Water Quality Protection: Groundwater Conservation District Responsibilities and Obligations in Texas

WATER CODE

TITLE 2. WATER ADMINISTRATION

SUBTITLE E. GROUNDWATER MANAGEMENT

CHAPTER 36. GROUNDWATER CONSERVATION DISTRICTS

SUBCHAPTER A. GENERAL PROVISIONS

SUBCHAPTER D. POWERS AND DUTIES

Sec. 36.101. RULEMAKING POWER. (a) A district may make and enforce rules, including rules limiting groundwater production based on tract size or the spacing of wells, to provide for conserving, preserving, protecting, and recharging of the groundwater or of a groundwater reservoir or its subdivisions in order to control subsidence, prevent degradation of water quality, or prevent waste of groundwater and to carry out the powers and duties provided by this chapter. In adopting a rule under this chapter, a district shall:

(1) consider all groundwater uses and needs;

(2) develop rules that are fair and impartial;

(3) consider the groundwater ownership and rights described by Section 36.002;

(4) consider the public interest in conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, and in controlling subsidence caused by withdrawal of groundwater from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution;

Section 1.2 Purpose of the Rules

(1.2.1) These Rules are promulgated under the District's authority pursuant to its enabling legislation and Texas Water Code Chapter 36, which authorize the District to make and enforce rules to provide for the conservation, preservation, protection, and recharge of groundwater and aquifers within the District. These Rules are also intended to fulfill the District's Mission and to minimize the drawdown of the water table, minimize the reduction of artesian pressure, control subsidence, minimize interference between wells, prevent the degradation of the quality of groundwater, prevent waste of groundwater, preserve historic use of groundwater, give consideration to the service needs of retail water utilities, and carry out the District's powers and duties.

(1.2.2) These Rules, and any orders, regulations, requirements, resolutions, policies, directives, standards, guidelines, management plans, or other regulatory measures implemented by the Board, have been promulgated to fulfill these objectives. These Rules may not be construed to limit, restrict, or deprive the District or Board of any exercise of any power, duty, or jurisdiction conferred by the District's enabling legislation, Texas Water Code Chapter 36, or any other applicable law or statute.

Adopted March 25, 2004; Effective March 29, 2004 by Board Order 102. Repealed August 31, 2005, 2005; Effective September 1,2005 by Board Order 114. Amended June 14, 2007; Effective June 14, 2007 by Board Order 140.

WASTE -

A. The withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for agricultural, gardening, domestic, or stock raising purposes.

B. The flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose.

C. The escape of groundwater from one groundwater reservoir to any other reservoir or geologic strata that does not contain groundwater.

D. The pollution or harmful alteration of groundwater in a groundwater reservoir by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground.

E. Willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule, or order issued by the Texas Commission on Environmental Quality under Texas Water Code, Chapter 26, "Water Quality Control."

F. Groundwater pumped for irrigation that escapes as irrigation tail water onto land other than that of the owner of the well unless

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 309	DOMESTIC WASTEWATER EFFLUENT LIMITATION AND PLANT SITING
SUBCHAPTER C	LAND APPLICATION OF SEWAGE EFFLUENT
RULE §309.20	Land Application of Sewage Effluent

(a) Technical report. Each project shall be accompanied by a preliminary engineering report outlining the design of the wastewater application system. The report shall include maps, diagrams, basis of design, calculations, and other pertinent data as described in this section.

(1) Location.

(A) Site map. A copy of the United States Geological Survey 7 1/2 minute topographic map or equivalent for renewals of the area which indicates the exact boundaries of the application operation must be included in the technical report. A map from the 7 1/2 minute series is required if it is published for the site area.

(B) Site drawing. A scale drawing and legal description of all land which is to be a part of the application operation will be included in the technical report. The drawing must show the location of all existing and proposed facilities to include: buildings, wastewater application or treatment facilities, effluent storage and tail water control facilities, buffer zones, and water wells. This drawing must have an index of wells, adjacent property, and other prominent features. Ownership of land tracts adjacent to the irrigated land shall be shown on the site drawing and identified by listing legal ownership.

(2) Geology. The existence of any unusual geological formations such as faults or sink holes on the wastewater application site shall be noted in the technical report and identified on the site map. The conceptual design of the wastewater application system shall include appropriate engineering considerations with respect to limitations presented by these features.

