-	0
SPILLS	Y	0.125	0	0	-	-	-	0
IHW CORR ACTION	Y	1	0	0	0	0	1	1
PFAS	Y	0.5	0	0	0	0	-	0
LAND APPL	Y	0.25	0	0	0	-	-	0
NOV	Y	0.25	0	0	0	-	-	0
NOE	Y	0.25	0	0	0	-	-	0
LIENS	Y	PO	0	-	-	-	-	0
ORD	Y	0.25	0	0	0	-	-	0
HIST RCRA GEN	Y	0.125	0	0	-	-	-	0
RTOL	Y	0.25	0	0	0	-	-	0
UIC	Y	0.25	0	0	0	-	-	0
IHW GENERATOR	Y	0.125	0	0	-	-	-	0
IHW TRANSPORT	Y	0.125	0	0	-	-	-	0
AIR PERMITS	Y	0.25	0	0	0	-	-	0
TIER 2	Y	0.125	0	0	-	-	-	0
EDWARDS AQUIFER	Y	PO	0	-	-	-	-	0

**Tribal**

**No Tribal additional environmental record sources available for this State.**

**County**

**No County additional environmental record sources available for this State.**

---

**Total:** 0 0 0 0 1 1

\* PO – Property Only

\* 'Property and adjoining properties' database search radii are set at 0.25 miles.



## Executive Summary: Site Report Summary - Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
--------------------	-----------	--------------------------	----------------	------------------	-----------------------------	---------------------------	------------------------

No records found in the selected databases for the project property.

## Executive Summary: Site Report Summary - Surrounding Properties

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
<a href="#">1</a>	IHW CORR ACTION	HOWE SITE	1522 BENNETT RD HOWE TX 75459	SW	0.64 / 3,398.74	50	<a href="#">16</a>

## Executive Summary: Summary by Data Source

### Non Standard

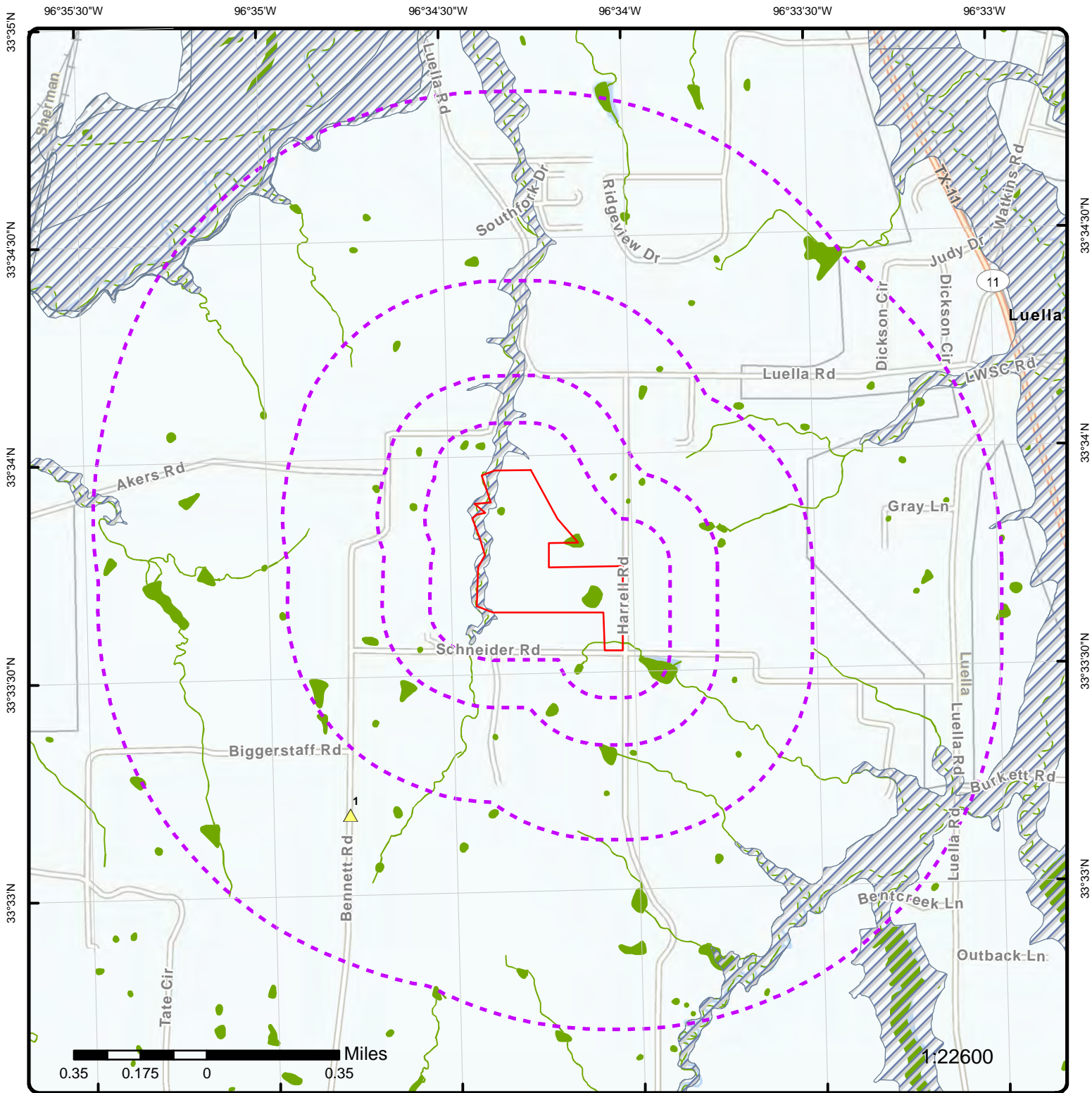
#### State

#### IHW CORR ACTION - Industrial and Hazardous Waste Sites with Corrective Actions

A search of the IHW CORR ACTION database, dated Mar 7, 2022 has found that there are 1 IHW CORR ACTION site(s) within approximately 1.00 miles of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (mi/ft)</u>	<u>Map Key</u>
HOWE SITE	1522 BENNETT RD HOWE TX 75459	SW	0.64 / 3,398.74	<a href="#">1</a>



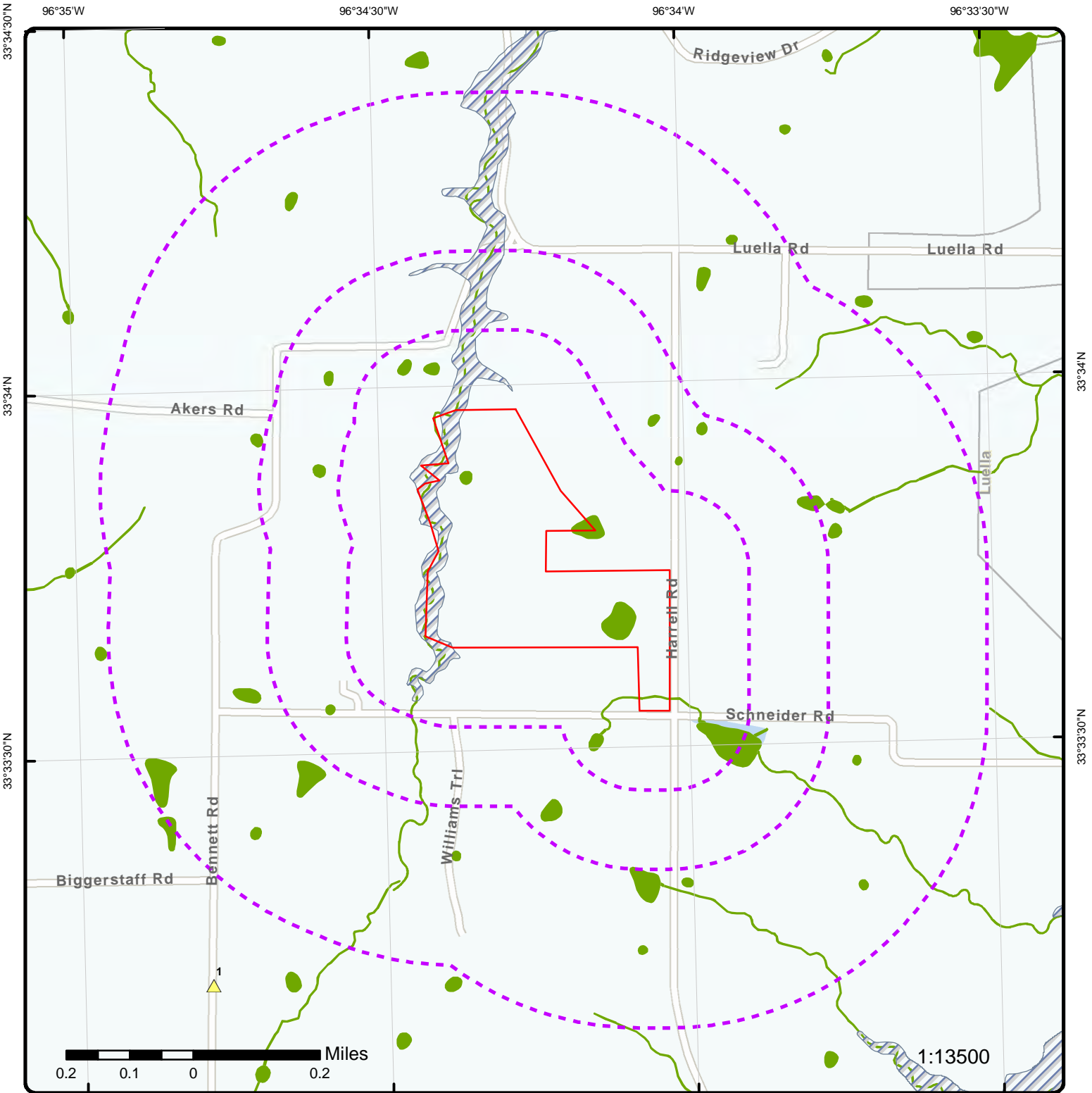


**Map: 1.0 Mile Radius**

Order Number: 22041901072  
 Address: Harrell Road & Schneider Road, Howe, TX



- |                                   |                        |                     |                               |
|-----------------------------------|------------------------|---------------------|-------------------------------|
| Project Property                  | Buffer Outline         | Freeways; Highways  | FWS Special Designation Areas |
| Eris Sites with Higher Elevation  | Traffic Circle; Ramp   | State               | Plume                         |
| Eris Sites with Same Elevation    | Major & Minor Arterial | Country             | National Wetland              |
| Eris Sites with Lower Elevation   | Traffic Circle; Ramp   | Indian Reserve Land | 100 Year Flood Zone           |
| Eris Sites with Unknown Elevation | Local Road             | Historic Fill       | 500 Year Flood Zone           |
| Eris Areas with Higher Elevation  | Rail                   |                     |                               |
| Eris Areas with Same Elevation    |                        |                     |                               |
| Eris Areas with Lower Elevation   |                        |                     |                               |
| Eris Areas with Unknown Elevation |                        |                     |                               |



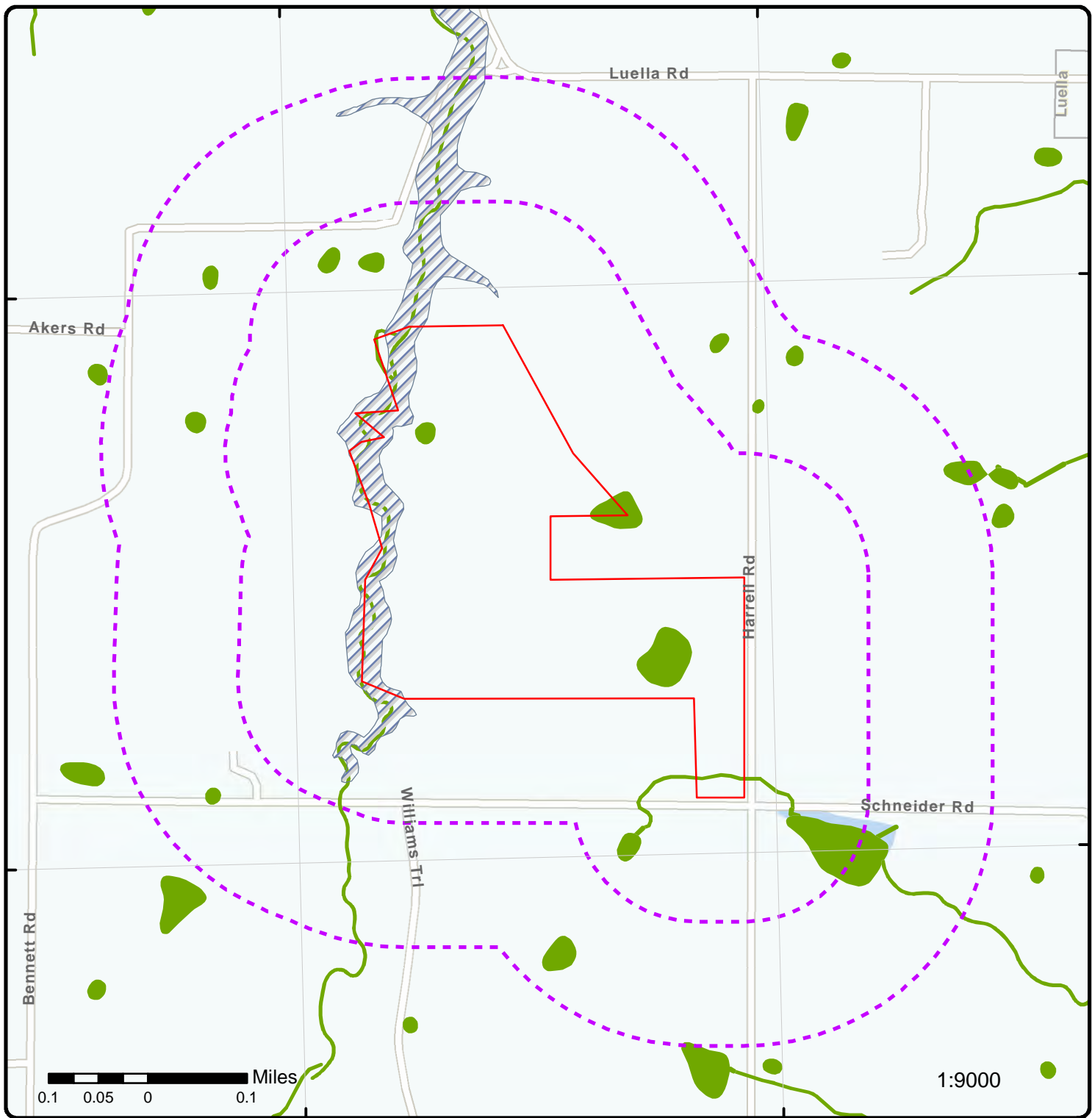
**Map: 0.5 Mile Radius**

Order Number: 22041901072

Address: Harrell Road & Schneider Road, Howe, TX



- |                                   |                        |                     |                               |
|-----------------------------------|------------------------|---------------------|-------------------------------|
| Project Property                  | Buffer Outline         | Freeways; Highways  | FWS Special Designation Areas |
| Eris Sites with Higher Elevation  | Traffic Circle; Ramp   | State               | Plume                         |
| Eris Sites with Same Elevation    | Major & Minor Arterial | Country             | National Wetland              |
| Eris Sites with Lower Elevation   | Traffic Circle; Ramp   | Indian Reserve Land | Historic Fill                 |
| Eris Sites with Unknown Elevation | Local Road             | 100 Year Flood Zone | 500 Year Flood Zone           |
| Eris Areas with Higher Elevation  | Rail                   |                     |                               |
| Eris Areas with Same Elevation    |                        |                     |                               |
| Eris Areas with Lower Elevation   |                        |                     |                               |
| Eris Areas with Unknown Elevation |                        |                     |                               |



