City of Georgetown, Texas

Georgetown Neighborhood Park Improvements: Crystal Knoll

Texas Commission on Environmental Quality
Submittal for Edwards Aquifer Protection Plan

WPAP Exception Request Application

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

<table>
<tr><td colspan="5">1. Regulated Entity Name: Georgetown Neighborhood Park Improvements Crystal Knoll</td><td colspan="5">2. Regulated Entity No.: N/A</td></tr>
<tr><td colspan="5">3. Customer Name: City of Georgetown</td><td colspan="5">4. Customer No.: N/A</td></tr>
<tr><td>5. Project Type:
(Please circle/check one)</td><td colspan="2">New</td><td colspan="2">Modification</td><td colspan="2">Extension</td><td>Exception</td><td></td></tr>
<tr><td>6. Plan Type:
(Please circle/check one)</td><td>WPAP</td><td>CZP</td><td>SCS</td><td>UST</td><td>AST</td><td>EXP</td><td>EXT</td><td>Technical Clarification</td><td>Optional Enhanced Measures</td></tr>
<tr><td>7. Land Use:
(Please circle/check one)</td><td colspan="2">Residential</td><td colspan="3">Non-residential</td><td colspan="2">8. Site (acres):</td><td>1.29 AC</td></tr>
<tr><td>9. Application Fee:</td><td colspan="2">$500</td><td colspan="3">10. Permanent BMP(s):</td><td colspan="3">Vegetated Areas</td></tr>
<tr><td>11. SCS (Linear Ft.):</td><td colspan="2">N/A</td><td colspan="3">12. AST/UST (No. Tanks):</td><td colspan="3">N/A</td></tr>
<tr><td>13. County:</td><td colspan="2">Williamson</td><td colspan="3">14. Watershed:</td><td colspan="3">Granger Lake - San Gabriel River</td></tr>
</table>

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	___
Region (1 req.)	___	___	___
County(ies)	___	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence _1_Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Addison Skrla, P.E., CFM Addison Skrla Print Name of Customer/Authorized Agent
Addison Skrla 10/28/23 Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Addison Skrla, P.E., CFM

Date: 6/28/23

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Georgetown Neighborhood Park Improvements Crystal Knoll
2. County: Williamson
3. Stream Basin: Granger Lake - San Gabriel River
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☒ Exception Request

7. Customer (Applicant):

   Contact Person: Dave Melaas
   Entity: City of Georgetown
   Mailing Address: 1101 N. College Street
   City, State: Georgetown, Texas Zip: 78626
   Telephone: 512-930-3595 FAX: N/A
   Email Address: dave.melaas@georgetown

8. Agent/Representative (If any):

   Contact Person: Addison Skrla, P.E., CFM
   Entity: KPA Engineers
   Mailing Address: 800 S. Austin Ave
   City, State: Georgetown, Texas Zip: 78665
   Telephone: 512-819-9478 FAX: N/A
   Email Address: askrla@kpaengineers.com

9. Project Location:

   ☒ The project site is located inside the city limits of Georgetown, Texas.
   ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    The project is located at the Northeast corner of NE Inner Loop and Stadium Drive in North Geeorgetown, Texas

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: *Survey staking will not be completed until construction begins (which will not start until this application is approved). If TCEQ wished to make a site visit before, please contact us and we will be happy to arrange.

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☒ Previous development
☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

☐ Existing commercial site
☐ Existing industrial site
☐ Existing residential site
☐ Existing paved and/or unpaved roads
☐ Undeveloped (Cleared)
☒ Undeveloped (Undisturbed/Uncleared)
☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

(4) The use of sewage holding tanks as parts of organized collection systems; and

(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☐ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☒ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

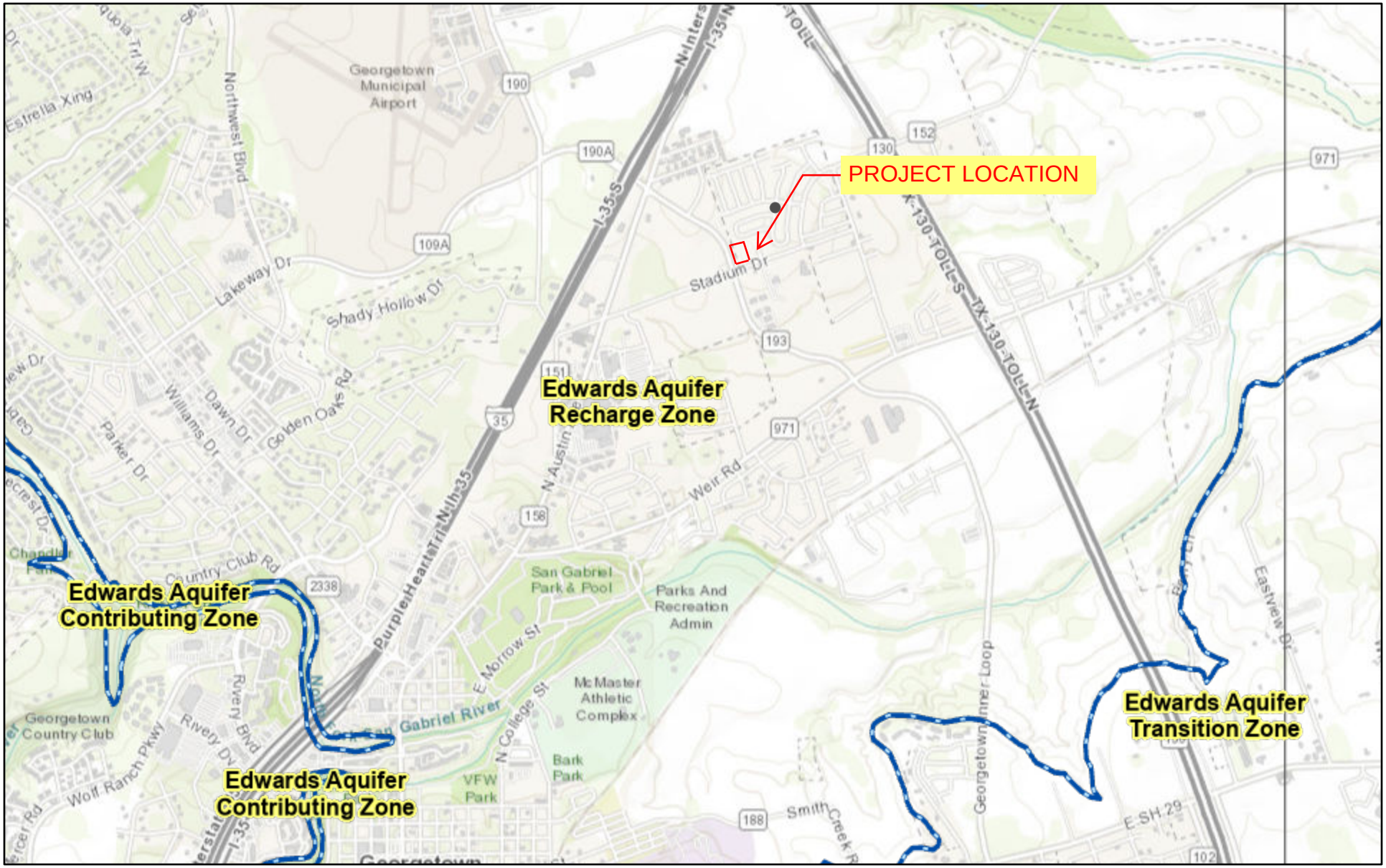
- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.


Attachement A
Road Map
Legend
Crystal Knoll Park
PROJECT SITE
Crystal Knoll Park
Azalea Dr
Jefferson Ln
Juniper Dr
Crystal Knoll Blvd
Iris Dr
Stadium Dr
East Dr
Sudduth Dr
NE Inner Loop
Airport Rd
Texas 130 Frontage Rd
Lazy Rd
Weir Rd
Meda St
Haverland
Freddie Dr
Loganberry Dr
Purple Heart Trail
35
130
152
158
151
971
N
2000 ft
Google Earth
Image © 2023 Maxar Technologies

Attachment B - USGS / Edwards Recharge Zone Map



6/26/2023, 3:06:40 PM

1:36,112

0 0.28 0.55 1.1 mi

0 0.42 0.85 1.7 km

Edwards Aquifer Label

Edwards Aquifer Boundary

Edwards Aquifer Boundary central line

Edwards Aquifer

Recharge Zone

Transition Zone

Contributing Zone

Contributing Zone within the Transition Zone

TX Counties

County of Williamson, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA, TCEQ

Web AppBuilder for ArcGIS

General Information Form

TCEQ-20705

Attachment C - Project Description

This project involves the construction of approximately 6,590 SF (1,320 LF) or 5' concrete sidewalk with portions of turn down curb, concrete pads for benches, trashcans, etc., playground area, and a 2" waterline connecting to a water fountain. The total site area is 1.29 Acres, with 13% proposed impervious cover. The project is located at the Northeast corner of SE Inner Loop and Stadium Drive in the northern portion of Georgetown, Texas. The existing site is located in a developing area consisting of mainly residential neighborhoods and some commercial/industrial areas, the site is undeveloped but clear. Minimal upgradient stormwater will cross the proposed improvements, and that which does will come from the adjacent residential lots only. Any upgradient stormwater coming from residential houses will generally cross and be treated by lawns serving as vegetative areas before coming in contact with our project site. The project is located in the Edwards Aquifer Recharge Zone and the project area does not have an existing WPAP.