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 309	DOMESTIC WASTEWATER EFFLUENT LIMITATION AND PLANT SITING
SUBCHAPTER C	LAND APPLICATION OF SEWAGE EFFLUENT
RULE §309.20	Land Application of Sewage Effluent

(3) Soils. A general survey of soils with regard to standard classifications shall be compiled for all areas of wastewater application to the soil. Soil surveys compiled by the United States Department of Agriculture Natural Resources Conservation Service shall be utilized where available. Conceptual design aspects related to wastewater application rates, crop systems, seepage, and runoff controls shall be based upon the soil physical and chemical properties, hydraulic characteristics, and crop use suitabilities for the wastewater application site.

(4) Groundwater quality. The technical report shall fully assess the impact of the wastewater application operation on the uses of local groundwater resources. In regard to performing this assessment, the report shall systematically address subparagraphs (A) and (B) of this paragraph.

(A) All water wells within a 1/2 mile radius of the application site boundaries shall be located. If available, the water uses from each well shall be identified. In addition, aspects of construction such as well logs, casing, yield, static elevation, water quality, and age shall be furnished and evaluated in the technical report. Local groundwater resources below the wastewater application site shall be monitored to establish preoperational baseline groundwater quality when monitoring wells are available. Monitoring shall provide the following analytical determination: total dissolved solids, nitrate nitrogen, chlorides, sulfates, pH, and *Escherichia coli* bacteria.

(B) Groundwater resources serving as sources or potential sources of domestic raw water supply will be protected by limiting wastewater application rates. Effluent storage and/or treatment ponds presenting seepage hazards to these groundwater resources shall be constructed with adequate liners.

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 309	DOMESTIC WASTEWATER EFFLUENT LIMITATION AND PLANT SITING
SUBCHAPTER B	LOCATION STANDARDS
RULE §309.12	Site Selection to Protect Water in the State

The commission may not issue a permit for a new facility or for the substantial change of an existing facility unless it finds that the proposed site, when evaluated in light of the proposed design, construction or operational features, minimizes possible contamination of water in the state. In making this determination, the commission may consider the following factors:

(1) active geologic processes;

(2) groundwater conditions such as groundwater flow rate, groundwater quality, length of flow path to points of discharge, and aquifer recharge or discharge conditions;

(3) soil conditions such as stratigraphic profile and complexity, hydraulic conductivity of strata, and separation distance from the facility to the aquifer and points of discharge to surface water in the state; and

(4) climatological conditions.

Source Note: The provisions of this §309.12 adopted to be effective March 19, 1990, 15 TexReg 1160; amended to be effective June 5, 1998, 23 TexReg 5723; amended to be effective January 9, 2020, 45 TexReg 370

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 222	SUBSURFACE AREA DRIP DISPERSAL SYSTEMS
SUBCHAPTER C	SITING REQUIREMENTS AND EFFLUENT LIMITATIONS
RULE §222.77	Protection of Groundwater

(a) A subsurface area drip dispersal system shall not pollute groundwater quality.

(b) If groundwater is present beneath the site of a proposed subsurface area drip dispersal system, the executive director may require that the baseline quality of the groundwater be documented by:

(1) sampling the quality of the first occurrence of groundwater on site for a minimum of two sample events at least 30 days apart; or

(2) an alternative method submitted by the applicant and approved by the executive director.

(c) The executive director may impose continuing groundwater monitoring at a particular subsurface area drip dispersal system site.

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 222	SUBSURFACE AREA DRIP DISPERSAL SYSTEMS
SUBCHAPTER C	SITING REQUIREMENTS AND EFFLUENT LIMITATIONS
RULE §222.79	Recharge Feature Plan

For new facilities and facilities undergoing an expansion of the subsurface area drip dispersal system, the applicant must supply a recharge feature plan with the application that is signed and sealed by a licensed professional engineer or a licensed professional geoscientist who has inspected the site of the proposed subsurface area drip dispersal system. The recharge feature plan must:

(1) document the presence or absence of any recharge features identified on any tracts of land owned, operated, controlled, rented, or leased by the applicant and to be used as a part of the facility;

(2) list the sources and methods used to identify the presence or absence of recharge features. At a minimum, the licensed professional engineer or geoscientist must review the records and maps maintained by the following sources:

(A) Railroad Commission of Texas;

(B) a groundwater conservation district, if applicable;

(C) Texas Water Development Board;

(D) the commission;

(E) Natural Resources Conservation Service;