### Map: 0.25 Mile Radius

Order Number: 22041901072

Address: Harrell Road & Schneider Road, Howe, TX



- |                                   |                        |                     |                     |                               |
|-----------------------------------|------------------------|---------------------|---------------------|-------------------------------|
| Project Property                  | Buffer Outline         | Freeways; Highways  | State               | FWS Special Designation Areas |
| Eris Sites with Higher Elevation  | Traffic Circle; Ramp   | Country             | National Wetland    | Plume                         |
| Eris Sites with Same Elevation    | Major & Minor Arterial | Indian Reserve Land | 100 Year Flood Zone |                               |
| Eris Sites with Lower Elevation   | Traffic Circle; Ramp   | Historic Fill       | 500 Year Flood Zone |                               |
| Eris Sites with Unknown Elevation | Local Road             |                     |                     |                               |
| Eris Areas with Higher Elevation  | Rail                   |                     |                     |                               |
| Eris Areas with Same Elevation    |                        |                     |                     |                               |
| Eris Areas with Lower Elevation   |                        |                     |                     |                               |
| Eris Areas with Unknown Elevation |                        |                     |                     |                               |



96°34'30"W

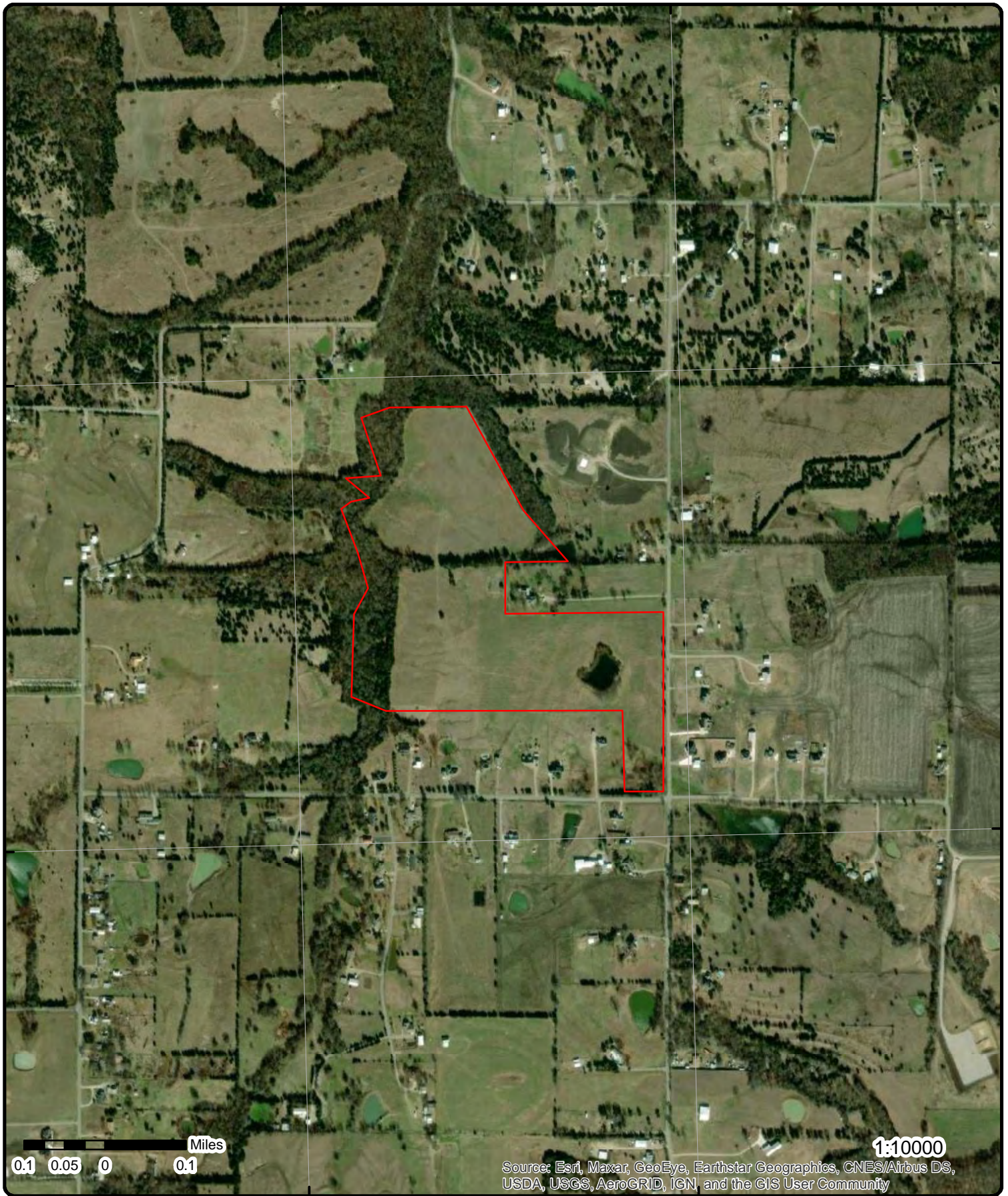
96°34'W

33°34'N

33°34'N

33°33'30"N

33°33'30"N



0.1 0.05 0 0.1 Miles

1:10000

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Aerial** Year: 2019

Order Number: 22041901072

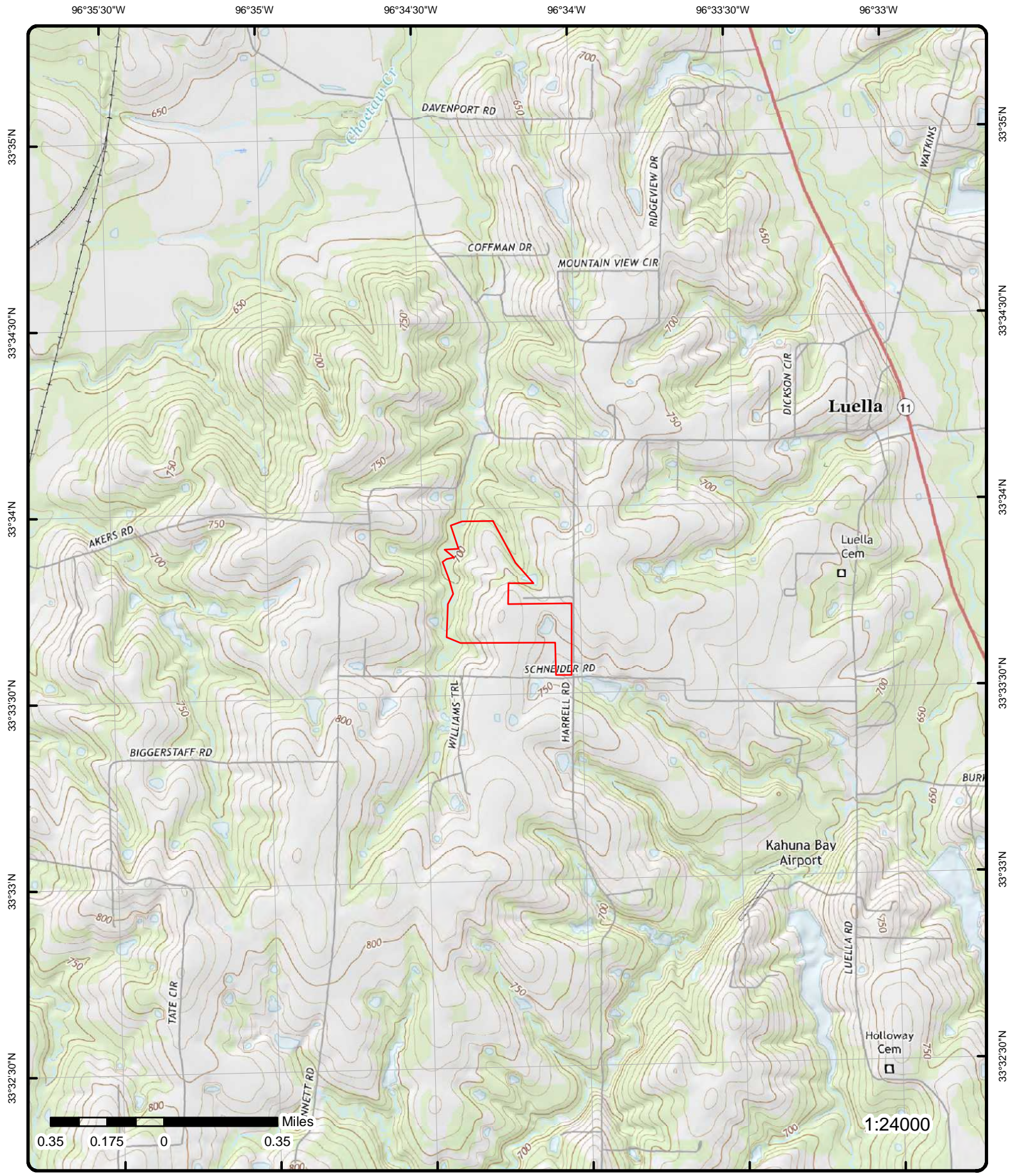
Address: Harrell Road & Schneider Road, Howe, TX



© ERIS Information Inc.

Source: ESRI World Imagery





**Topographic Map** Year: 2016

Address: Harrell Road & Schneider Road, TX

Quadrangle(s): Howe, TX

Source: USGS Topographic Map

Order Number: 22041901072



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# Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
<u>1</u>	1 of 1	SW	0.64 / 3,398.74	815.33 / 50	HOWE SITE 1522 BENNETT RD HOWE TX 75459	IHW CORR ACTION

<b>Program ID:</b>	T3391	<b>Phys Addr (Map):</b>	1522 BENNETT RD
<b>RN No:</b>	RN109800128	<b>City (Map):</b>	HOWE
<b>Address:</b>	1522 BENNETT RD	<b>Zip Code (Map):</b>	75459
<b>City:</b>	HOWE	<b>County (Map):</b>	GRAYSON
<b>Zip:</b>	75459	<b>Latitude (Map):</b>	33.54951183
<b>County:</b>	GRAYSON	<b>Longitude (Map):</b>	-96.58021283
<b>IHWCA ID (Map):</b>	T3391	<b>Data Source:</b>	TCWQ IHWC Data; TCWQ Map Data
<b>RN No (Map):</b>	RN109800128		
<b>RN Name:</b>	HOWE SITE		
<b>Site Name (Map):</b>	HOWE SITE		

**Location Description:**

**Address Desc:**

**Note:** Documents related to facilities in Texas can be searched on TCEQ Records Online Central File Room (CFR): [https://records.tceq.texas.gov/cs/idcplg?IdcService=TCEQ\\_SEARCH](https://records.tceq.texas.gov/cs/idcplg?IdcService=TCEQ_SEARCH)  
 Basic information, including RN numbers, for facilities in TX can be searched on the TCEQ Central Registry: <https://www15.tceq.texas.gov/crpub/>  
 Information about how to use these resources can be found here: <https://www.tceq.texas.gov/assets/public/agency/How-to-Use-Central-File-Room-Online.pdf>

**TCEQ IHW Corrective Actions Data**

<b>Admin Status:</b>	INACTIVE	<b>Soil Coc Class:</b>	
<b>Admin Status Dt:</b>	8/30/2019	<b>Soil Remediation:</b>	
<b>Phase:</b>	COMPLETED WORKLOAD	<b>Gw Coc Class:</b>	
<b>Phase Status Dt:</b>	8/30/2019	<b>Gw Remediation:</b>	
<b>Program:</b>	IHWCA		

**TCEQ Open Data - IHWCA Points**

<b>X:</b>	-96.580212829	<b>Horz Org:</b>	TCEQ
<b>Y:</b>	33.54951183	<b>Horz Datum:</b>	NAD83
<b>Horz Acc:</b>	5	<b>Horz Meth:</b>	DOQ
<b>Horz Ref:</b>	FAC_CEN	<b>Region:</b>	REGION 04 - DFW METROPLEX
<b>Horz Date:</b>	20171023		
<b>Horz Desc:</b>			
<b>REM Program:</b>	Industrial and Hazardous Waste Corrective Action (IHWCA)		



# Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
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No unplottable records were found that may be relevant for the search criteria.

# Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

# Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:*

*"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."*

## **Standard Environmental Record Sources**

### **Federal**

#### **Formerly Utilized Sites Remedial Action Program:**

[DOE FUSRAP](#)

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

**Government Publication Date: Mar 4, 2017**

#### **National Priority List:**

[NPL](#)

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

**Government Publication Date: Jan 25, 2022**

#### **National Priority List - Proposed:**

[PROPOSED NPL](#)

Sites proposed - by the EPA, the state agency, or concerned citizens - for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

**Government Publication Date: Jan 25, 2022**

#### **Deleted NPL:**

[DELETED NPL](#)

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

**Government Publication Date: Jan 25, 2022**



**SEMS List 8R Active Site Inventory:**

[SEMS](#)

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

**Government Publication Date: Feb 24, 2022**

**Inventory of Open Dumps, June 1985:**

[ODI](#)

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

**Government Publication Date: Jun 1985**

**SEMS List 8R Archive Sites:**

[SEMS ARCHIVE](#)

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

**Government Publication Date: Feb 24, 2022**

**Comprehensive Environmental Response, Compensation and Liability Information System -**

[CERCLIS](#)

**CERCLIS:**

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

**Government Publication Date: Oct 25, 2013**

**EPA Report on the Status of Open Dumps on Indian Lands:**

[IODI](#)

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

**Government Publication Date: Dec 31, 1998**

**CERCLIS - No Further Remedial Action Planned:**

[CERCLIS NFRAP](#)

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

**Government Publication Date: Oct 25, 2013**

**CERCLIS Liens:**

[CERCLIS LIENS](#)

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Jan 30, 2014**

**RCRA CORRACTS-Corrective Action:**

[RCRA CORRACTS](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

**Government Publication Date: Jan 31, 2022**

**RCRA non-CORRACTS TSD Facilities:**

[RCRA TSD](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

**Government Publication Date: Jan 31, 2022**

**RCRA Generator List:**

[RCRA LQG](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

**Government Publication Date: Jan 31, 2022**

**RCRA Small Quantity Generators List:**

[RCRA SQG](#)

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

**Government Publication Date: Jan 31, 2022**

**RCRA Very Small Quantity Generators List:**

[RCRA VSQG](#)

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

**Government Publication Date: Jan 31, 2022**

**RCRA Non-Generators:**

[RCRA NON GEN](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

**Government Publication Date: Jan 31, 2022**

**RCRA Sites with Controls:**

[RCRA CONTROLS](#)

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

**Government Publication Date: Jan 31, 2022**

**Federal Engineering Controls-ECs:**

[FED ENG](#)

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Dec 30, 2021**

**Federal Institutional Controls- ICs:**

[FED INST](#)

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

**Government Publication Date: Dec 30, 2021**

**Land Use Control Information System:**

[LUCIS](#)

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

**Government Publication Date:** Sep 1, 2006

**Institutional Control Boundaries at NPL sites:**

[NPL IC](#)

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

**Government Publication Date:** Jan 25, 2022

**Emergency Response Notification System:**

[ERNS 1982 TO 1986](#)

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date:** 1982-1986

**Emergency Response Notification System:**

[ERNS 1987 TO 1989](#)

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date:** 1987-1989

**Emergency Response Notification System:**

[ERNS](#)

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

**Government Publication Date:** Dec 31, 2021

**The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database:**

[FED BROWNFIELDS](#)

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date:** Aug 20, 2021

**FEMA Underground Storage Tank Listing:**

[FEMA UST](#)

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

**Government Publication Date:** Dec 31, 2017

**Facility Response Plan:**

[FRP](#)

List of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

**Government Publication Date:** Dec 2, 2020

**Historical Gas Stations:**

[HIST GAS STATIONS](#)

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

**Government Publication Date:** Jul 1, 1930



**Petroleum Refineries:**

REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

**Government Publication Date: Feb 4, 2022**

**Petroleum Product and Crude Oil Rail Terminals:**

BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

**Government Publication Date: Feb 4, 2022**

**LIEN on Property:**

SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

**Government Publication Date: Feb 24, 2022**

**Superfund Decision Documents:**

SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

**Government Publication Date: Nov 16, 2021**

**State**

**Superfund Sites Boundaries:**

SUPERFUND

List of sites that may constitute an imminent and substantial endangerment to public health and safety or the environment due to a release or threatened release of hazardous substances into the environment provided by the Texas Commission on Environmental Quality (TCEQ).

**Government Publication Date: Aug 10, 2021**

**State Superfund Registry:**

SHWS

List of sites identified or evaluated by the Texas Commission on Environmental Quality (TCEQ) which may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment. The TCEQ updates the state Superfund sites list in accordance with the Texas Health and Safety Code (THSC). This database is state equivalent NPL.

**Government Publication Date: Mar 28, 2022**

**Delisted State Superfund Registry List:**

DELISTED SHWS

This database contains a list of closed hazardous substance release sites that were removed from the Texas Commission on Environmental Quality (TCEQ).

**Government Publication Date: Mar 28, 2022**

**Permitted Solid Waste Facilities:**

SWF/LF

List of active, inactive, and post-closure Municipal Solid Waste landfills and processing facilities with issued permits and authorizations, as well as pending, withdrawn, or denied applications registered with the Texas Commission on Environmental Quality (TCEQ) under the Texas Administrative Code (TAC) Title 30 Chapter 330.

**Government Publication Date: Feb 28, 2022**

**Closed Landfill Inventory:**

CLI

Inventory of permitted and unauthorized closed or abandoned municipal solid waste landfills throughout Texas compiled by the Texas Commission on Environmental Quality (TCEQ), in collaboration with regional Councils of Government (COG).

**Government Publication Date: Feb 1, 2022**

**Houston-Galveston Closed Landfill Inventory:**

HGAC CLI

List of closed and abandoned landfill sites which fall under the Houston Galveston Area Council of Government. Texas Councils of Governments (COGs) are required to maintain an inventory of closed municipal solid waste landfills for their regional solid waste management plans.

**AACOG Closed Landfill Inventory:**

[AACOG CLI](#)

A list of permitted and unpermitted closed landfill sites made available by the Alamo Area Council of Governments (AACOG). Alamo Area Council of Governments (AACOG) is requested to maintain an inventory of closed municipal solid waste landfills for their regional solid waste management plans.

Government Publication Date: Feb 6, 2020

**Commercial Management Facilities for Hazardous Waste and Industrial Solid Wastes:**

[IHW](#)

This publication lists facilities that have permits or authorizations from the Texas Commission on Environmental Quality (TCEQ) to receive, on a commercial basis, and manage hazardous waste, industrial nonhazardous waste, or both.

Government Publication Date: Dec 1, 2020

**Industrial and Hazardous Waste - Receivers:**

[IHW RECEIVER](#)

List of active, inactive, and post-closure Industrial and Hazardous Waste Receiver Facilities permitted by or registered with the Texas Commission on Environmental Quality (TCEQ) under the Texas Administrative Code (TAC) Title 30 Chapter 335.

Government Publication Date: Feb 22, 2022

**Radioactive Waste Sites:**

[RWS](#)

This Texas Commission on Environmental Quality (TCEQ) database contains all sites in the State of Texas designated as Radioactive Waste sites as of 2006. The TCEQ no longer maintains this site listing.

Government Publication Date: Jul 11, 2006

**Leaking Petroleum Storage Tank Database:**

[LPST](#)

List of cleanup sites where contamination was caused by spills, leaks, or other releases of petroleum or hazardous substances from underground and/or aboveground storage tanks regulated by the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Feb 16, 2022

**Delisted Leaking Storage Tanks:**

[DELISTED LST](#)

This database contains a list of leaking storage tank sites that were removed from the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Feb 16, 2022

**Underground Petroleum Storage Tanks:**

[UST](#)

List of facilities that have one or more Underground Storage Tank (UST)s registered and regulated by the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Mar 4, 2022

**Aboveground Storage Tanks:**

[AST](#)

List of facilities that have one or more Aboveground Storage Tank (AST)s registered and regulated by the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Mar 4, 2022

**Petroleum Storage Tanks Database:**

[PST](#)

List of facilities included on the list of tank facilities made available by the Texas Commission on Environmental Quality (TCEQ) that have no association as either underground or aboveground tanks.

Government Publication Date: Mar 4, 2022

**Historical Tank Construction Notification:**

[HIST TANK](#)

A list of facilities with historic petroleum storage tank construction notification activity made available by the Texas Commission on Environmental Quality (TCEQ). Any person who intends either to install a new or replacement underground storage tank (UST), to remove a UST from the ground, to conduct a permanent abandonment in-place of a UST, or make any repairs or improvements of a UST must submit a Construction Notification Form.

Government Publication Date: Mar 4, 2022

**Austin Underground Storage Tanks:**

[UST AUSTIN](#)

A list of underground gas storage tanks both current and historical from the City of Austin Open Data Portal. Data provided by Planning and Zoning, City of Austin.

Government Publication Date: Feb 22, 2022

**Salt Caverns for Petroleum Storage:**

PETROL CAVERN

Listing of salt caverns for petroleum storage, made available by the Railroad Commission of Texas. Salt caverns, constructed in naturally occurring salt domes or salt beds, are used as storage for hydrocarbons including crude oil and natural gases.

**Government Publication Date: Sep 1, 2006**

**Delisted Storage Tanks:**

DTNK

This database contains a list of storage tank sites that were removed from the Texas Commission on Environmental Quality (TCEQ).

**Government Publication Date: Mar 4, 2022**

**Sites with Controls:**

AUL

Sites under several Texas Commission on Environmental Quality (TCEQ) remediation programs which have institutional or engineering controls.

**Government Publication Date: Feb 22, 2022**

**Voluntary Cleanup Program:**

VCP

List of sites which have participated or are currently participating in the Voluntary Cleanup Program (VCP) administered by the Texas Commission on Environmental Quality (TCEQ). The VCP provides administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in Texas.

**Government Publication Date: Mar 4, 2022**

**Texas Railroad Commission Voluntary Cleanup Program:**

VCP RRC

List of facilities which have participated in or are currently participating in the Voluntary Cleanup Program (VCP) operated by the Railroad Commission of Texas (RRC). The RRC VCP provides an incentive to remediate Oil & Gas related pollution.

**Government Publication Date: Mar 2, 2022**

**Operator Cleanup Program:**

OP CLEANUP

A list of sites in the Texas Railroad Commission (RRC)'s Operator Cleanup Program (OCP). The OCP, under the Site Remediation Section, is tasked with oversight of complex pollution cleanups performed by the oil and gas industry. Complex sites include those that occur in sensitive environmental areas as defined by 16 TAC3.91 (SWR 91) and may require site specific cleanup levels based on risk. When cleanup activities are successfully completed by the operator, Commission staff may issue a "No Further Action" letter acknowledging completion.

**Government Publication Date: Apr 4, 2022**

**Innocent Owner/Operator Program:**

IOP

A list of sites in the Innocent Owner/Operator Program (IOP) made available by Texas Commission of Environmental Quality (TCEQ). IOP provides certificates to innocent owners or operators whom their properties are contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.

**Government Publication Date: Mar 4, 2022**

**Brownfields Site Assessments Database:**

BROWNFIELDS

Former industrial properties which lie dormant or underutilized due to liability associated with real or perceived contamination are broadly referred to as brownfields. The Texas Commission on Environmental Quality (TCEQ), in close partnership with other federal, state, and local stakeholders, facilitates the cleanup, transferability, and revitalization of brownfields.

**Government Publication Date: Sep 9, 2021**

**Texas Railroad Commission Brownfields:**

BROWN RRC

List of sites which have participated or are currently participating in the Railroad Commission of Texas (RRC) Brownfields Response Program (BRP). The RRC BRP provides technical and financial support for redevelopment of abandoned oil and gas sites.

**Government Publication Date: Mar 1, 2022**

**Municipal Setting Designation:**

MSD

Municipal Setting Designations (MSD) list is maintained by Texas Commission on Environmental Quality (TCEQ). An MSD is an official state designation given to property within a municipality or its extraterritorial jurisdiction that certifies that designated groundwater at the property is not used as potable water, and is prohibited from future use as potable water because that groundwater is contaminated in excess of the applicable potable-water protective concentration level.

**Government Publication Date: Dec 9, 2021**

**Tribal**



**Leaking Underground Storage Tanks (LUSTs) on Tribal/Indian Lands:**

INDIAN LUST

Leaking Underground Storage Tanks (LUSTs) on Tribal/Indian Lands in EPA Region 6, which include Texas. There are no LUST records in Texas at this time.

**Government Publication Date: Oct 6, 2017**

**Underground Storage Tanks (USTs) on Indian Lands:**

INDIAN UST

Listing of underground storage tanks (USTs) on Tribal/Indian Lands in EPA Region 6, which includes Texas.

**Government Publication Date: Oct 13, 2021**

**Delisted Tribal Leaking Storage Tanks:**

DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

**Government Publication Date: Oct 12, 2021**

**Delisted Tribal Underground Storage Tanks:**

DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

**Government Publication Date: Oct 13, 2021**

**County**

**No County standard environmental record sources available for this State.**

***Additional Environmental Record Sources***

**Federal**

**Facility Registry Service/Facility Index:**

FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

**Government Publication Date: Nov 2, 2020**

**Toxics Release Inventory (TRI) Program:**

TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

**Government Publication Date: Aug 24, 2021**

**Perfluorinated Alkyl Substances (PFAS) Releases:**

PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

**Government Publication Date: Aug 24, 2021**

**PFOA/PFOS Contaminated Sites:**

PFAS NPL

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

**Government Publication Date: Jan 11, 2022**

**Perfluorinated Alkyl Substances (PFAS) Water Quality:**

PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances.