The proposed project would create a permanent BMP in the form of Equivalent Water Quality Protection. This BMP consists of naturally vegetated areas along the 1,320 LF of the proposed 5' wide sidewalk. Though typically vegetative filter strips are used to cover large roadways, parking lots, etc. (at 15' of filter strip for 72' of roadway), through discussions with TCEQ regarding a project of similar scope and size, it was agreed that smaller shared use paths such as sidewalks could utilize smaller width vegetative areas as Equivalent Water Quality Protection measures. Typically, a 5' sidewalk would equate to a 2.6' Vegetated Filter Strip. Our project consists of naturally vegetated areas up to 2.5' for 1,320 LF of proposed 5' wide sidewalk, where soil is disturbed. The City of Georgetown will regularly maintain this natural vegetation through their maintenance departments.

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Russell C Ford Telephone: 512 442-1122

Date: 6/1/22 Fax: _____

Representing: Pape-Dawson Consultants, Inc. (Name of Company and TBPG or TBPE registration number)

Signature of Geologist

STATE OF TEXAS
RUSSELL C. FORD
GEOLOGY
#1185
LICENSED
PROFESSIONAL

Regulated Entity Name: Crystal Knoll Park, Inner Loop at Stadium Drive, Georgetown, Texas

6/1/2022

Project Information

1. Date(s) Geologic Assessment was performed: 5/20/22
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
KrB	D	5

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

   Applicant's Site Plan Scale: 1" = _'
   Site Geologic Map Scale: 1" = 40'
   Site Soils Map Scale (if more than 1 soil type): 1" = _'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☐ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☒ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☐ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

    ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

ATTACHMENT A

NO FEATURES OBSERVED

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Crystal Knoll Park, Inner Loop at Stadium Drive, Georgetown, Texas																
LOCATION			FEATURE CHARACTERISTICS										EVALUATION			PHYSICAL SETTING			
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	

* DATUM NAD27

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	30
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have [illegible] understood and followed the Texas Natural Resource Conservation Commission's Instructions to Geologists. The information [illegible] gives with this document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC 213

STATE OF TEXAS
RUSSELL C. FORD
GEOLOGY
#1185
LICENSED
PROFESSIONAL

_____ Date _____

TNRCC-0585-Table (Rev. 5-1-02)

Sheet _____ of _____

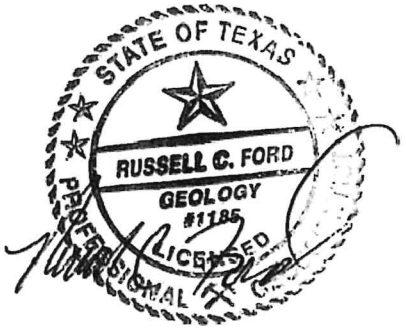
6/1/2022

ATTACHMENT B

Stratigraphic Column
Crystal Knoll Park
Inner Loop at Stadium Drive, Georgetown, Texas

HYDROGEOLOGIC SUBDIVISION	FORMATION	THICKNESS (feet)	LITHOLOGY
	Quaternary alluvium/terrace deposits	30	Well sorted sand and gravel
Edwards Aquifer	Georgetown	65	Nodular limestone interbedded with marls, very fossiliferous

Source: Senger, Collins and Kreitler, 1990



6/1/2022

ATTACHMENT C

SITE-SPECIFIC GEOLOGY

The Geologic Assessment (GA) of the Crystal Knoll Park site was performed by Mr. Russell C. Ford, P.G., of Terracon on May 20, 2022. The site is an approximate 1.95-acre tract of undeveloped land located oat the northeast intersection of Inner Loop and Stadium Drive in Georgetown, Williamson County, Texas.

Exhibit 1 (attached) is a site location map depicting the site in relation to the surrounding area. The site is characterized as gently sloping to the west-southwest. Site elevation ranges from approximately 727 feet above mean sea level (msl) to about 723 feet msl.

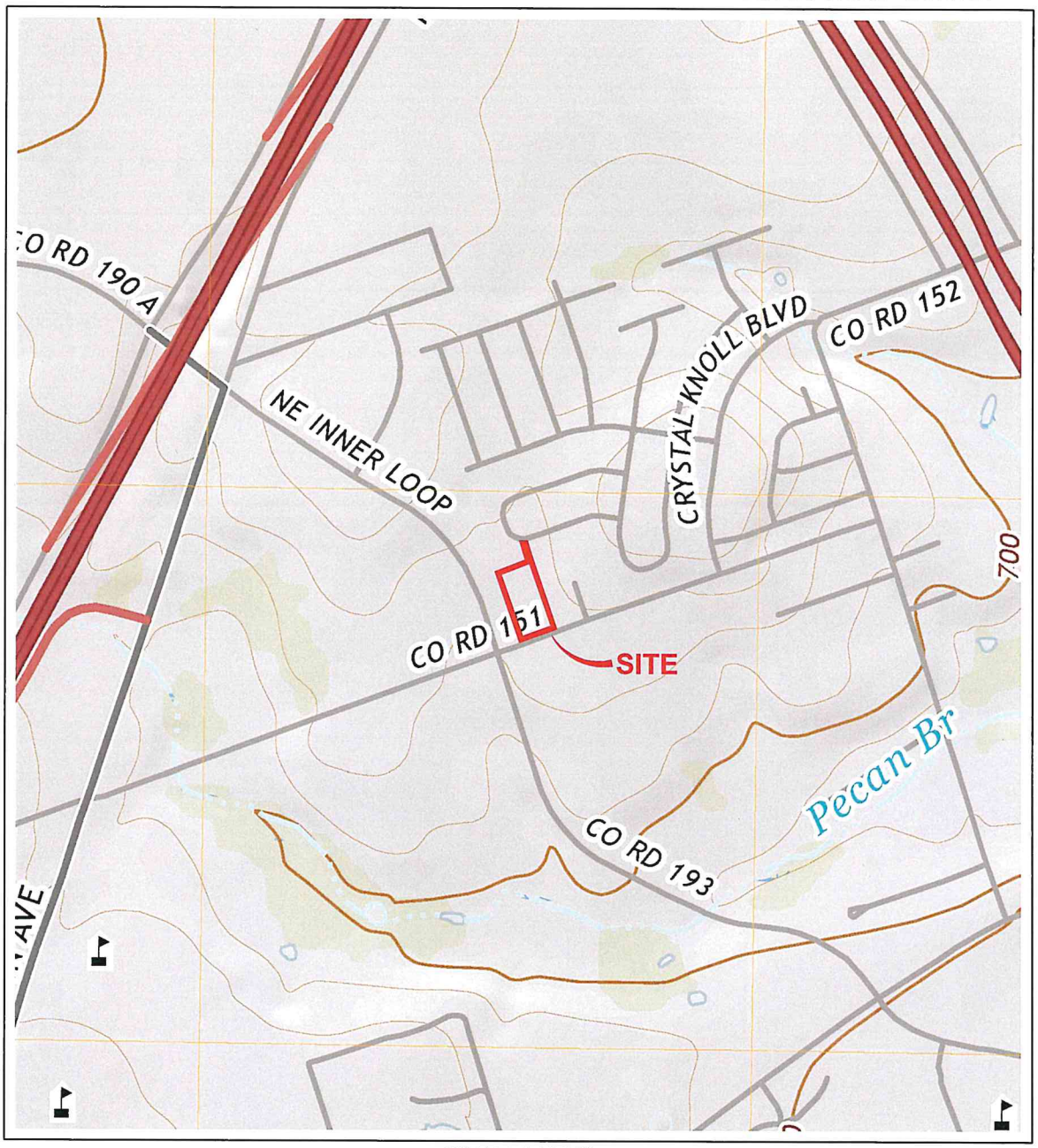
The surficial geologic units present at the site have been identified as the Quaternary terrace deposits/alluvium (undivided) deposits underlain by Georgetown Formation deposits. Exhibit 2 (attached) is a geologic map of the site. The terrace and alluvium deposits consist of well sorted sands and gravels associated with stream deposition. The Georgetown Formation consists of a nodular limestone with interbedded marls. The limestone beds are very fossilferous and the formation represents the uppermost strata of the Edwards aquifer. The site is located entirely within the recharge zone of the Edwards Aquifer and the recharge zone boundary is located approximately 2 miles southeast of the site. Attachment B is a stratigraphic column prepared for the site. No faulting was observed on the site and the nearest mapped fault is located approximately one mile west of the site. The fault, which trends toward the northeast, is associated with the Balcones Fault zone which represents the dominant structural trend in the vicinity of the site. The completed Geologic Assessment form is included as Attachment A.