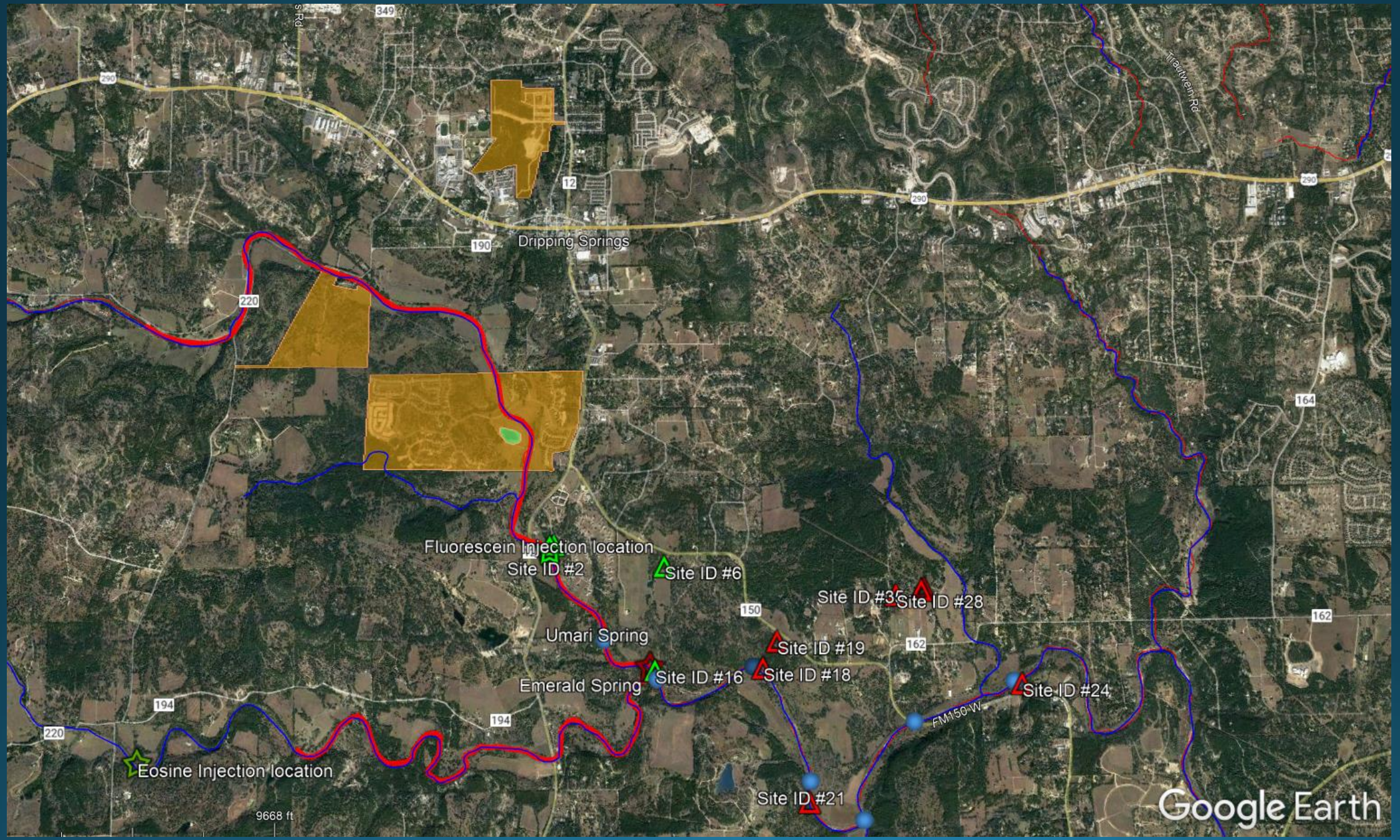
(F) a previous owner of the site, if available; and