**Government Publication Date: Jul 20, 2020**

**SSEHRI PFAS Contamination Sites:**

PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Disclaimer: The source conveys this database undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Limited location details are available with this data. Access the following for the most current informations <https://pfasproject.com/pfas-contamination-site-tracker/>

**Government Publication Date: Dec 12, 2019**

**Hazardous Materials Information Reporting System:**

HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

**Government Publication Date: Sep 1, 2020**

**National Clandestine Drug Labs:**

NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

**Government Publication Date: Nov 22, 2021**

**Toxic Substances Control Act:**

TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

**Government Publication Date: Apr 11, 2019**

**Hist TSCA:**

HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

**Government Publication Date: Dec 31, 2006**

**FTTS Administrative Case Listing:**

FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date: Jan 19, 2007**

**FTTS Inspection Case Listing:**

FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date: Jan 19, 2007**

**Potentially Responsible Parties List:**

PRP

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

**Government Publication Date: Mar 30, 2022**

**State Coalition for Remediation of Drycleaners Listing:**

SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

**Government Publication Date: Nov 08, 2017**

**Integrated Compliance Information System (ICIS):**

ICIS

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

**Government Publication Date: Oct 14, 2021**

**Drycleaner Facilities:**

FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) online search. The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

**Government Publication Date: May 5, 2021**

**Delisted Drycleaner Facilities:**

DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

**Government Publication Date: May 5, 2021**

**Formerly Used Defense Sites:**

FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

**Government Publication Date: May 26, 2021**

**Former Military Nike Missile Sites:**

FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

**Government Publication Date: Dec 2, 1984**

**PHMSA Pipeline Safety Flagged Incidents:**

PIPELINE INCIDENT

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

**Government Publication Date: Jul 7, 2020**

**Material Licensing Tracking System (MLTS):**

MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

**Government Publication Date: May 11, 2021**

**Historic Material Licensing Tracking System (MLTS) sites:**

HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

**Government Publication Date: Jan 31, 2010**



**Mines Master Index File:**

[MINES](#)

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

**Government Publication Date: Nov 2, 2021**

**Surface Mining Control and Reclamation Act Sites:**

[SMCRA](#)

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of Abandoned Mine Land (AML) impacts, as well as information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

**Government Publication Date: Dec 18, 2020**

**Mineral Resource Data System:**

[MRDS](#)

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

**Government Publication Date: Mar 15, 2016**

**Uranium Mill Tailings Radiation Control Act Sites:**

[URANIUM](#)

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

**Government Publication Date: Mar 4, 2017**

**Alternative Fueling Stations:**

[ALT FUELS](#)

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

**Government Publication Date: Dec 21, 2021**

**Superfunds Consent Decrees:**

[CONSENT DECREES](#)

A list of Superfund consent decrees made available by the Department of Justice, Environment & Natural Resources Division (ENRD).

**Government Publication Date: Sep 30, 2018**

**Registered Pesticide Establishments:**

[SSTS](#)

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

**Government Publication Date: Mar 30, 2022**

**Polychlorinated Biphenyl (PCB) Notifiers:**

[PCB](#)

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

**Government Publication Date: Jan 20, 2022**

**State**

**Dry Cleaner Remediation Program Prioritization List:**

[PRIORITY CLEAN](#)

The Texas Commission on Environmental Quality (TCEQ) implements environmental standards for dry cleaners. The Dry Cleaner Remediation Program (DCRP) establishes a prioritization list of dry cleaner sites and administers the Dry Cleaning Remediation fund to assist with remediation of contamination caused by dry cleaning solvents. Includes prioritized sites identified under the DCRP, as well as sites closed under the DCRP.

**Registered Dry Cleaning Facilities:**

DRYCLEANERS

The Texas Commission of Environment Quality (TCEQ) maintains a statewide registration list of current dry cleaners.

Government Publication Date: Mar 4, 2022

**Delisted Drycleaning Facility List:**

DELISTED DRYCLEANERS

A list of sites which were have been removed from the list of dry cleaning facilities registered with the Texas Commission of Environment Quality (TCEQ). Sites are removed when they are no longer used as dry cleaning facilities.

Government Publication Date: Mar 4, 2022

**Groundwater Contamination Cases:**

GWCC

List of sites present in the TCEQ Groundwater Contamination Viewer, which represent groundwater contamination cases in Texas as per TCEQ publication SFR-056 (current and some previous years). The Joint Groundwater Monitoring and Contamination Report (SFR-056) was designed and produced by the Texas Groundwater Protection Committee in fulfillment of requirements given in Section 26.406 of the Texas Water Code. The information does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.

Government Publication Date: Mar 17, 2021

**Historical Groundwater Contamination Cases:**

GWCC HIST

List of sites from a Joint Groundwater Monitoring and Contamination Report provided by the Texas Commission on Environmental Quality (TCEQ) with the Railroad Commission of Texas (RRC). The annual report describes the status of groundwater monitoring activities conducted or required by each agency at regulated facilities or associated with regulated activities. The report provides a general overview of groundwater monitoring by participating members on a program by program basis. Groundwater contamination is broadly defined in the report as any detrimental alteration of the naturally occurring quality of groundwater.

Government Publication Date: Dec 31, 2018

**Affected Property Assessment Reports:**

APAR

List of sites for which an Affected Property Assessment Report has been submitted to the Texas Commission on Environmental Quality (TCEQ). An APAR is required when a person is addressing a release of COCs under 30 TAC Chapter 350, the Texas Risk Reduction Program (TRRP). The purpose of the APAR is to document all relevant affected property information to identify all release sources and chemicals of concern (COCs), determine the extent of all COCs, identify all transport/exposure pathways, and to determine if any response actions are necessary.

Government Publication Date: May 14, 2021

**Spills Database:**

SPILLS

List of Spills reported to Emergency Response Division of the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Jul 30, 2021

**Industrial and Hazardous Waste Sites with Corrective Actions:**

IHW CORR ACTION

List of Industrial and Hazardous Waste sites with Corrective Actions made available by the Texas Commission of Environmental Quality (TCEQ). The mission of the industrial and hazardous waste (IHW) corrective action program is to oversee the cleanup of sites contaminated from industrial and municipal hazardous and industrial nonhazardous wastes.

Government Publication Date: Mar 7, 2022

**Per- and Polyfluoroalkyl Substances (PFAS):**

PFAS

A list of sites from the Central Registry and ARTS databases where Per- and Polyfluoroalkyl substances (PFAS) containing materials may be of concern. This list is made available by the Remediation Division of the Texas Commission on Environmental Quality (TCEQ).

Government Publication Date: Feb 23, 2022

**Land Application Permits:**

LAND APPL

Texas Land Application Permits are a requirement from the Texas Commission on Environmental Quality for any domestic facility that disposes of treated effluent by land application such as surface irrigation, evaporation, drainfields or subsurface land application.

Government Publication Date: Dec 15, 2020

**Notice of Violation:**

NOV

List of sites that have been sent a Notice of Violation (NOV) by the Texas Commission on Environmental Quality (TCEQ) Office of Compliance and Enforcement. A Notice of Violation is sent out when a site falls out of compliance and has a prescribed time period to return to compliance.

Government Publication Date: Sep 28, 2021

**Notices of Enforcement:**

NOE

Listing of investigations resulting in a Notice of Enforcement (NOE), made available by the Texas Commission on Environmental Quality, Office of Compliance & Enforcement. Multiple violations may be due to identified noncompliance with different regulatory requirements (citations).

**Government Publication Date: Apr 1, 2022**

**Environmental Liens Listing:**

LIENS

List of sites/facilities against which the Texas Commission on Environmental Quality (TCEQ) has placed liens to recover cleanup costs associated with Federal or State Superfund cleanup activities.

**Government Publication Date: Feb 22, 2022**

**Court Orders & Administrative Orders:**

ORD

List of sites that have been sent an Administrative Order or Court Order by the Texas Commission on Environmental Quality (TCEQ) Office of Compliance and Enforcement.

**Government Publication Date: Dec 9, 2019**

**Inactive Regulated RCRA Generator Facilities:**

HIST RCRA GEN

A list of facilities which were once registered as generators of hazardous waste, but are no longer active or no longer require registration. The U.S. Environmental Protection Agency (EPA) requires the Texas Commission on Environmental Quality (TCEQ) to investigate hazardous waste generators. If an unregistered/inactive industrial site generates less than 220 pounds of hazardous or Class 1 industrial waste, it does not have to notify or report to the TCEQ.

**Government Publication Date: Mar 18, 2022**

**Recycle Texas Online Program:**

RTOL

A list of recycling facilities under the Recycle Texas Online service/program made available by the Texas Commission of Environmental Quality (TCEQ). This program allowed facilities to self-report and post their own company/facility information. This program is no longer maintained and these data will not be updated.

**Government Publication Date: Oct 10, 2011**

**Underground Injection Control:**

UIC

List of underground injection control (UIC) permits in the Texas Commission on Environmental Quality (TCEQ) Central Registry database. Includes Class I, Class III, Class IV, Class 5, and non permitted UICs; does not include injection wells regulated by the Railroad Commission of Texas.

**Government Publication Date: Dec 9, 2020**

**Industrial and Hazardous Waste - Generators:**

IHW GENERATOR

List of active, inactive, and post-closure Industrial and Hazardous Waste Generator Facilities permitted by or registered with the Texas Commission on Environmental Quality (TCEQ) under the Texas Administrative Code (TAC) Title 30 Chapter 335.

**Government Publication Date: Feb 22, 2022**

**Industrial and Hazardous Waste - Transporters:**

IHW TRANSPORT

List of active, inactive, and post-closure Industrial and Hazardous Waste Transporter Facilities permitted by or registered with the Texas Commission on Environmental Quality (TCEQ) under the Texas Administrative Code (TAC) Title 30 Chapter 335.

**Government Publication Date: Feb 22, 2022**

**New Source Review (NSR) Permits:**

AIR PERMITS

A list of facilities that have applied for New Source Review air permits made available by the Texas Commission on Environmental Quality (TCEQ).

**Government Publication Date: Mar 2, 2022**

**Tier 2 Report:**

TIER 2

A list of facilities in Texas that store hazardous chemicals and are required to report them under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. This list is made available by the Department of State Health Services (DSHS).

**Government Publication Date: Dec 31, 2012**

**Edwards Aquifer Permits:**

EDWARDS AQUIFER

Listing of Edward Aquifer permits made available by the Texas Commission on Environmental Quality (TCEQ). The Edwards Aquifer is home to diverse fauna and is a drinking water source for the city of San Antonio and surrounding central Texas communities. Before building on the recharge, transition, or contributing zones of the Edwards Aquifer, a plan must first be reviewed and approved by the TCEQ Edwards Aquifer Protection Program.

**Government Publication Date: Jul 21, 2006**



**Tribal**

*No Tribal additional environmental record sources available for this State.*

**County**

*No County additional environmental record sources available for this State.*

# Definitions

**Database Descriptions:** This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

**Detail Report:** This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

**Distance:** The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

**Direction:** The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

**Elevation:** The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

**Executive Summary:** This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

**Map Key:** The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

**Unplottables:** These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

**APPENDIX I**  
**RESUMES/CERTIFICATIONS**

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## CHARLES R. ROBERTSON, CPG, PG, CAPM

<b>Name:</b>	<b>Title:</b>
Charles R. Robertson, CPG, PG, CAPM	President
<b>Area(s) of Functional Experience:</b>	
Geology, hydrogeology, geochemistry, regulatory compliance, project management	
<b>Current Firm Association:</b>	<b>Years of Experience with Current Employer:</b> 27
Terra-Solve, Inc.	<b>Years of Experience with Previous Employers:</b> 6
<b>Academic Degree(s), Discipline(s) Studied, Year(s) Degrees Received, Educational Institution(s):</b>	
B.S., Geology 1986, Louisiana Tech University, <i>cum laude</i> M.B.A., Management, 1989, Louisiana Tech University	
<b>Professional Registration(s) and License(s):</b>	
<ul style="list-style-type: none"> <li>• Corrective Action Project Manager (CAPM), Texas Commission on Environmental Quality (TCEQ), No. 268 (1994) by examination</li> <li>• UST Consultant, Oklahoma Corporation Commission, No. 566 (1995)</li> <li>• Certified Scientist, New Mexico Environmental Protection Division, No. 124 (1996) by examination (<i>certification program annulled</i>)</li> <li>• Certified Professional Geologist, American Institute of Professional Geologists (AIPG), No. 9858 (1996)</li> <li>• Registered Geologist, Missouri, No. 991 (1998) by ASBOG examination</li> <li>• Professional Geoscientist, Texas, No. 150 (2003)</li> <li>• Registered Professional Geologist, Arkansas, No. 1985 (2013)</li> </ul>	
<b>Synopsis of Experience, Training, and Other Qualities:</b>	
<p>Mr. Robertson has over 30 years' experience in environmental consulting. He has conducted and managed over 800 UST closure/removal and subsurface investigation projects in 18 states and over 1,000 Phase I and II ESAs, bioremediation evaluations, and risk assessments in 30 states. Mr. Robertson has submitted reimbursement applications for state petroleum storage tank claims for a number of clients who have received an average of greater than 95% reimbursement on their claims, demonstrating technical and financial competence and adherence to regulations.</p> <p>Mr. Robertson supervises site reconnaissance operations, boring logging and well installation, sample collection, development and sampling of groundwater monitoring wells, aquifer and soil characterization tests, and coordination of contaminated materials disposal. He manages the removal of USTs, and the performance of subsurface investigations, soil vapor surveys, and emergency response actions; oversees preparation of remedial and corrective action plans; and evaluates the effectiveness of remedial action systems after installation. He has conducted groundwater modeling, conducted aquifer testing, prepared health-based risk assessments, designed groundwater monitoring programs, and written Water Pollution Abatement Plans (WPAPs) for projects located above the Edwards Aquifer recharge zone. He has personally conducted work in every phase of LPST activities, from Initial Abatement through site closure and has conducted field work in every TCEQ Region. He is well-qualified to perform the duties of Project Manager as well as Professional and Staff Geologist. His extensive work as a quality control officer at Terra-Solve also gives him particular insight into chemical data interpretation.</p> <p>Mr. Robertson coordinates field investigation activities, including scheduling and procurement of subcontract labor and necessary materials. He facilitates communication between subcontractors, the client representative, both local and regional, and various regulatory bodies. He provides frequent updates to clients concerning the status of site investigations and project schedule.</p> <p>Mr. Robertson's efforts have been oriented toward major communication, food service, transportation, retail, financial, and oil company projects as well as RCRA investigations. He has served as the project manager for regional environmental projects for two of the nation's largest telecommunications companies as well as the North Texas project manager for the retail arm of three of the world's largest petroleum companies.</p> <p>Mr. Robertson is a member of the American Institute of Professional Geologists.</p>	