No geologic features were observed on the site. Based on the lack of any sensitive recharge features, the potential for fluid movement to the Edwards aquifer beneath the property is considered low.

No streams or springs were observed onsite. A review of the site maps contained in the City of Georgetown Ordinance 2015-14 indicated there are no known springs occupied by the Georgetown Salamander on the site and the nearest known occupied site is located approximately 1 ½ miles southwest of the site (San Gabriel Spring).

6/1/2022

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:12,000

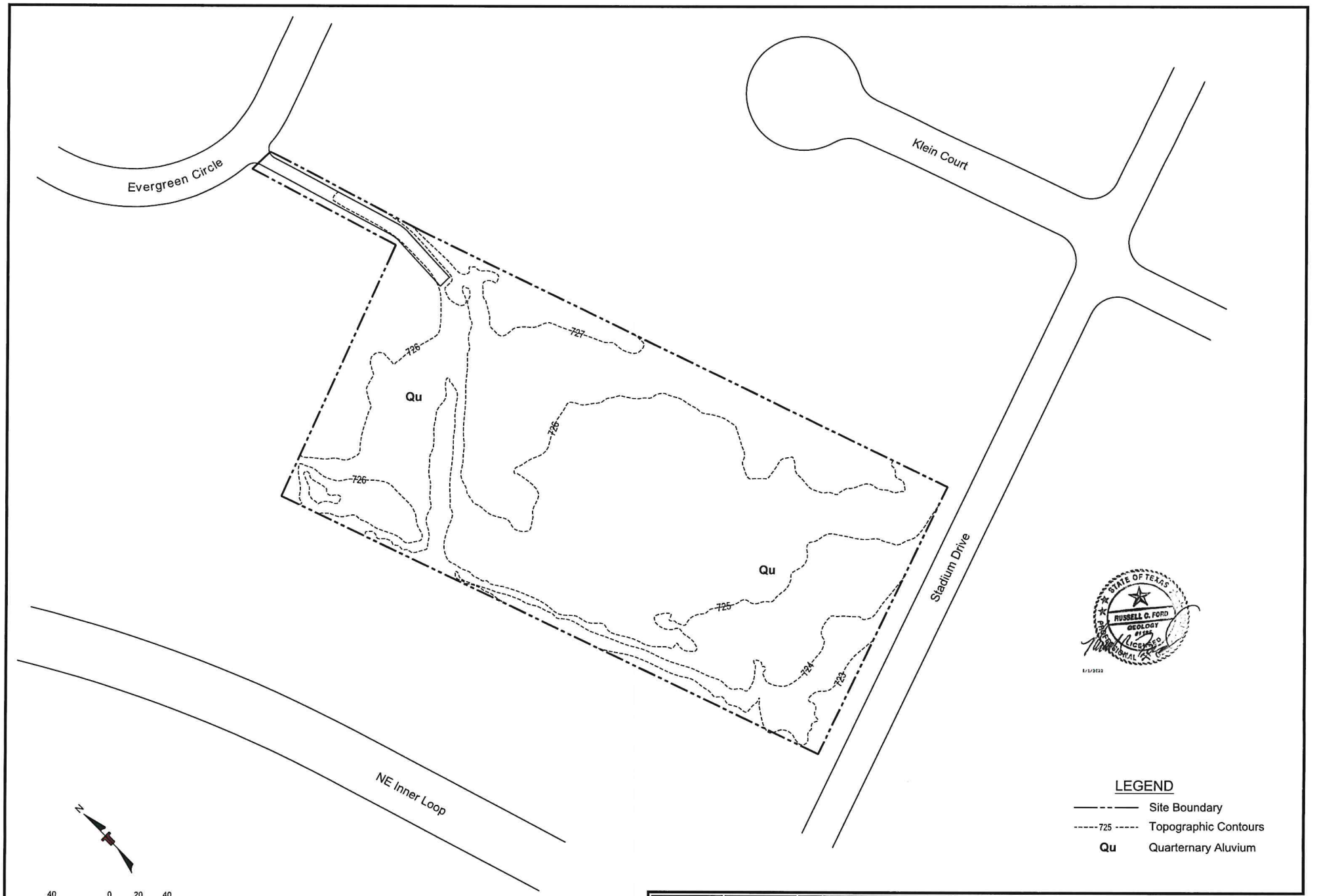
.5 .25 0 KILOMETERS .5 1
500 0 METERS 500 1000
.5 .25 0 .5
MILES
500 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1988

Georgetown, Texas
2019
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: RF	Project No. 96227414	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: ATX Drafting	Scale: AS SHOWN	5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735	Crystal Knoll Park
Checked By: RF	File No. 96227414	PH. (512) 442-1122 FAX (512) 442-1181	Inner Loop and Stadium Drive
Approved By: RF	Date: May 31, 2022		Georgetown, Williamson County, Texas

EXHIBIT 1



Project Mngr: RF	Project No. 96227414	Terracon Consulting Engineers and Scientists	SITE GEOLOGIC MAP
Drawn By: ATX Drafting	Scale: AS SHOWN	5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735	Crystal Knoll Park
Checked By: RF	File No. 96227414	PH. (512) 442-1122 FAX (512) 442-1181	Inner Loop and Stadium Drive
Approved By: RF	Date: May 31, 2022		Georgetown, Williamson County, Texas

EXHIBIT 2

Recharge and Transition Zone Exception Request Form

Texas Commission on Environmental Quality
30 TAC §213.9 Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.
Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 **Recharge and Transition Zone Exception Request Form** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Addison Skrla, P.E., CFM
Date: 6/28/23
Signature of Customer/Agent:

Regulated Entity Name: Georgetown Neighborhood Park Improvements Crystal Knoll

Exception Request

1. ☒ **Attachment A - Nature of Exception**. A narrative description of the nature of each exception requested is attached. All provisions of 30 TAC §213 Subchapter A for which an exception is being requested have been identified in the description.
2. ☒ **Attachment B - Documentation of Equivalent Water Quality Protection**. Documentation demonstrating equivalent water quality protection for the Edwards Aquifer is attached.

Administrative Information

3. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
4. ☒ The applicant understands that no exception will be granted for a prohibited activity in Chapter 213.
5. ☒ The applicant understands that prior approval under this section must be obtained from the executive director for the exception to be authorized.

Recharge and Transition Zone Exception Request Form

TCEQ-0628

Attachment A – Nature of Exception

This project wishes to be granted an exception for a Water Pollution Abatement Plan and Modifications report. The project consists of approximately 6,590 SF of 5'- wide sidewalk (0.15 acres), playground areas, waterline to a water fountain and a few concrete pads for benches, trash cans, etc. The total proposed impervious cover for the project site is minimal at 13%. The project site where this project is proposed is a developing area consisting of residential neighborhoods and commercial/industrial development, located in north Georgetown, Texas. The extent of topsoil excavation for the sidewalk and concrete pads is very minimal, typically less than one foot. The proposed sidewalk will be connected to the existing sidewalk, which will not disturb or add any new impervious area in these locations.

In addition to the relatively small project size, limited topsoil excavation, and previously disturbed project area, this project proposes a permanent Equivalent Water Quality Protection BMP in the form of natural vegetation along the 1,320 Linear Feet of the proposed 5' sidewalk. It is the intent of this application that this naturally vegetated area along the sidewalk serve as an equivalent permanent BMP and thus grant an exception to a full WPAP report.

Recharge and Transition Zone Exception Request Form

TCEQ-0628

Attachment B – Documentation of Equivalent Water Quality Protection

Permanent stormwater treatment measures are naturally vegetated areas downstream of the proposed 5’-wide new sidewalk.

