

Sewage Collection System Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(c), Effective June 1, 1999

REGULATED ENTITY NAME: _____

— **ATTACHMENT A - Sewage Collection System Submittal Application.** The Texas Commission on Environmental Quality 's (TCEQ) Sewage Collection System Submittal Application (TCEQ-10243) is provided as an aid in fulfilling the review requirements of 30 TAC Chapter 317 titled Design Criteria for Sewerage Systems, §317.1 and §317.2 is submitted with this Edwards Aquifer Sewage Collection System Application Form. Failure to complete all pertinent questions will result in the plan not being accepted or in possible delays in the review and approval of the project.

CUSTOMER INFORMATION (if different than customer information provided on core data form)

1. The entity and contact person responsible for providing the required engineering **certification** of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

Contact Person: _____
Entity: _____
Mailing Address: _____
City, State: _____ ZIP: _____
Telephone: _____ Fax: _____

The appropriate regional office must be informed of any changes in this information within 30 days of the change.

2. The engineer responsible for the **design** of this sewage collection system is:

Contact Person: _____
Entity: _____
Mailing Address: _____
City, State: _____ ZIP: _____
Telephone: _____ Fax: _____

Texas Licensed Professional Engineer's Serial Number: _____

PROJECT DESCRIPTION

3. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

— Residential: # of single-family lots:
— Multi-family residential units:
— Commercial

- Industrial
- Off-site system (not associated with any development)
- Other: _____

4. The character and volume of wastewater is shown below:

- _____ % Domestic _____ gallons/day
- _____ % Industrial _____ gallons/day
- _____ % Commingled _____ gallons/day
- _____ Total _____ gallons/day

5. Existing and anticipated infiltration/inflow is _____ gallons/day. This will be addressed by _____.

6. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

- The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached at the end of this application.
- The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
- A WPAP application is required for an associated project, but it has not been submitted.
- There is no associated project requiring a WPAP application.

7. Pipe description:

Pipe Diameter (Inches)	Linear Feet ¹	Pipe Material ²	Specifications ³
Total Linear Feet			

1) Include stub-outs. Do not include private service laterals.
 2) If PVC, state SDR value.
 3) ASTM / ANSI / AWWA specification and class numbers should be included.

8. The following Wastewater Treatment Plant (WWTP) _____ (name) will receive project wastewater for treatment and disposal. This WWTP is an **EXISTING/PROPOSED** (circle one) facility.

9. All components of this sewage collection system will comply with:

- The City of _____ standard specifications.
- Other. Specifications are provided directly behind this page.

10. No force main(s) and/or lift station(s) are associated with this sewage collection system.
 A force main(s) and/or lift station(s) is associated with this sewage collection system and

the Lift Station/Force Main System application is included with this application.

CURVED SEWER LINES

11. **ATTACHMENT B - Calculations for Minimum Radius of Curvature.** Curved sewer lines may use either JOINT DEFLECTION or PIPE FLEXURE METHOD, but not both. Indicate the method proposed. Calculations for the minimum radius of curvature are shown in **ATTACHMENT B**.

- ___ Joint Deflection - The maximum allowable joint deflection is the lesser of the following three alternatives:
 - ___ equal to 5°; or
 - ___ 80% of the manufacturer's recommended maximum deflection; or
 - ___ 80% of the appropriate ASTM, AWWA, ANSI or nationally-established standard for joint deflection.

- ___ Pipe Flexure - The minimum radius of curvature has been computed by assuming standard lengths of straight pipe.
 - ___ The standard length used in the calculations is the maximum length manufactured for the specific type of pipe to be installed.
 - ___ A ___-foot length of pipe was used in the calculations. The specific type and length of the curved sections of line must be indicated on both the Plan and Profile views.
 - ___ The curvature has been provided without rotation of the joint.

MANHOLES AND CLEANOUTS

12. Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below:

Line	Shown on Sheet	Station	Manhole or Clean-out?
	of		

13. Deviations from uniform grade without manholes (e.g., grade breaks or vertical curves) will require specific approval.

___ There are no deviations from uniform grade in this sewage collection system without manholes.

___ **ATTACHMENT C - Justification for Deviation in Grade Without Manholes.** Justification for deviations from uniform grade in this sewage collection system without manholes is provided in **ATTACHMENT C** at the end of this form.

14. Deviations from straight alignment without manholes (i.e., horizontal curves) will require specific approval.

___ There are no deviations from straight alignment in this sewage collection system without manholes.

___ **ATTACHMENT D - Justification for Deviation in Straight Alignment Without Manholes.** Justification for deviations from straight alignment in this sewage collection system without manholes is provided in **ATTACHMENT D** at the end of this form.

___ For curved sewer lines, all curved sewer line notes (F-0596) are included on the construction plans for the wastewater collection system.

15. ___ Manholes are installed at all Points of Curve (PC) and Points of Tangent (PT) of a sewer line.

___ **ATTACHMENT E - Request for Variance from Design Criteria.** A request for a variance from this design criteria may be granted by the executive director if detailed engineering justification is provided showing that it will not result in an unreasonable risk to the Edwards Aquifer. Written justification for the variance request is provided in **ATTACHMENT E** at the end of this form. A letter of approval from the maintenance entity is acceptable as justification.