**APPENDIX J**  
**USER / OTHER PROVIDED DOCUMENTATION**

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P.O. Box 702522  
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WEB [WWW.TERRA-SOLVE.COM](http://WWW.TERRA-SOLVE.COM)

### APPENDIX J: CLIENT QUESTIONNAIRE

Per ASTM Standard Practice E 1527-13, Section 6, User Responsibilities, the User of an ESA has specific obligations for conducting certain tasks during the ESA that will help identify the possible existence of *Recognized Environmental Conditions* in connection with the Property. Failure by the User to fully comply with the requirements may result in a *Data Gap* being noted in the report which can impair the User's ability to use the report to aid in qualification for *Landowner Liability Protections (LLPs)* under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Terra-Solve requests that this completed questionnaire be returned to us prior to issuance of the report. If it is not, we assume that the User does not have any information or knowledge pursuant to ASTM Standard Practice E 1527-13, Section 6, User Responsibilities. Terra-Solve makes no representations or warranties regarding a User's qualification for protection under any Federal, State, or local laws, rules, or regulations.

Please complete the questionnaire and return to Terra-Solve by email: [rick@terra-solve.com](mailto:rick@terra-solve.com) or by facsimile (469.687.8583). If there are any other parties which intend to be Users of the ESA Report, please forward copies of this questionnaire to them for their completion and have them return them.

Property Name: One Tract of Unimproved Land – 63.86 acres

Property Address: Harrell Road & Schneider Road; Howe, Grayson County, Texas

***Please provide answers to the following questions, if known:***

1. Environmental cleanup liens filed or recorded against the property (40 CFR 312.25):

Did a search of recorded land title records identify any environmental liens filed or recorded against the property under federal, tribal, state, or local law?  YES or  NO

If yes, please describe the lien(s):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Activity and use limitations that are in place on the property or that have been filed or recorded against the property (40 CFR 312.26(a)(1)(v) and (vii)):

Did a search of recorded land title records identify any activity and land use (AULs) restrictions, such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state, or local law?

YES or  NO

If yes, please describe the AUL(s):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



3. Specialized knowledge or experience of the person seeking to qualify for Landowner Liability Protections (40 CFR 312.28):

Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?  YES or  NO

If yes, please describe): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29):

Does the purchase price being paid for this property reasonably reflect its fair market value?  YES or  NO

If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?  YES or  NO

If yes, please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Commonly known or reasonably ascertainable information about the property (40 CFR 312.30):

Are you aware of commonly known or reasonably ascertainable information about the property that would help the Environmental Professional to identify conditions indicative of releases or threatened releases: For examples:

Do you know the past uses of the property?  YES or  NO If yes, please state the(se) use(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Do you know of specific chemicals that are or once were present at the property?  YES or  NO  
If yes, please name the(se) chemical(s):

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Do you know of any spills or other chemical releases that have taken place at the property?  YES or  NO  
If yes, please describe the(se) spill(s):

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Do you know of any environmental cleanups that have taken place at the property?  YES or  NO  
If yes, please describe the(se) cleanup(s):

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6. The degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination by appropriate investigation (40 CFR 312.31):

Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of releases at the property?  YES or  NO  
If yes, please explain:

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This Questionnaire was completed by:

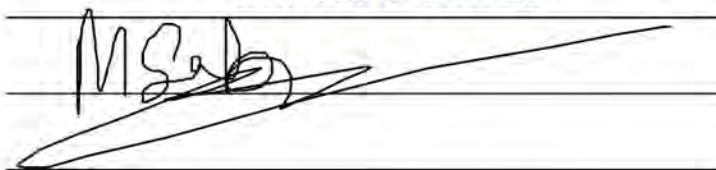
User Name:

**MAMIDI SUBRAHMANYAM**

Title:

**CURRENT OWNER**

Signature:



User Company:

User Address:

**2230 longview rd, irving  
tx 75063**

Date:

**05/09/2022**

Relationship to the Property:

**owner**

# of Years involved with the Property:

**1 + year**

Reason for the Phase I ESA:








**APPENDIX K**  
**OTHER SUPPORTING DOCUMENTATION**

---

 An official website of the United States government  
[Here is how you know](#)

MENU

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## Related Topics: [Envirofacts](#)

[CONTACT US](https://www.epa.gov/enviro/forms/contact-us-about-envirofacts)

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## SDWIS Violation Report

[<< Return](#)

<b>CITY OF HOWE</b>	
HOWE, TX 75459-0518	
903-532-5571	
<b>Primary Water Source Type</b>	<b>Population Served</b>
Ground water	Min Served= 3755, Max Served=3755
<p>This report was created on MAY-03-2022  Results are based on data extracted on APR-15-2022</p>	

**NOTICE:** EPA is aware of inaccuracies and underreporting of some data in the Safe Drinking Water Information System. We are working with the states to improve the quality of the data.

The tables below list all violations that the state reported to EPA for this water system. Health-based violations are listed first, followed by monitoring, reporting, and other violations.

**Health Based Violations:** amount of contaminant exceeded safety standard (MCL) or water was not treated properly.

**Monitoring and Reporting and Other Violations:** system failed to complete all samples or sample in a timely manner, or had another non-health-based violation. A significant monitoring violation means the system failed to take a large percentage of the required samples. Non-significant monitoring violations indicate that the water system failed to take some of the required samples, but did do some of the required sampling.

Type of Violation	Compliance Period Begin Date	Compliance Period End Date	Drinking Water Rule or Contaminant	Violation ID
Monitoring and Reporting (DBP)	JUL-01-2018	SEP-30-2018	Chlorine < <a href="https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants">https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants</a> >	11



<b>Follow-up Action</b>	<b>Date of Response</b>
St Public Notif received	JAN-23-2019
St Violation/Reminder Notice	JAN-10-2019
St Public Notif requested	JAN-10-2019
St Compliance achieved	JAN-04-2019

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<b>Type of Violation</b>	<b>Compliance Period Begin Date</b>	<b>Compliance Period End Date</b>	<b>Drinking Water Rule or Contaminant</b>	<b>Violation ID</b>
Follow-up Or Routine LCR Tap M/R	OCT-01-2015		Lead and Copper Rule < <a href="https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants">https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants</a> >	3

<b>Follow-up Action</b>	<b>Date of Response</b>
St Violation/Reminder Notice	NOV-05-2015
St Public Notif requested	NOV-05-2015
St Compliance achieved	JUL-08-2016
St Public Notif received	DEC-23-2015

---

**Watersheds (the land areas drinking water comes from):** Learn more about the health of this watershed. <<https://www.epa.gov/waterdata/surf-your-watershed>>

### **Drinking water in your state**

**Drinking water in general:** Visit EPA's Office of Ground Water and Drinking Water <<https://www.epa.gov/aboutepa/about-office-water#ground>> web site or call the Safe Drinking Water Hotline (1-800-426-4791). EPA has also prepared information <<https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants>> about various regulated drinking water contaminants.

### **Advanced tools for accessing EPA drinking water data:**

<https://www.epa.gov/waterdata/drinking-water-tools> <<https://www.epa.gov/waterdata/drinking-water-tools>>

**Research Data:** As well as monitoring the levels of drinking water contaminants for which EPA has set standards, EPA, states, and water systems also carry out studies of contaminants that may need to be regulated in the future. For more information about these, please see the National Contaminant Occurrence Database <<https://www.epa.gov/dwucmr/national-contaminant-occurrence-database-ncod>> and the Microbe and Disinfection Byproducts <[https://archive.epa.gov/enviro/html/icr/web/html/icr\\_query.html](https://archive.epa.gov/enviro/html/icr/web/html/icr_query.html)> study database.

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## **Additional Information**

In fiscal year 2005 (the last year for which EPA has complete data) based on information reported to EPA by the states, 1.5 percent of all systems reported a treatment technique violation, 6.1 percent of all systems reported an MCL violation, and 24 percent of all systems reported a reporting/monitoring violation.

**Data Refresh Information** <<https://epa.gov/resources/echo-data/about-the-data#sources>>



United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Grayson County, Texas





# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

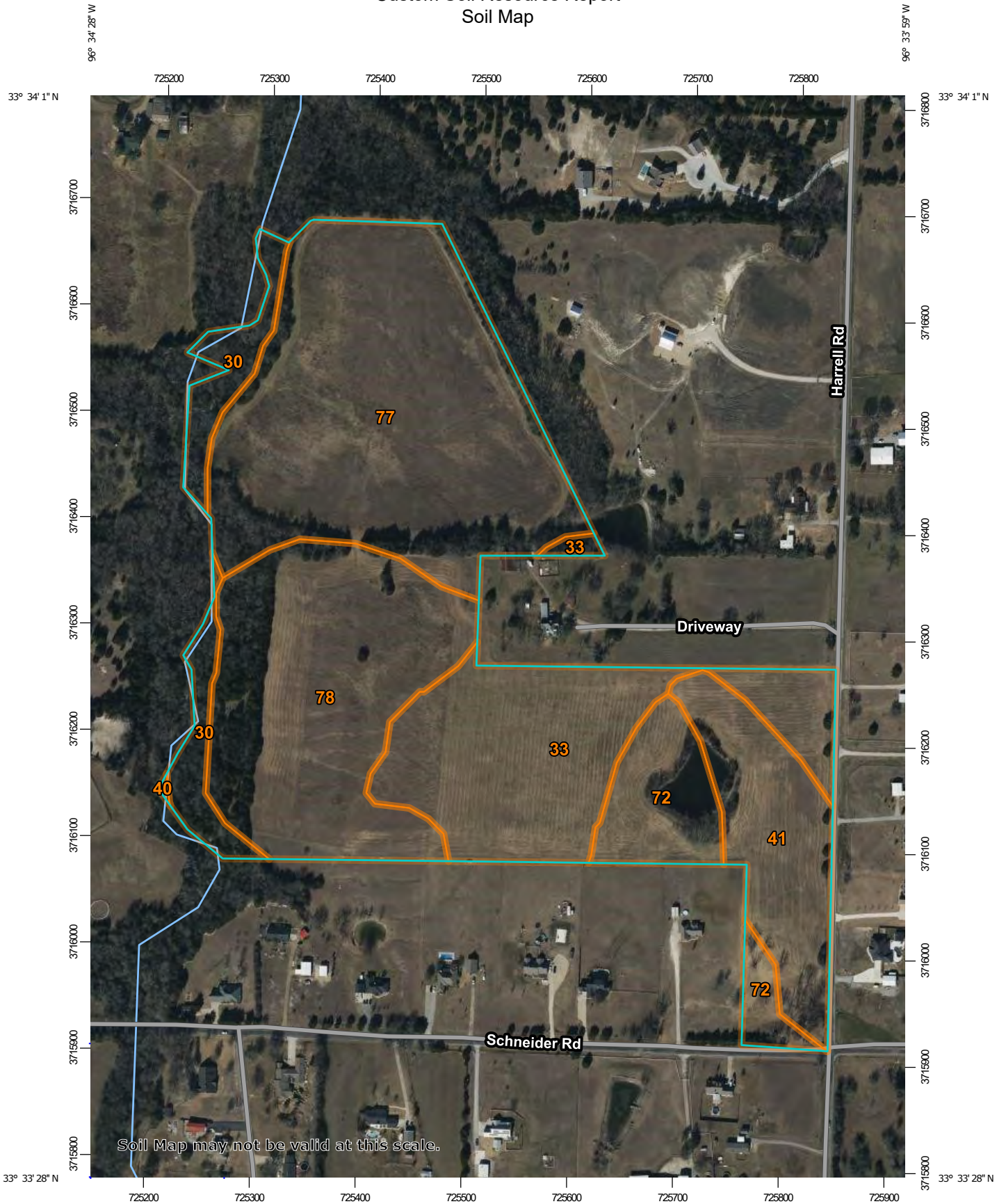
# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map



Map Scale: 1:4,960 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole


 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Grayson County, Texas  
 Survey Area Data: Version 18, Sep 8, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 22, 2022—Jan 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
30	Elbon soils, frequently flooded	3.6	5.9%
33	Fairlie and Houston Black clays, 1 to 3 percent slopes	11.4	18.9%
40	Heiden clay, 3 to 5 percent slopes	0.0	0.1%
41	Howe silty clay loam, 5 to 8 percent slopes	6.3	10.5%
72	Vertel clay, 5 to 12 percent slopes	4.4	7.3%
77	Whitewright-Eddy-Howe complex, 5 to 12 percent slopes	20.5	34.0%
78	Whitewright-Gullied land complex	14.1	23.3%
<b>Totals for Area of Interest</b>		<b>60.4</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