Temporary stormwater protection measures proposed for this project are silt fence.

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Addison Skrla, P.E., CFM

Date: 10/20/23

Signature of Customer/Agent:

Regulated Entity Name: Georgetown Neighborhood Improvements Crystal Knoll

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Granger Lake - San Gabriel River

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Temporary Stormwater Section

TCEQ-0602

Attachment A - Spill Response Actions

This project will prohibit the storage of hazardous substances, fuels, or oils on the project site and require they are stored at an approved offsite facility. The construction of the park improvements will require the use of several types of equipment that will be fueled at an approved location off-site. This will present a slight risk of hydrocarbon or hazardous substance spills. In the event of such spills the contaminated material will be collected and disposed at an approved hazardous material location. All proper authorities will be notified as soon as the spill is discovered. The emergency response phone number for TCEQ is 1-800-832-8224. The National Spill Response Hotline is 800-424-8802. Please visit the following link: https://www.tceq.texas.gov/response/spills/spill_rq.html

Temporary Stormwater Section

TCEQ-0602

Attachment B - Potential Sources of Contamination

The only potential source of contamination for the project during construction is that of the construction equipment. However, as previously mentioned, no fuels or hazardous substances will be stored on-site. In the case of a spill, the Spill Response Action of this report will be utilized.

Temporary Stormwater Section
TCEQ-0602

Attachment C - Sequence of Major Activities

The sequence of major activities in the disturbance of the natural terrain will be as follows:

1. Install all of the temporary water pollution and abatement control measures (Silt Fence). (Total Area Affected: 0.06 acres)
2. Install proposed 2" Waterline and connect to existing 8" Waterline. (Total Area Affected: 0.02 acres)
3. Excavate for and install sidewalk improvements and concrete pads with the proposed turn down curbs. (Total Area Affected: 0.15 Acres)
4. Install Playground Area Improvements. (Total Area Affected: 0.05 Acres)
5. Remove temporary water pollution and abatement control measures. (Total Area Affected: 0.06 acres)
6. The project site is currently a fully developed residential neighborhood. As can be seen on the construction plans, the temporary control measures will be installed at the beginning of the project and remain throughout the entirety of the project until completion.

Temporary Stormwater Section
TCEQ-0602

Attachment D - Temporary Best Management Practices and Measures

The main temporary best management practices that will be utilized for the construction of this project is silt fence. Temporary BMPs will be employed and maintained for the duration of time for construction and establishment of vegetation of disturbed soils. If deemed necessary further down the line, additional silt fence, rock berm, and/or concrete washouts may be utilized.

Approximately 1,300 LF of silt fence is proposed in all allowable areas along the proposed sidewalk route. The silt fence will slow the runoff, allowing the storm water to flow through the geotextile fabric and filter out sediment or other contaminants before passing through to the other side.

A concrete washout area (if needed) will also be utilized. The location will be determined by the contractor prior to the beginning of construction. Tree protection may also be utilized to help stabilize and protect larger trees around the project site, if needed. Other temporary BMPs such as stabilized construction entrances or filter dikes are not expected,but may be used if deemed required during construction.

Through this best management practice and measures, all storm water leaving the site should be maintained to the maximum extent possible to its natural (current) stabilized state. With the limited project construction site size and expected storm water flow patterns towards proposed silt fence, the storm water flows leaving the site should not impact the flows to any sensitive features around the area.

Temporary Stormwater Section
TCEQ-0602

Attachment E - Request to Temporarily Seal a Feature

There will be no temporary sealing of a feature anticipated or proposed for this project.

Temporary Stormwater Section
TCEQ-0602

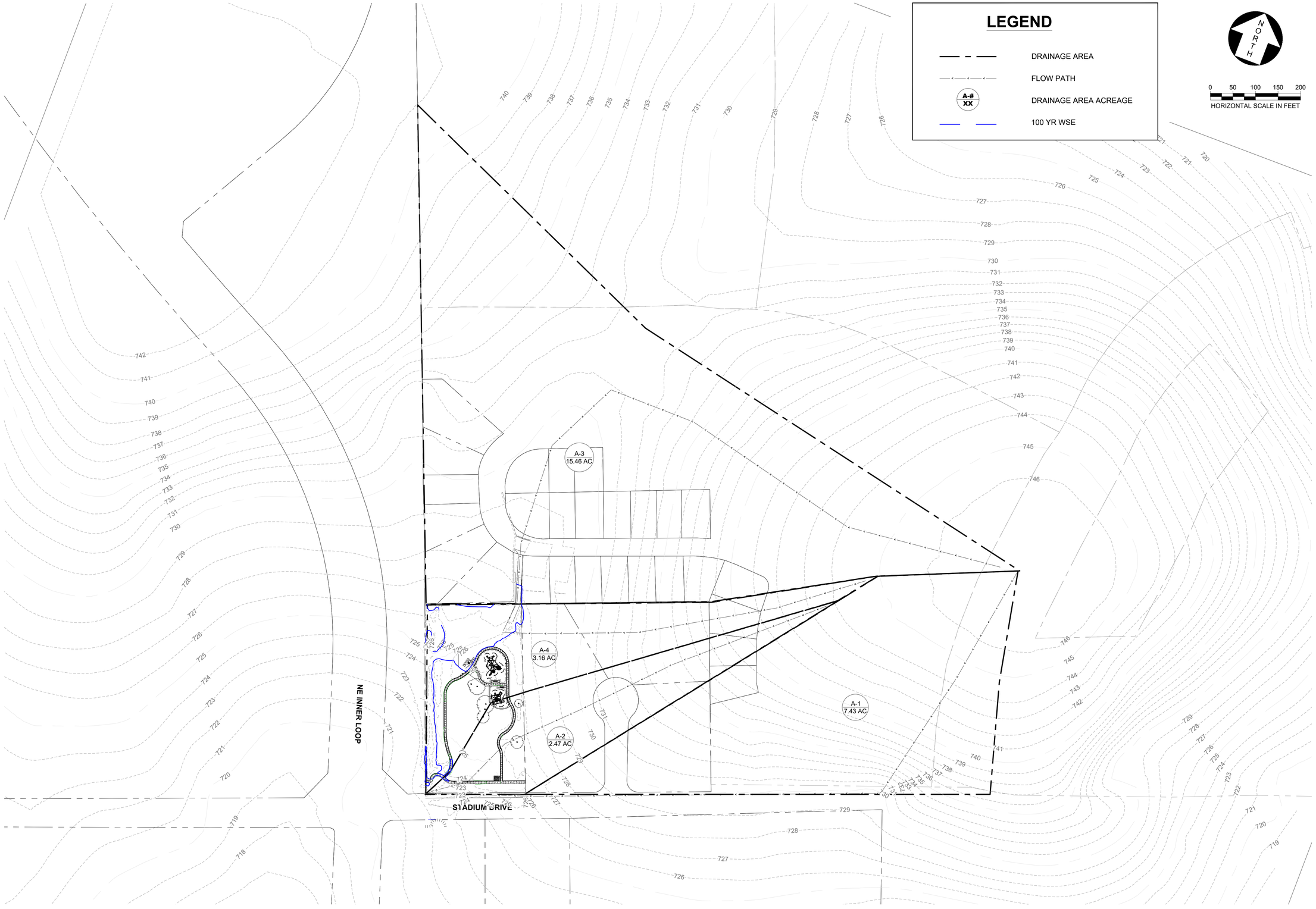
Attachment F - Structural Practices

Due to the nature and layout of this project, structural practices are not practical. The project site is relatively small in overall scope and the use of silt fence will be the most effective way to mitigate unexpected sediment and erosion control from storm water runoff during construction.

Temporary Stormwater Section
TCEQ-0602

Attachment G – Drainage Area Map

Please see the following sheets to see overall drainage area map, onsite drainage area map, and drainage calculations.



KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:
October 13, 2022

Revisions:

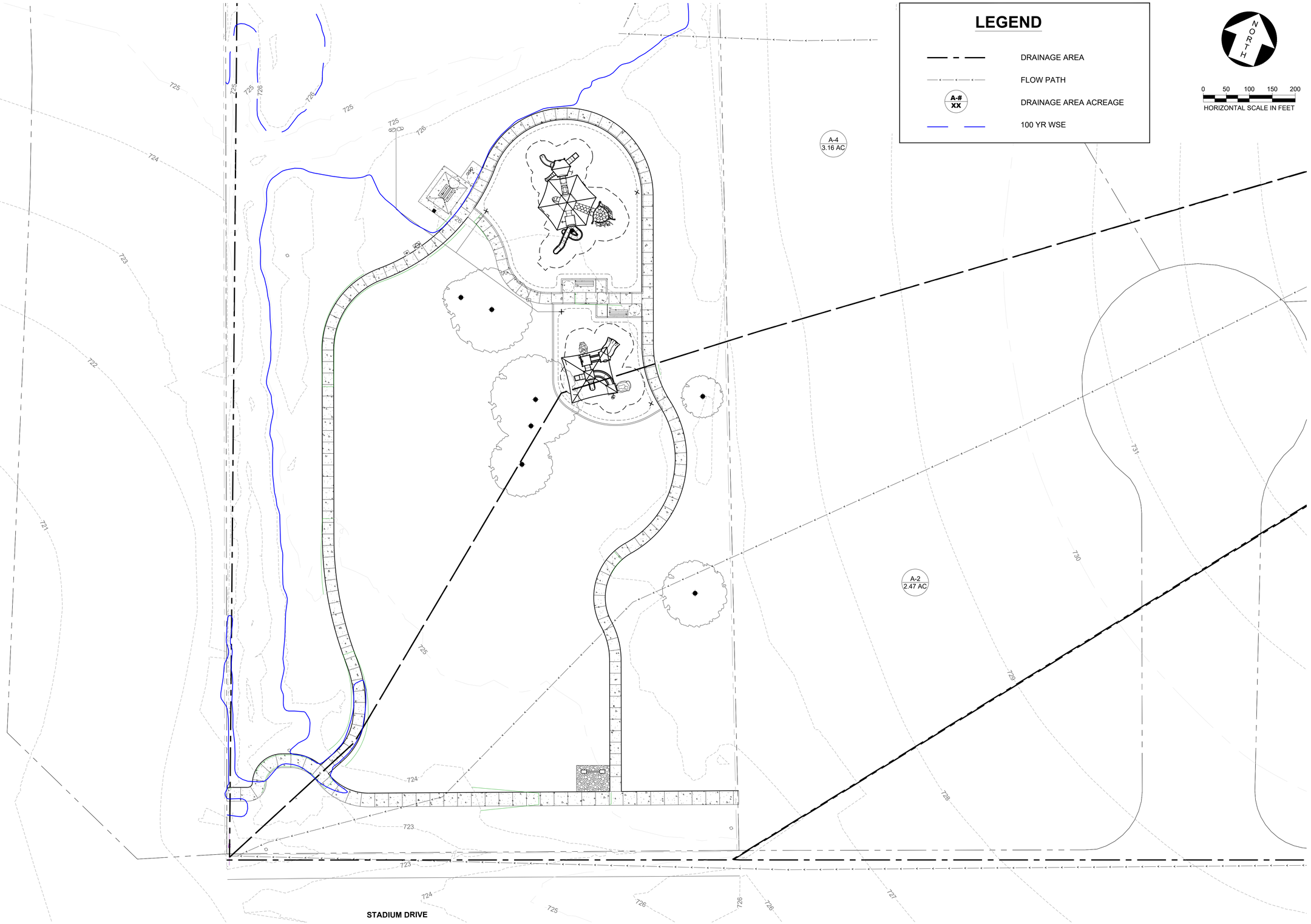
Sheet Title:
OVERALL DRAINAGE MAP

Sheet Number:

C-03 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** OVERALL DRAINAGE MAP



FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** ONSITE DRAINAGE LAYOUT

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:
October 13, 2022

Revisions:

Sheet Title:
ONSITE DRAINAGE LAYOUT

Sheet Number:
C-04 OF 08

Application Number:
2023-3-SWP

Existing - 25 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	12.60	16.24	72.96	13.86
Outflow Volume (ac-ft)	1.27881	1.66433	9.16382	4.29239
Outflow Depth (in)	6.15	6.37	7.13	6.94
Outflow Average (cfs)	0.64	0.83	4.59	2.15
Maximum Direct Flow (cfs)	12.60	16.24	72.96	13.86
Direct Runoff Volume (ac-ft)	1.27881	1.66433	9.16382	4.29239
Direct Flow Depth (in)	6.15	6.37	7.13	6.94
Direct Flow Average (cfs)	0.64	0.83	4.59	2.15
Maximum Precipitation (in)	0.59	0.59	0.59	0.59
Precipitation Total (in)	8.07	8.07	8.07	8.07
Precipitation Volume (ac-ft)	1.67856	2.10896	10.37264	4.99264
Maximum Loss (in)	0.09	0.08	0.03	0.04
Loss Total (in)	1.91	1.69	0.93	1.00
Loss Volume (ac-ft)	0.39828	0.44283	1.18900	0.61848
Maximum Excess (in)	0.51	0.52	0.56	0.56
Excess Total (in)	6.16	6.38	7.14	7.07
Excess Volume (ac-ft)	1.28028	1.66613	9.18364	4.37416
Lag time (minutes)	7.77	7.60	13.58	82.76

Existing - 100 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	18.72	23.91	104.52	19.96
Outflow Volume (ac-ft)	1.92519	2.48132	13.25829	6.23111
Outflow Depth (in)	9.26	9.49	10.32	10.07
Outflow Average (cfs)	0.96	1.24	6.64	3.12
Maximum Direct Flow (cfs)	18.72	23.91	104.52	19.96
Direct Runoff Volume (ac-ft)	1.92519	2.48132	13.25829	6.23111
Direct Flow Depth (in)	9.26	9.49	10.32	10.07
Direct Flow Average (cfs)	0.96	1.24	6.64	3.12
Maximum Precipitation (in)	0.82	0.82	0.82	0.82
Precipitation Total (in)	11.30	11.30	11.30	11.30
Precipitation Volume (ac-ft)	2.35040	2.95307	14.52427	6.99093
Maximum Loss (in)	0.08	0.07	0.03	0.03
Loss Total (in)	2.03	1.80	0.96	1.04
Loss Volume (ac-ft)	0.42311	0.46919	1.23802	0.64439
Maximum Excess (in)	0.76	0.77	0.80	0.80
Excess Total (in)	9.27	9.50	10.34	10.26
Excess Volume (ac-ft)	1.92729	2.48388	13.28624	6.34654
Lag time (minutes)	7.77	7.60	13.58	82.76

Proposed - 25 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	12.65	16.29	73.27	13.86
Outflow Volume (ac-ft)	1.28861	1.67457	9.20321	4.29612
Outflow Depth (in)	6.20	6.41	7.13	6.94
Outflow Average (cfs)	0.65	0.84	4.61	2.15
Maximum Direct Flow (cfs)	12.65	16.29	73.27	13.86
Direct Runoff Volume (ac-ft)	1.28861	1.67457	9.20321	4.29612
Direct Flow Depth (in)	6.20	6.41	7.13	6.94
Direct Flow Average (cfs)	0.65	0.84	4.61	2.15
Maximum Precipitation (in)	0.59	0.59	0.59	0.59
Precipitation Total (in)	8.07	8.07	8.07	8.07
Precipitation Volume (ac-ft)	1.67856	2.10896	10.41568	4.99264
Maximum Loss (in)	0.09	0.07	0.03	0.04
Loss Total (in)	1.87	1.66	0.92	0.99
Loss Volume (ac-ft)	0.38848	0.43259	1.19257	0.61475
Maximum Excess (in)	0.52	0.53	0.56	0.56
Excess Total (in)	6.20	6.41	7.15	7.08
Excess Volume (ac-ft)	1.29008	1.67637	9.22311	4.37789
Lag time (minutes)	7.77	7.60	13.58	82.76

Proposed - 100 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	18.76	23.95	104.95	19.96
Outflow Volume (ac-ft)	1.93560	2.49217	13.31468	6.23489
Outflow Depth (in)	9.31	9.54	10.32	10.08
Outflow Average (cfs)	0.97	1.25	6.67	3.12
Maximum Direct Flow (cfs)	18.76	23.95	104.95	19.96
Direct Runoff Volume (ac-ft)	1.93560	2.49217	13.31468	6.23489
Direct Flow Depth (in)	9.31	9.54	10.32	10.08
Direct Flow Average (cfs)	0.97	1.25	6.67	3.12
Maximum Precipitation (in)	0.82	0.82	0.82	0.82
Precipitation Total (in)	11.30	11.30	11.30	11.30
Precipitation Volume (ac-ft)	2.35040	2.95307	14.58453	6.99093
Maximum Loss (in)	0.08	0.07	0.03	0.03
Loss Total (in)	1.98	1.75	0.96	1.04
Loss Volume (ac-ft)	0.41270	0.45834	1.24179	0.64061
Maximum Excess (in)	0.76	0.77	0.80	0.80
Excess Total (in)	9.32	9.55	10.34	10.26
Excess Volume (ac-ft)	1.93770	2.49473	13.34275	6.35032
Lag time (minutes)	7.77	7.60	13.58	82.76

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:
GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH
Drawn: EGH
Reviewed: ASK
Date Issued:
October 13, 2022
Revisions:

Sheet Title:
DRAINAGE AREA CALCULATIONS

Sheet Number:
C-05 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** DRAINAGE AREA CALCULATIONS

Temporary Stormwater Section
TCEQ-0602

Attachment H – Temporary Sediment Ponds

There are no temporary sediment ponds anticipated or proposed for this project.