16. ___ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

___ The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. Justification for any variance from the maximum spacing must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ___ All manholes will be monolithic, cast-in-place concrete.
___ The owner/developer of this project is requesting the use of pre-cast manholes. The manufacturer's specifications and construction drawing, showing the method of sealing the joints, are attached.

SITE PLAN

Items 18 through 23 must be included on the Site Plan.

- 18. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = _____'.
- 19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stubouts (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.
- 20. Lateral stub-outs:
 - ___ The location of all lateral stub-outs are shown and labeled.
 - ___ No lateral stub-outs will be installed during the construction of this sewer collection system.
- 21. Location of existing and proposed water lines:
 - ___ The entire water distribution system for this project is shown and labeled.
 - ___ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
 - ___ There will be no water lines associated with this project.
- 22. 100-year floodplain:
 - ___ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
 - ___ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Line	Sheet	Station		Station
	of		to	

- 23. 5-year floodplain:
 - ___ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
 - ___ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below

and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Line	Sheet	Station		Station
	of		to	

Items 24 through 31 must be included on the Plan and Profile sheets.

24. All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.
- There will be no water line crossings.
- There will be no water lines within 9 feet of proposed sewer lines.

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance

25. Vented Manholes:
- No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 317.
- A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
- A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative

means is described on the following page.

- ___ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located in the 100-year floodplain. No vented manholes will be used.

Line	Manhole	Station	Sheet
			of

26. Drop manholes:

- ___ There are no drop manholes associated with this project.
- ___ Sewer lines which enter new or existing manholes or "manhole structures" higher than 30 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §317.2(c)(5)(E).

Line	Manhole	Station	Sheet
			of

27. Sewer line stub-outs (For proposed extensions):

- ___ The placement and markings of all sewer line stub-outs are shown and labeled.
- ___ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

28. Lateral stub-outs (For proposed private service connections):

- ___ The placement and markings of all lateral stub-outs are shown and labeled.
- ___ No lateral stub-outs are to be installed during the construction of this sewage collection system.

29. Minimum flow velocity (From APPENDIX A)

- ___ Assuming pipes are flowing full, all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.
- ___ **ATTACHMENT F - Explanation of Slopes for Flows Less than 2.0 Feet Per Second.** Assuming pipes are flowing full, some slopes are designed to produce flows less than 2.0 feet per second for this system/line. An explanation is provided in **ATTACHMENT F** at the end of this form.

30. Maximum flow velocity/slopes (From APPENDIX A)

- ___ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
- ___ **ATTACHMENT G - Explanation of Slopes for Flows Greater Than 10.0 Feet Per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. A variance is requested to exceed the maximum slope. Justification is provided in **ATTACHMENT G** at the end of this form.

Line	Profile Sheet	Station		Station	FPS	% Slope	Erosion/ Shock Protection
	of		to				
	of		to				
	of		to				
	of		to				

31. Assuming pipes are flowing full, where flows are ≥ 10 feet per second the provisions noted below have been made to protect against pipe displacement by erosion and/or shock. 30 TAC §317.2(c)(3)

- ___ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- ___ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- ___ **ATTACHMENT H - Other Protection Methods Against Erosion/Shock.** Other. An explanation is provided in **ATTACHMENT H** at the end of this form.

ADMINISTRATIVE INFORMATION

32. ___ The **final plans and technical specifications** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
33. Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Standard Details	Shown on Sheet
Lateral stub-out marking [REQUIRED]	of
Manhole, showing inverts comply with 30 TAC 317.2(c)(5)(E) [REQUIRED]	of
Alternate method of joining lateral to existing SCS line for potential future connections [REQUIRED]	of
Typical trench cross-sections [REQUIRED]	of
Bolted manholes [REQUIRED]	of
Sewer Service lateral standard details [REQUIRED]	of
Clean-out at end of line [REQUIRED, if used]	of
Baffles or concrete encasement for shock/erosion protection [REQUIRED, if flow velocity of any section of pipe >10 fps]	of
Detail showing Wastewater Line/Water Line Crossing [REQUIRED, if crossings are proposed]	of
Mandrel detail or specifications showing compliance with 30 TAC §317.2(a)(4)(C) [REQUIRED, if Flexible Pipe is used]	of
Drop manholes [REQUIRED, if a pipe entering a manhole is more than 30 inches above manhole invert]	of

34. ___ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
35. ___ All proposed sewer lines will be sufficiently surveyed/staked to allow an inspection prior to TCEQ executive director approval. If the alignment of the proposed sewer lines are not walkable for inspection on that date, the application will be deemed incomplete and returned.
36. ___ One (1) original and three (3) copies of the completed application has been provided.
37. ___ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **SEWAGE COLLECTION SYSTEM APPLICATION** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §317 and prepared by:

Place engineer's seal here:

Print Name of Licensed Professional Engineer

Signature of Licensed Professional Engineer

Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

APPENDIX A
Flow Velocity Table

Flow Velocity (Flowing Full)

All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when **flowing full** of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Pipe Diameter (Inches)	% Slope required for minimum flow velocity of 2.0 fps	% Slope which produces flow velocity of 10.0 fps
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

* For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.

$$V = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$