## Custom Soil Resource Report

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Grayson County, Texas

### 30—Elbon soils, frequently flooded

#### Map Unit Setting

*National map unit symbol:* d9jy  
*Elevation:* 400 to 550 feet  
*Mean annual precipitation:* 40 to 46 inches  
*Mean annual air temperature:* 64 degrees F  
*Frost-free period:* 225 to 240 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Elbon and similar soils:* 98 percent  
*Minor components:* 2 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Elbon

##### Setting

*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Clayey alluvium of holocene age derived from mixed sources

##### Typical profile

*H1 - 0 to 20 inches:* clay  
*H2 - 20 to 53 inches:* silty clay loam  
*H3 - 53 to 72 inches:* clay

##### Properties and qualities

*Slope:* 0 to 1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)  
*Depth to water table:* About 30 to 42 inches  
*Frequency of flooding:* FrequentNone  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Available water supply, 0 to 60 inches:* High (about 9.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* C  
*Ecological site:* R086AY013TX - Clayey Bottomland  
*Hydric soil rating:* No

#### Minor Components

##### Unnamed, hydric

*Percent of map unit:* 2 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

### 33—Fairlie and Houston Black clays, 1 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* d9k1  
*Elevation:* 400 to 1,000 feet  
*Mean annual precipitation:* 28 to 42 inches  
*Mean annual air temperature:* 63 to 70 degrees F  
*Frost-free period:* 220 to 260 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Fairlie and similar soils:* 58 percent  
*Houston black and similar soils:* 36 percent  
*Minor components:* 6 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Fairlie

##### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from austin chalk formation

##### Typical profile

*H1 - 0 to 15 inches:* clay  
*H2 - 15 to 46 inches:* clay  
*H3 - 46 to 55 inches:* bedrock

##### Properties and qualities

*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock  
*Drainage class:* Moderately well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 7.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* D  
*Ecological site:* R086AY010TX - Northern Blackland

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Houston Black

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Summit, shoulder

*Landform position (three-dimensional):* Interfluvium

*Microfeatures of landform position:* Circular gilgai

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Residuum weathered from calcareous shale of Taylor Marl and Eagleford shale

#### Typical profile

*H1 - 0 to 17 inches:* clay

*H2 - 17 to 41 inches:* clay

*H3 - 41 to 65 inches:* clay

#### Properties and qualities

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 40 percent

*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 2.0

*Available water supply, 0 to 60 inches:* High (about 9.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* D

*Ecological site:* R086AY010TX - Northern Blackland

*Hydric soil rating:* No

### Minor Components

#### Unnamed

*Percent of map unit:* 6 percent

*Hydric soil rating:* No

## 40—Heiden clay, 3 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* 2v1vc

*Elevation:* 260 to 890 feet

*Mean annual precipitation:* 33 to 42 inches

*Mean annual air temperature:* 63 to 68 degrees F

*Frost-free period:* 233 to 260 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Heiden and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Heiden

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder, backslope

*Landform position (three-dimensional):* Interfluve, side slope

*Microfeatures of landform position:* Linear gilgai

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from mudstone

#### Typical profile

*Ap - 0 to 6 inches:* clay

*Bkss1 - 6 to 18 inches:* clay

*Bkss2 - 18 to 58 inches:* clay

*CBdk - 58 to 80 inches:* clay

#### Properties and qualities

*Slope:* 3 to 5 percent

*Depth to restrictive feature:* 40 to 65 inches to densic material

*Drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 40 percent

*Gypsum, maximum content:* 5 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 12.0

*Available water supply, 0 to 60 inches:* High (about 9.3 inches)



## Custom Soil Resource Report

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* R086AY011TX - Southern Blackland

*Hydric soil rating:* No

### Minor Components

#### Houston black

*Percent of map unit:* 10 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Microfeatures of landform position:* Circular gilgai

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Ecological site:* R086AY011TX - Southern Blackland

*Hydric soil rating:* No

#### Ferris, moderately eroded

*Percent of map unit:* 5 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Microfeatures of landform position:* Linear gilgai

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Ecological site:* R086AY009TX - Southern Eroded Blackland

*Hydric soil rating:* No

## 41—Howe silty clay loam, 5 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* d9kb

*Elevation:* 600 to 800 feet

*Mean annual precipitation:* 35 to 41 inches

*Mean annual air temperature:* 63 to 66 degrees F

*Frost-free period:* 230 to 250 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Howe and similar soils:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Howe

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Backslope

## Custom Soil Resource Report

*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from austin chalk formation

### Typical profile

*H1 - 0 to 7 inches:* silty clay loam  
*H2 - 7 to 26 inches:* silty clay loam  
*H3 - 26 to 32 inches:* bedrock

### Properties and qualities

*Slope:* 5 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 80 percent  
*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* R086AY006TX - Northern Clay Loam  
*Hydric soil rating:* No

## 72—Vertel clay, 5 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* d9lf  
*Elevation:* 450 to 850 feet  
*Mean annual precipitation:* 30 to 42 inches  
*Mean annual air temperature:* 64 to 68 degrees F  
*Frost-free period:* 225 to 235 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Vertel and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Vertel

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Microfeatures of landform position:* Linear gilgai  
*Down-slope shape:* Linear

## Custom Soil Resource Report

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from shale

### Typical profile

*H1 - 0 to 8 inches:* clay

*H2 - 8 to 34 inches:* clay

*H3 - 34 to 40 inches:* clay

### Properties and qualities

*Slope:* 5 to 12 percent

*Depth to restrictive feature:* 24 to 40 inches to densic bedrock

*Drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 1 percent

*Gypsum, maximum content:* 3 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 2.0

*Available water supply, 0 to 60 inches:* Low (about 3.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* D

*Ecological site:* R086AY008TX - Northern Eroded Blackland

*Hydric soil rating:* No

## 77—Whitewright-Eddy-Howe complex, 5 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* d9ll

*Elevation:* 400 to 2,000 feet

*Mean annual precipitation:* 28 to 44 inches

*Mean annual air temperature:* 63 to 70 degrees F

*Frost-free period:* 225 to 270 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Whitewright and similar soils:* 41 percent

*Eddy and similar soils:* 28 percent

*Howe and similar soils:* 25 percent

*Minor components:* 6 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Whitewright

#### Setting

*Landform:* Ridges

## Custom Soil Resource Report

*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from austin chalk formation

### Typical profile

*H1 - 0 to 5 inches:* silty clay loam  
*H2 - 5 to 16 inches:* silty clay loam  
*H3 - 16 to 20 inches:* bedrock

### Properties and qualities

*Slope:* 5 to 12 percent  
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 70 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R086AY001TX - Northern Chalky Ridge  
*Hydric soil rating:* No

## Description of Eddy

### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from austin chalk

### Typical profile

*H1 - 0 to 5 inches:* gravelly clay loam  
*H2 - 5 to 11 inches:* very gravelly clay loam  
*H3 - 11 to 16 inches:* bedrock

### Properties and qualities

*Slope:* 5 to 12 percent  
*Depth to restrictive feature:* 3 to 15 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None



## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 80 percent  
*Available water supply, 0 to 60 inches:* Very low (about 0.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R086AY001TX - Northern Chalky Ridge  
*Hydric soil rating:* No

### Description of Howe

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Residuum weathered from austin chalk formation

#### Typical profile

*H1 - 0 to 5 inches:* silty clay loam  
*H2 - 5 to 22 inches:* silty clay loam  
*H3 - 22 to 30 inches:* bedrock

#### Properties and qualities

*Slope:* 5 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 80 percent  
*Available water supply, 0 to 60 inches:* Low (about 3.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* C  
*Ecological site:* R086AY006TX - Northern Clay Loam  
*Hydric soil rating:* No

### Minor Components

#### Unnamed

*Percent of map unit:* 6 percent  
*Hydric soil rating:* No

## 78—Whitewright-Gullied land complex

### Map Unit Setting

*National map unit symbol:* d9lm  
*Elevation:* 10 to 6,000 feet  
*Mean annual precipitation:* 10 to 46 inches  
*Mean annual air temperature:* 57 to 73 degrees F  
*Frost-free period:* 220 to 320 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Whitewright, severely eroded, and similar soils:* 43 percent  
*Gullied land:* 30 percent  
*Minor components:* 27 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Whitewright, Severely Eroded

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Residuum weathered from austin chalk formation

#### Typical profile

*H1 - 0 to 4 inches:* silty clay loam  
*H2 - 4 to 12 inches:* silty clay loam  
*H3 - 12 to 20 inches:* bedrock

#### Properties and qualities

*Slope:* 5 to 10 percent  
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 70 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

## Custom Soil Resource Report

*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* R086AY001TX - Northern Chalky Ridge  
*Hydric soil rating:* No

### Description of Gullied Land

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Microfeatures of landform position:* Gullies  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Parent material:* Residuum weathered from austin chalk of cretaceous age

#### Typical profile

*H1 - 0 to 40 inches:* variable

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* No

### Minor Components

#### Unnamed

*Percent of map unit:* 27 percent  
*Hydric soil rating:* No

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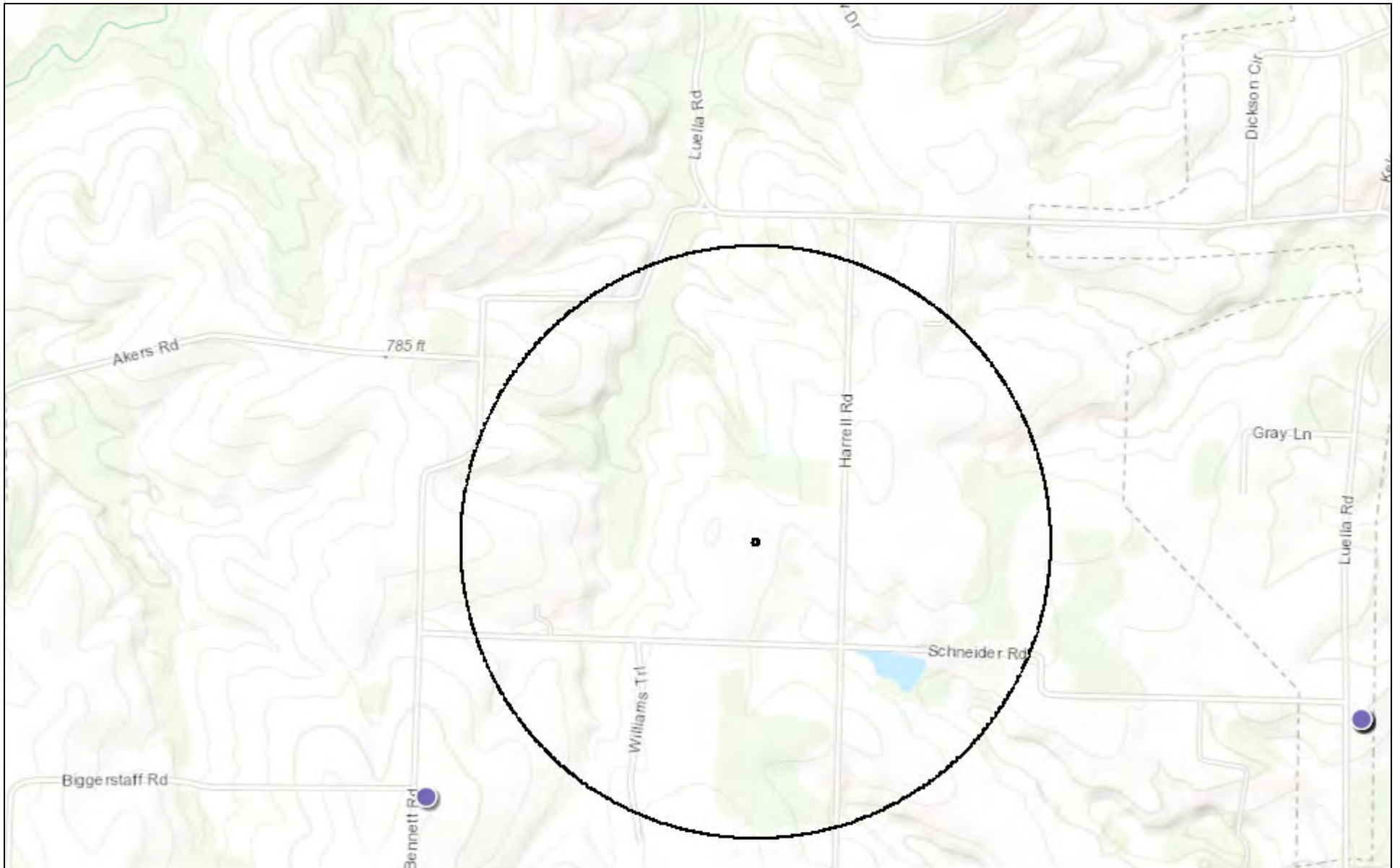
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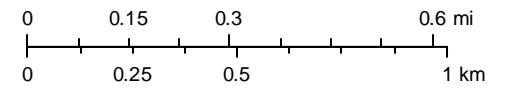
# Water Well Map



 TWDB Groundwater

May 2, 2022

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB. The TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose. The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact WDI-Support @ twdb.texas.gov.



1:18,056

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

[GWDB Reports and Downloads](#)

**Well Basic Details**

[Scanned Documents](#)

State Well Number	1828502
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)	33.555278
Latitude (degrees minutes seconds)	33° 33' 19" N
Longitude (decimal degrees)	-96.579444
Longitude (degrees minutes seconds)	096° 34' 46" W
Coordinate Source	+/- 1 Second
Aquifer Code	212WDBN - Woodbine Sand
Aquifer	Woodbine
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	820
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1260
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	2/0/1967
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	Luella Water Supply Corp.Well No.1
Driller	J.L. Myers Company
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	G0910032A
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	4/26/1977
Last Update Date	12/29/1994

**Remarks** Cemented from 1105 ft. to surface. Screened and gravel packed. Pump set at 661 ft. Drawdown 55 ft. pumping 130 gpm when drilled. Pumping level 580 ft. on June 5, 1971; 600 ft at 95 gpm on Feb. 21, 1972; and 611 ft. on Apr. 26, 1977.