Temporary Stormwater Section
TCEQ-0602

Attachment I - Inspection and Maintenance for BMPs

The contractor will be required to maintain, repair, or retrofit all temporary Best Management Practices (BMPs) through the duration of the project. The contractor will be required to inspect the BMPs at weekly intervals and after rainfall events as specified by the Erosion and Sediment Control Notes. The project inspector, from the City of Georgetown, will also inspect the BMPs to ensure they are in proper working condition. If any BMP is found to be unacceptable, the inspector will notify the contractor to remedy the problem immediately. Specific temporary BMP inspection and maintenance requirements are listed below. Construction notes for these BMPs, as well as additional notes can be found in the plan set details. Additionally, while they are not expected to be required, notes for other temporary BMPs such as filter dikes have also been included in the construction notes in the case they are deemed required during construction.

Silt Fence & Tree Protection

- Inspect all fencing weekly and after any rainfall event.
- Remove sediment when buildup reaches 6 inches.
- Replace any torn fabric.
- Replace or repair any sections crushed or collapsed in the course of construction activity.
- Fencing will be removed after construction is complete.

Concrete Washout

- The below ground concrete washout area will be constructed before construction commences.
- The washout area will be cleaned on a daily basis. All sediment, wastes, etc. will be removed from the site by the contractor.
- When necessary, repairs will be made to the washout area.
- The washout area will be removed after construction is complete.

Temporary Stormwater Section
TCEQ-0602

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

When evaluating the existing site conditions, limited project scope, nature, time of risk exposure and layout of this project, extensive temporary soil stabilization practices are impractical. The disturbance of topsoil for the majority of the project will be limited, at relatively shallow depths (less than one foot typically), and shallow slopes. For this reason, the main soil stabilization practice that will be implemented during (and after construction) will be the establishment of permanent vegetation on all areas of soil disturbance. This vegetation will help both in stabilizing the soil during and after construction, as well as in reducing the risk of sediment or dust contamination from the project site. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Addison Skrla, P.E., CFM

Date: 11/28/23

Signature of Customer/Agent

Addison Skrla

Regulated Entity Name: Georgetown Neighboorhood Park Improvements Crystal Knoll

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater**.

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

   ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

   ☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☒ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

   ☐ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

   ☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

   ☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

    ☒ Design calculations (TSS removal calculations)
    ☒ TCEQ construction notes
    ☒ All geologic features
    ☒ All proposed structural BMP(s) plans and specifications

    ☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☒ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☒ **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

Temporary Stormwater Section
TCEQ-0602

Attachment A – 20% or Less Impervious Cover Waiver

This project is not requesting a 20% or Less Impervious Cover Waiver as it is not applicable to this project.

Permanent Stormwater Form
TCEQ-0600

Attachment B - BMPs for Upgradient Stormwater

The project is being constructed in a developed residential neighborhood with some commercial and industrial areas. Minimal upgradient stormwater will cross the proposed sidewalk, and that which does will come from the adjacent residential lots only, as the area does include curbed roadway to maintain stormwater flows within the street. Any upgradient stormwater coming from residential houses will generally cross and be treated by lawns serving as vegetative filter strips before coming in contact with our proposed sidewalk. During construction, silt fence will be installed as previously described to help treat any storm water that may come into contact with the site during project construction.

Permanent Stormwater Section
TCEQ-0600

Attachment C - BMPs for On-Site Stormwater

This project consists of approximately 0.15 acres of proposed sidewalk improvements and concrete pads. The entire proposed sidewalk is 1,320 LF. This portion of the project will be treated by a proposed Equivalent Water Quality Protection BMP in the form of 1,320 LF of naturally vegetated area along the proposed sidewalk. Existing flow directions have been maintained with the new sidewalk, and the natural vegetation is placed on the downstream side of the proposed sidewalk.

General Information Form
TCEQ-0600

Attachment D
BMPs for Surface Streams

As has been previously stated in this application, the proposed Equivalent Water Quality Protection BMPs consisting of Vegetated Areas will collect and treat the storm water originating on-site. These BMPs serve to prevent pollutants from entering any surface streams or the aquifer, as they will be treated before discharging further downstream.

Permanent Stormwater Section
TCEQ-0602

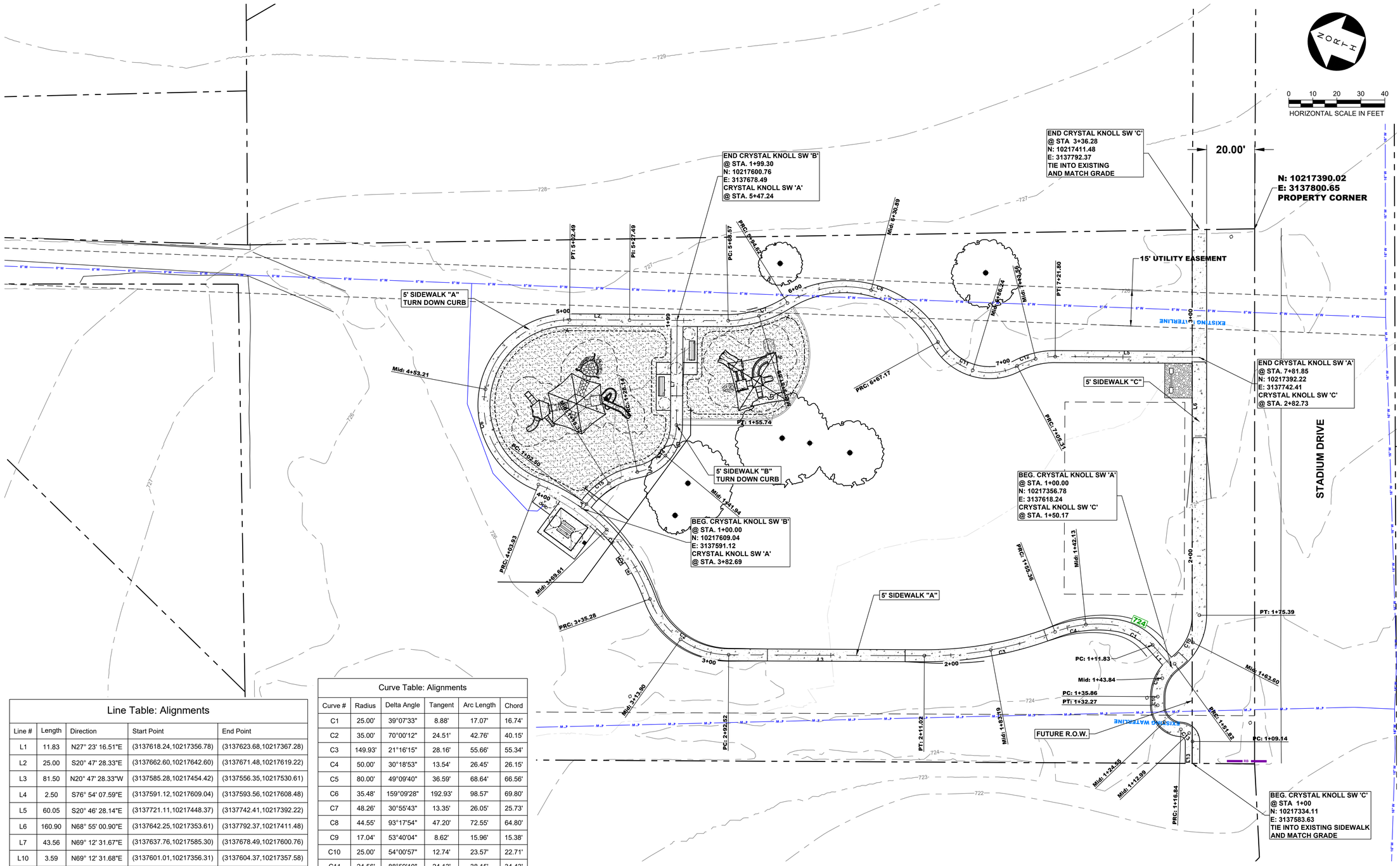
Attachment E - Request to Seal Features

There will be no sealing of or diversion of flow from a sensitive feature anticipated or proposed for this project.