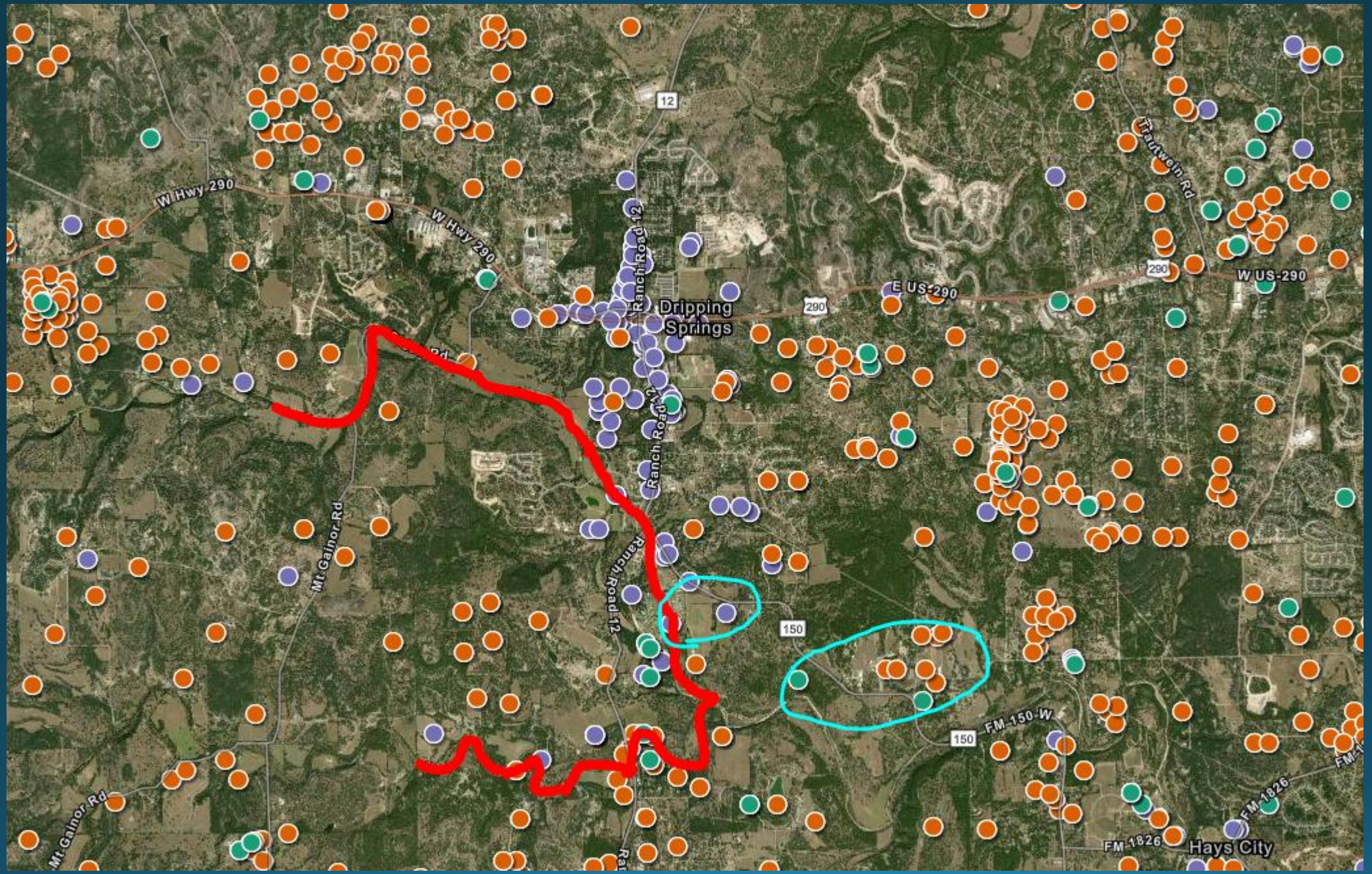
Atypical Geology & Karst

- Setback distances and TCEQ review processes assume typical infiltration and geologic processes.
  - Karst surface to groundwater interactions are not all present via indirect infiltration
  - Karst features provide direct conduit to groundwater – moving surface flows directly into the Trinity Aquifer quickly
  - The identification of karst features should be conducted by experienced, qualified geologists

Known Recharge Studies

Onion Creek Dye Trace Study
Onion Creek, Barton Creek, and Bear Creek Recharge Studies


Dripping Springs
Fluorescein Injection location
Site ID #2
Site ID #6
Site ID #35
Site ID #28
Umari Spring
Site ID #19
Emerald Spring
Site ID #16
Site ID #18
Site ID #24
FM150 W
Eosine Injection location
Site ID #21
9668 ft
Google Earth


W Hwy 290
W Hwy 290
12
Ranch Road 12
Dripping Springs
290
E US-290
290
W US-290
Tiautwein Rd
Mt Gainor Rd
Ranch Road 12
150
150
FM 150 W
FM 1826
FM 1826
Hays City
Mt Gainor Rd

Conclusions:

Groundwater Conservation Districts in Texas have a justiciable interest in protecting the quality of groundwater.

That interest is encoded in State Law and District Rule as demonstrated above.

The TCEQ permit application process must consider these interests when making decisions on future permits and permit amendments.

Soils and geology are site specific and permitting considerations need to be site specific.