**Casing**

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
3	Blank	Steel				
3	Screen	Stainless Steel				
3	Blank	Steel				1260
7	Blank	Steel			0	1105

**Well Tests - No Data**

**Lithology - No Data**

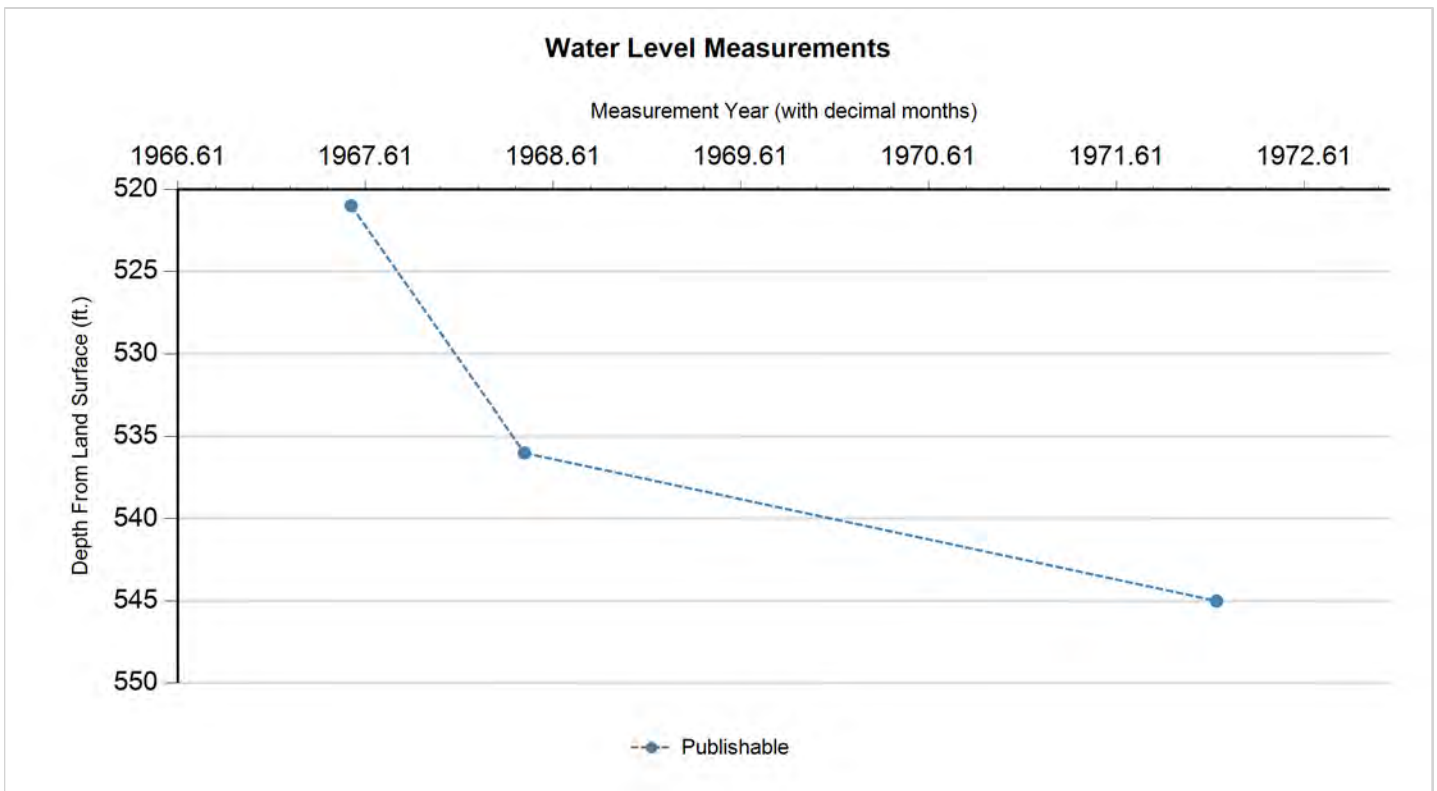
**Annular Seal Range - No Data**

**Borehole - No Data**

**Plugged Back - No Data**

**Filter Pack - No Data**

**Packers - No Data**



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	7/13/1967		521		299	1	Other or Source of Measurement Unknown	Unknown		
P	6/15/1968		536	15.00	284	1	Other or Source of Measurement Unknown	Unknown		
P	2/21/1972		545	9.00	275	1	Other or Source of Measurement Unknown	Unknown		

#### Code Descriptions

Status Code	Status Description
P	Publishable



### Water Quality Analysis

**Sample Date:** 3/2/1967     **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)		18.33	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		412.78	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		459	mg/L	
00910	CALCIUM (MG/L)		1	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		22	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		29	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		6	mg/L	
01045	IRON, TOTAL (UG/L AS FE)		200	ug/L	
00920	MAGNESIUM (MG/L)	<	1	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		1.4	mg/L	
00400	PH (STANDARD UNITS), FIELD		8.4	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		8.12		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		42.98		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		254	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		900	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		99	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		634	mg/L	

### Water Quality Analysis

**Sample Date:** 3/31/1970    **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)		5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		407	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		484.48	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)		20	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		6	mg/L	
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)	<	0.4	mg/L	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		8.01		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		41.12		
00932	SODIUM, CALCULATED, PERCENT		98	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		243	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		1078	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		111	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		622	mg/L	

### Water Quality Analysis

**Sample Date:** 4/26/1977    **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)			415 mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)			506.44 mg/L	
00910	CALCIUM (MG/L)			0.8 mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)			0 mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)			24 mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)			1.2 mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)			4 mg/L	
01045	IRON, TOTAL (UG/L AS FE)			140 ug/L	
00920	MAGNESIUM (MG/L)			0.5 mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<		0.4 mg/L	
00400	PH (STANDARD UNITS), FIELD			8.2 SU	
00937	POTASSIUM, TOTAL (MG/L AS K)			1 mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED			8.22	
00955	SILICA, DISSOLVED (MG/L AS SiO2)			12 mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)			53.15	
00932	SODIUM, CALCULATED, PERCENT			99 PCT	
00929	SODIUM, TOTAL (MG/L AS Na)			246 mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)			1088 MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)			96 mg/L	
00010	TEMPERATURE, WATER (CELSIUS)			27 C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)			630 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/gwdbprpt.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).

# National Flood Hazard Layer FIRMMette



96°34'38"W 33°34'4"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation 17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/2/2022 at 1:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

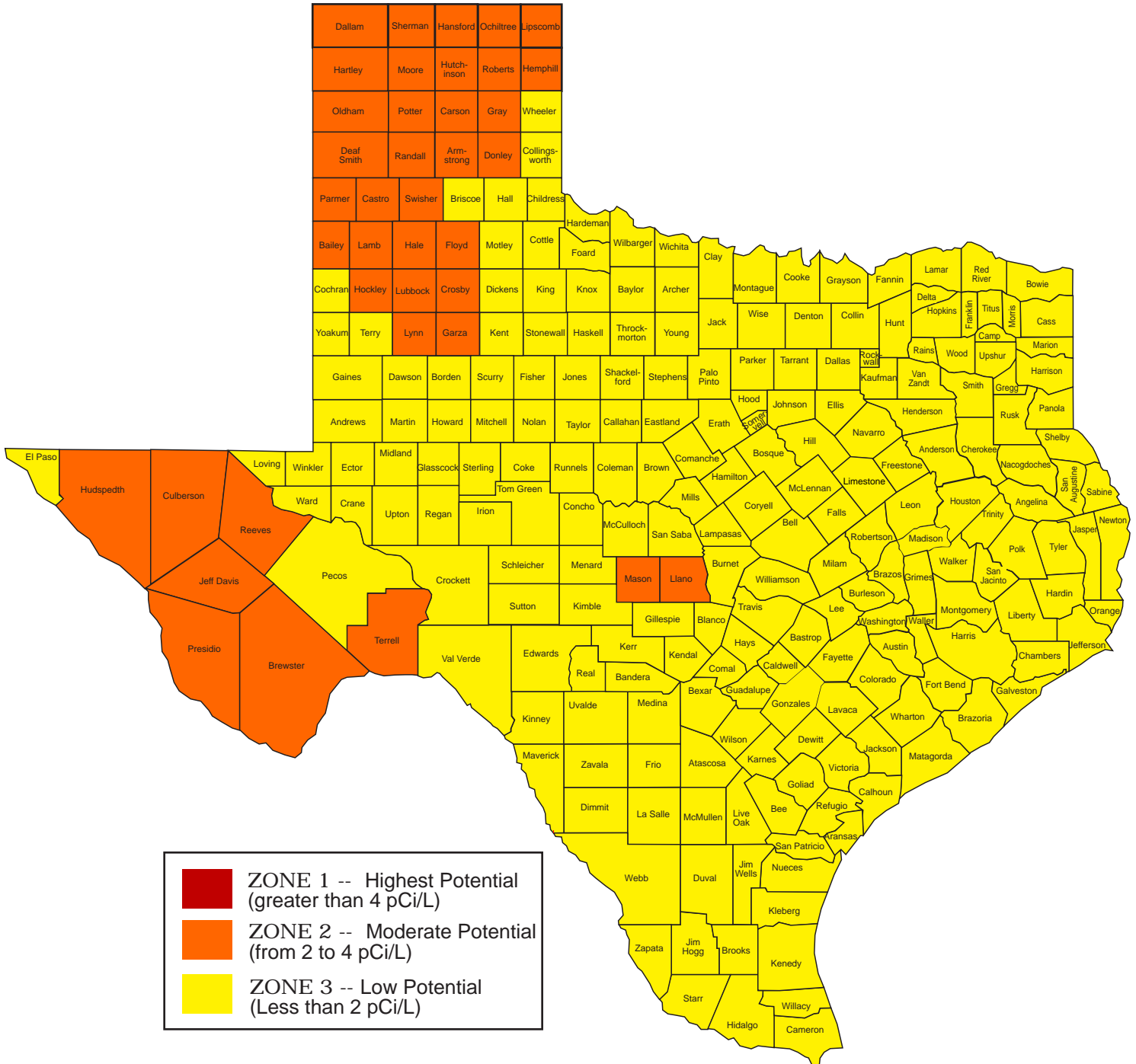
0 250 500 1,000 1,500 2,000 Feet 1:6,000

96°34'W 33°33'34"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020



# TEXAS MAP OF RADON ZONES

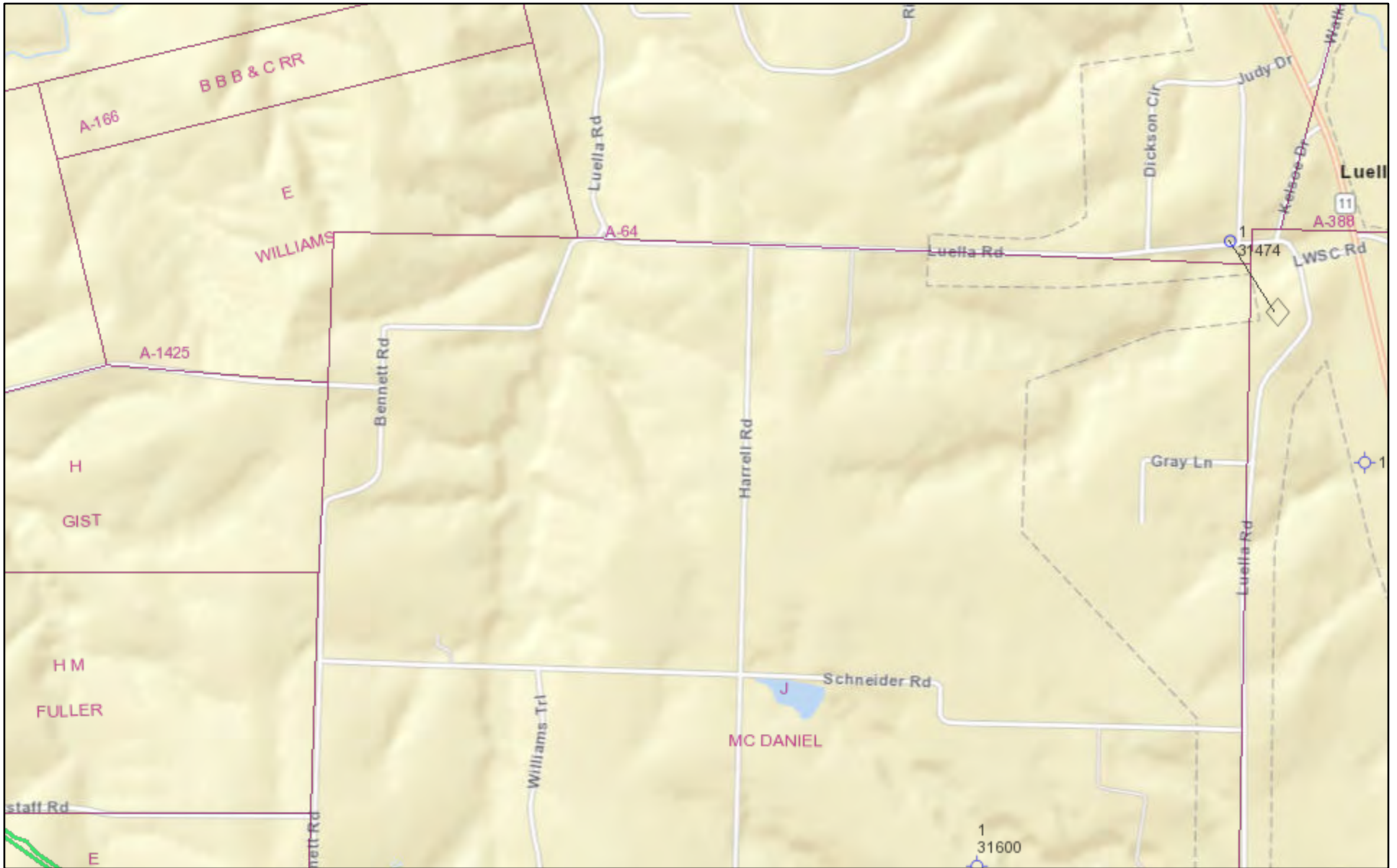


**ZONE 1** -- Highest Potential (greater than 4 pCi/L)

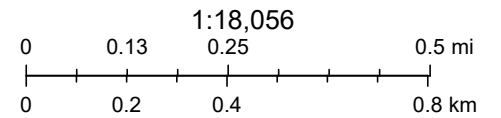
**ZONE 2** -- Moderate Potential (from 2 to 4 pCi/L)

**ZONE 3** -- Low Potential (Less than 2 pCi/L)

# RAILROAD COMMISSION MAP



May 2, 2022



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

# SHERMAN, TEXAS

Home > North America > United States > Texas

Elevation: 745 feet Latitude: 33 37N Longitude: 096 35W



## WEATHER

- Monthly - Summary
  - Nearby
  - Forecast
- Monthly - All Data
- Climate Summary
- Daily Averages
- Hourly Data

## CURRENT CONDITIONS



### Sunrise/Set

06:34 am

08:11 pm

### Local Time

9:09 am CDT

4 May, 2022

SHARE

PRINT THIS DATA



## MONTHLY - WEATHER AVERAGES SUMMARY [\[ Show All Data \]](#)

[ °C ] °F

### Average Temperature

Years on Record: 58

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	64	43	46	54	63	72	80	84	84	77	66	54	46

### Average High Temperature

Years on Record: 58

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	75	53	57	65	74	82	91	95	95	88	78	65	56

### Average Low Temperature

Years on Record: 58

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	54	33	36	43	53	62	70	74	73	66	55	44	36

### Average Precipitation

Years on Record: 63

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
in.	38.1	2.2	2.6	2.9	4.3	5.1	3.5	3.3	2.8	3	3.4	2.4	2.5

### Highest Recorded Temperature

Years on Record: 62

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	113	86	88	95	94	107	106	109	113	107	100	87	88

### Lowest Recorded Temperature

Years on Record: 61

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	-2	-2	---	7	28	37	50	57	56	36	22	17	7

### Average Length of Day

Years on Record: 30

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hours	12.6	10.7	11.4	12.4	13.5	14.4	14.8	14.6	13.8	12.8	11.7	10.9	10.4

### Average Number of Days Above 90F/32C

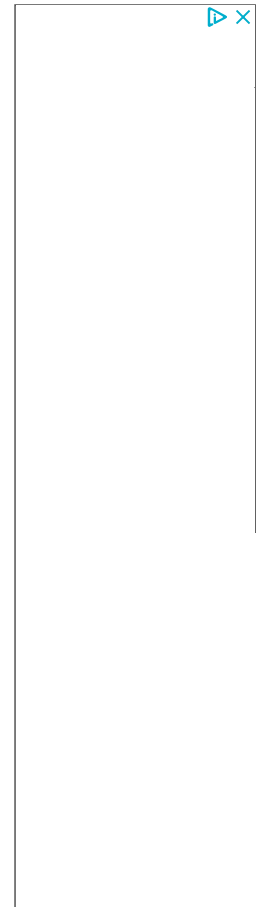
Years on Record: 10

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Days	108	---	---	1	1	7	21	27	28	19	4	---	---

### Average Number of Days Below 32F/0C

Years on Record: 10

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



Empty search box with close button

in.	4.7	2.5	1.5	---	---	---	---	---	---	---	---	0.1	0.6
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Average Number of Rainy Days

Years on Record: 63

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Days	68.6	5	5.6	6	7	7.2	6.3	6	5.3	5	5.5	4.2	5.5

Average Relative Humidity

Years on Record: 12

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
%	64	70	68	62	63	68	66	63	59	61	62	62	67

Average Dew Point

Years on Record: 12

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F	50	34	36	39	49	60	66	68	66	61	51	39	34



NEARBY - MAP



NEARBY - LIST



- Southmayd, Texas (2 mi / 3 km)
- Knollwood, Texas (8 mi / 14 km)
- Denison, Texas (13 mi / 22 km)
- Gunter, Texas (14 mi / 24 km)
- Staley, Texas (14 mi / 22 km)

GEOBASE

- Sherman, Texas

WEATHER FORECAST

As of 1:00 pm 12/31/69 CST

403 Forbidden  
nginx/1.18.0 (Ubuntu)

Forecast data from The Norwegian Meteorological Institute; Current conditions data from the National Weather Service  
All historical data and normals © Weatherbase

STORIES FROM OUR PARTNERS

Dallas, Texas Launches New Policy For Cars Used Less Than 49 Miles/Day



Last Update: 3/17/2022

## GRAYSON COUNTY

### AMPHIBIANS

**eastern tiger salamander** *Ambystoma tigrinum*

Terrestrial adults generally occur under cover objects or in burrows surrounding a variety of lentic freshwater habitats, such as ponds, lakes, bottomland wetlands, or upland ephemeral pools. The specific terrestrial habitats are also varied and the occurrence of this species seems to be more closely associated with sandy, loamy or other soils which have easy burrowing properties, rather than any particular ecological system type. Requires fishless breeding pools for successful reproduction.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**southern crawfish frog** *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestrial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4T4 State Rank: S3

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B,S3N

**black rail** *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

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## GRAYSON COUNTY

### BIRDS

**chestnut-collared longspur**      *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**Franklin's gull**      *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

**interior least tern**      *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: DL: Delisted	State Status:	SGCN: Removed from Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

**piping plover**      *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

**rufa red knot**      *Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

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## GRAYSON COUNTY

### BIRDS

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

**wood stork** *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

### FISH

**american eel** *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habitats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

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## GRAYSON COUNTY

### FISH

**blue sucker** *Cypleptus elongatus*

Blue Sucker usually inhabit rapids, riffles, runs and pools with moderate to fast current, with bottoms of exposed bedrock sometimes in combination with hard clay, sand, gravel, and boulders; generally intolerant of highly turbid conditions. Adults winter in deep pools and move upstream in spring to spawn on riffles. Current distribution in Texas includes the Red River downstream of Lake Texoma, Sabine and Neches rivers, and Colorado River downstream of Austin, Texas. May occur in other river systems (Warren et al. 2000).

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

**chub shiner** *Notropis potteri*

Brazos, Colorado, San Jacinto, and Trinity river basins. Flowing water with silt or sand substrate

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

**goldeye** *Hiodon alosoides*

Restricted to the Red River basin; adults in quiet turbid water of medium to large lowland rivers, small lakes, marshes and muddy shallows connected to them.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**orangebelly darter** *Etheostoma radiosum*

Streams, creeks, and small to moderate-sized rivers in the Red River basin. Riffle areas of gravel-bottoms streams with moderate to high currents.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**paddlefish** *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**Red River shiner** *Notropis bairdi*

Red River basin; typically found in turbid waters of broad, shallow channels of main stream, over bottom mostly of silt and shifting sand.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**shovelnose sturgeon** *Scaphirhynchus platyrhynchus*

Found only in the Red River below Denison Dam (Lake Texoma). Evidence of the presence of this species in the lower Pecos River, during prehistoric times, strongly suggests that it likely occurred in many Texas rivers. Inhabits flowing water over sandy bottoms or near rocky points or bars.

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## GRAYSON COUNTY

### FISH

Federal Status: SAT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

**silver chub** *Macrhybopsis storeriana*

Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

### INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

**No accepted common name** *Bombus variabilis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1G2	State Rank: SNR

### MAMMALS

**big brown bat** *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**black bear** *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

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## GRAYSON COUNTY

### MAMMALS

**eastern red bat** *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S4

**eastern spotted skunk** *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S1S3

**hoary bat** *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S4

**long-tailed weasel** *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**mountain lion** *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2S3

**muskrat** *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

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## GRAYSON COUNTY

### MAMMALS

**swamp rabbit**

*Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**tricolored bat**

*Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S2

### MOLLUSKS

**Texas heelsplitter**

*Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G1G3 State Rank: S1

### REPTILES

**common garter snake**

*Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: N  
Endemic: Global Rank: G5 State Rank: S2

**eastern box turtle**

*Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**prairie skink**

*Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

#### DISCLAIMER

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## GRAYSON COUNTY

### REPTILES

#### slender glass lizard

*Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

#### smooth softshell

*Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

#### Texas horned lizard

*Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:

State Status: T

SGCN: Y

Endemic: N

Global Rank: G4G5

State Rank: S3

#### timber (canebrake) rattlesnake

*Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G4

State Rank: S4

#### western box turtle

*Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

#### western chicken turtle

*Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5T5

State Rank: S2S3

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## GRAYSON COUNTY

### PLANTS

**bigflower cornsalad**

*Valerianella stenocarpa*

Usually along creekbeds or in vernal moist grassy open areas (Carr 2015).

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

**Hall's prairie clover**

*Dalea hallii*

In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S2

**Sutherland hawthorn**

*Crataegus viridis var. glabriuscula*

In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above/near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5T3T4

State Rank: S3






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May 2, 2022

### Wetlands

- |   |                                |   |                                   |   |          |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland       |  | Lake     |
|  | Estuarine and Marine Wetland   |  | Freshwater Forested/Shrub Wetland |  | Other    |
|   |                                |  | Freshwater Pond                   |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

**APPENDIX L**  
**RECORDS OF COMMUNICATION**

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## Rick Robertson

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**From:** Andrew Brazie <braziea@co.grayson.tx.us>  
**Sent:** Friday, April 29, 2022 4:36 PM  
**To:** rick@terra-solve.com

Good afternoon,

Reference your request on the parcel near Harrell Rd and Schneider, I am unable to find any records showing our response.

Any further questions, please feel free to contact me.

Thank you,

Andrew Brazie  
Assistant Fire Marshal  
Grayson County  
200 S. Crockett  
Sherman, Texas 75090  
O 903.813.4200.2283  
[braziea@co.grayson.tx.us](mailto:braziea@co.grayson.tx.us)





## Rick Robertson

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**From:** Kerri Pruitt <kpruitt@cityofhowe.org>  
**Sent:** Tuesday, April 19, 2022 3:12 PM  
**To:** Rick Robertson  
**Subject:** Re: request for public information

Good Afternoon,

This is not in the City of Howe's ETJ. I hope you find what your needing.

***Kerri Pruitt***  
***City Secretary***

***City Of Howe***  
***903-532-5571***  
***903-532-6320 fx***  
***kpruitt@cityofhowe.org***

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**From:** Rick Robertson <rick@terra-solve.com>  
**Sent:** Tuesday, April 19, 2022 3:04 PM  
**To:** Kerri Pruitt <kpruitt@cityofhowe.org>  
**Subject:** request for public information

I have attached the same forms I sent to Grayson County as the site in question comes up as "Howe" but I know it is not in your city limits, so maybe it is in your ETJ.

It is vacant land so you likely have no records anyway.

Please let me know what you find. Thank you kindly.

RICK ROBERTSON



**TERRA • SOLVE**  
ENVIRONMENTAL CONSULTANTS

CHARLES R. ROBERTSON, PG, CPG  
TERRA-SOLVE, INC.  
P.O. BOX 702522  
DALLAS, TX 75370-2522

O 972.267.1900  
C 214.641.8155  
F 469.687.8583

**APPENDIX M**  
**TERMINOLOGY**

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## TERMINOLOGY

The following provides definitions and descriptions of certain terms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E 1527-13. The Standard Practice should be referenced for further detail (such as the precise wording), related definitions, or additional explanation regarding the meaning of terms.

*recognized environmental condition(s) (REC)* – the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: (1) due to release to the *environment*; (2) under conditions indicative of a *release* to the *environment*; or (3) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis conditions* are not *recognized environmental conditions*.

*de minimis conditions* – a condition that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* nor *controlled recognized environmental conditions*.

*controlled recognized environmental condition* — a *recognized environmental condition* resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *property* use restrictions, *activity land use limitations*, *institutional controls*, or *engineering controls*). (See Note 2.) A condition considered by the *environmental professional* to be a *controlled recognized environmental condition* shall be listed in the findings section of the *Phase I Environmental Site Assessment report*, and as a *recognized environmental condition* in the conclusions section of the *Phase I Environmental Site Assessment report*. (See Note 3.)

NOTE 2—For example, if a leaking underground storage tank has been cleaned up to a commercial use standard, but does not meet unrestricted residential cleanup criteria, this would be considered a controlled recognized environmental condition. The “control” is represented by the restriction that the property use remain commercial.

NOTE 3—A condition identified as a *controlled recognized environmental condition* does not imply that the *environmental professional* has evaluated or confirmed the adequacy, implementation, or continued effectiveness of the required control that has been, or is intended to be, implemented.

*historical recognized environmental condition* — a past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *property* and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the *property* to any required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*). Before calling the past *release* a *historical recognized environmental condition*, the *environmental professional* must determine whether the past *release* is a *recognized environmental condition* at the time the *Phase I Environmental Site Assessment* is conducted (for example, if there has been a change in the regulatory criteria). If the *environmental professional* considers the past *release* to be a *recognized environmental condition* at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a *recognized environmental condition*.

*business environmental risk* — a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigation in this practice.

*material threat* – a physically observable or *obvious* threat which is reasonably likely to lead to a *release* that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health or the environment.

An example might include an aboveground storage tank system that contains a *hazardous substance* and which shows evidence of damage. The damage would represent a *material threat* if it is deemed serious enough that it may cause or contribute to tank integrity failure with a *release* of contents to the *environment*.

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