Permanent Stormwater Section
TCEQ-0600

Attachment F – Construction Plans

See the following pages to see the Construction Plans and TSS Calculations for the proposed project.



Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	11.83	N27° 23' 16.51"E	(3137618.24,10217356.78)	(3137623.68,10217367.28)
L2	25.00	S20° 47' 28.33"E	(3137662.60,10217642.60)	(3137671.48,10217619.22)
L3	81.50	N20° 47' 28.33"W	(3137585.28,10217454.42)	(3137556.35,10217530.61)
L4	2.50	S76° 54' 07.59"E	(3137591.12,10217609.04)	(3137593.56,10217608.48)
L5	60.05	S20° 46' 28.14"E	(3137721.11,10217448.37)	(3137742.41,10217392.22)
L6	160.90	N68° 55' 00.90"E	(3137642.25,10217353.61)	(3137792.37,10217411.48)
L7	43.56	N69° 12' 31.67"E	(3137637.76,10217585.30)	(3137678.49,10217600.76)
L10	3.59	N69° 12' 31.68"E	(3137601.01,10217356.31)	(3137604.37,10217357.58)
L13	9.14	N69° 07' 49.97"E	(3137583.63,10217334.11)	(3137592.17,10217337.37)

Curve Table: Alignments					
Curve #	Radius	Delta Angle	Tangent	Arc Length	Chord
C1	25.00'	39°07'33"	8.88'	17.07'	16.74'
C2	35.00'	70°00'12"	24.51'	42.76'	40.15'
C3	149.93'	21°16'15"	28.16'	55.66'	55.34'
C4	50.00'	30°18'53"	13.54'	26.45'	26.15'
C5	80.00'	49°09'40"	36.59'	68.64'	66.56'
C6	35.48'	159°09'28"	192.93'	98.57'	69.80'
C7	48.26'	30°55'43"	13.35'	26.05'	25.73'
C8	44.55'	93°17'54"	47.20'	72.55'	64.80'
C9	17.04'	53°40'04"	8.62'	15.96'	15.38'
C10	25.00'	54°00'57"	12.74'	23.57'	22.71'
C11	24.56'	88°59'10"	24.13'	38.15'	34.43'
C12	33.65'	28°03'52"	8.41'	16.48'	16.32'
C13	5.00'	88°16'34"	4.85'	7.70'	6.96'
C14	20.00'	79°04'21"	16.51'	27.60'	25.46'
C15	34.98'	41°59'35"	13.43'	25.64'	25.07'

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\GENERAL\22-503 - OVERALL SITE PLAN - CRYTAL KNOLL.dwg **LAST SAVED:** 4/1/2023 2:38:19 PM
LAYOUT: 22-503 - ECS PLAN

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED PROFESSIONAL ENGINEER

08-22-2022

Project:
GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

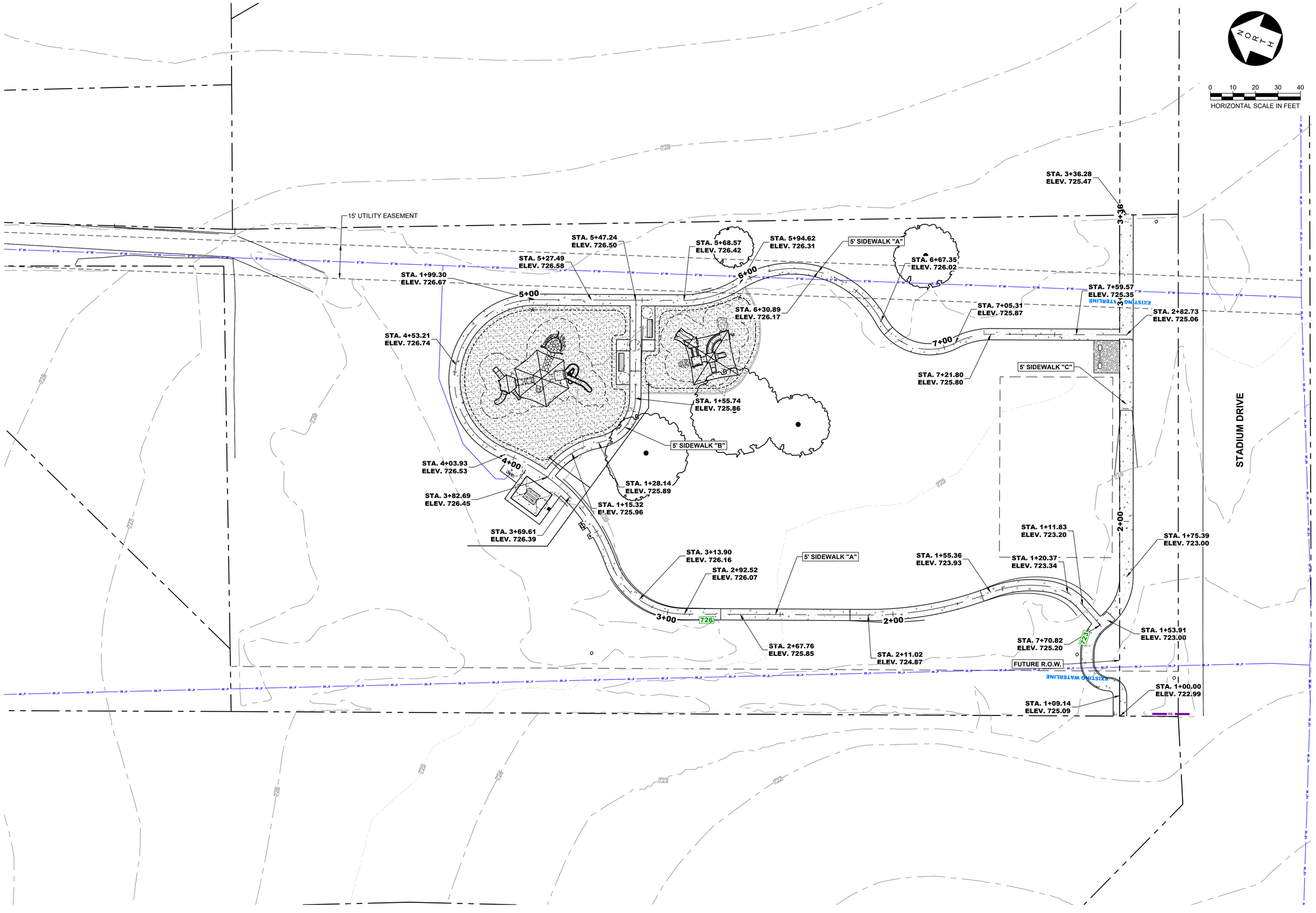
Date Issued:
October 13, 2022

Revisions:

Sheet Title:
DEMINSIONAL SITE PLAN - CRYSTAL KNOLL

Sheet Number:
C-01 OF 08

Application Number:
2023-3-SWP



FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CADIPlans\CRYSTAL KNOLL PARK\GRADING\22-503 - GRADING PLAN-KRYSTAL KNOLL.dwg **LAST SAVED:** 4/1/2023 2:36:45 PM

LAYOUT: GRADING PLAN

KPA ENGINEERS

KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:

2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:

October 13, 2022

Revisions:

Sheet Title:

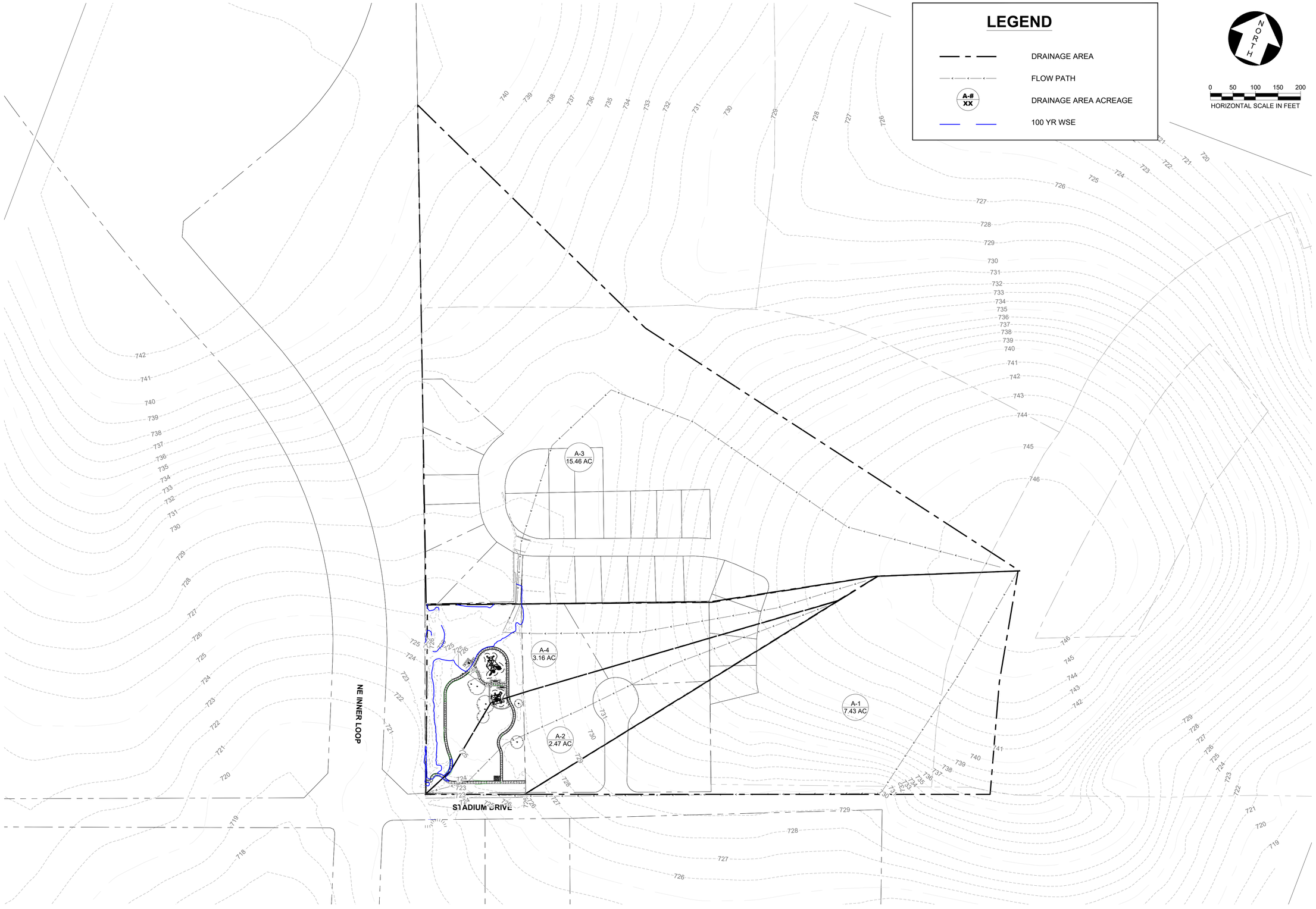
GRADING PLAN - CRYSTAL KNOLL

Sheet Number:

C-02 OF 08

Application Number:

2023-3-SWP



KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:
October 13, 2022

Revisions:

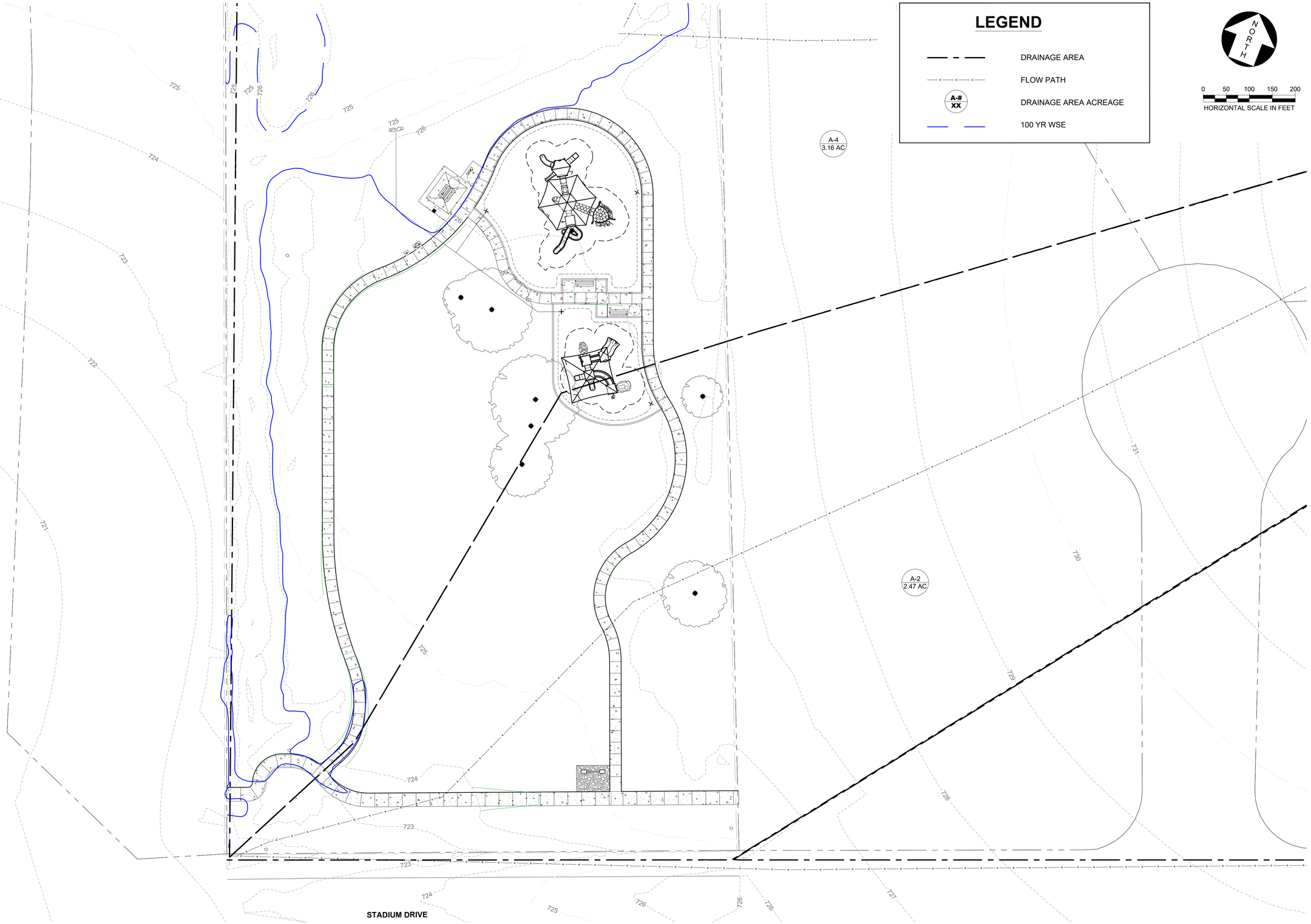
Sheet Title:
OVERALL DRAINAGE MAP

Sheet Number:

C-03 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** OVERALL DRAINAGE MAP



FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** ONSITE DRAINAGE LAYOUT

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:
October 13, 2022

Revisions:

Sheet Title:
ONSITE DRAINAGE LAYOUT

Sheet Number:
C-04 OF 08

Application Number:
2023-3-SWP

Existing - 25 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	12.60	16.24	72.96	13.86
Outflow Volume (ac-ft)	1.27881	1.66433	9.16382	4.29239
Outflow Depth (in)	6.15	6.37	7.13	6.94
Outflow Average (cfs)	0.64	0.83	4.59	2.15
Maximum Direct Flow (cfs)	12.60	16.24	72.96	13.86
Direct Runoff Volume (ac-ft)	1.27881	1.66433	9.16382	4.29239
Direct Flow Depth (in)	6.15	6.37	7.13	6.94
Direct Flow Average (cfs)	0.64	0.83	4.59	2.15
Maximum Precipitation (in)	0.59	0.59	0.59	0.59
Precipitation Total (in)	8.07	8.07	8.07	8.07
Precipitation Volume (ac-ft)	1.67856	2.10896	10.37264	4.99264
Maximum Loss (in)	0.09	0.08	0.03	0.04
Loss Total (in)	1.91	1.69	0.93	1.00
Loss Volume (ac-ft)	0.39828	0.44283	1.18900	0.61848
Maximum Excess (in)	0.51	0.52	0.56	0.56
Excess Total (in)	6.16	6.38	7.14	7.07
Excess Volume (ac-ft)	1.28028	1.66613	9.18364	4.37416
Lag time (minutes)	7.77	7.60	13.58	82.76

Existing - 100 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	18.72	23.91	104.52	19.96
Outflow Volume (ac-ft)	1.92519	2.48132	13.25829	6.23111
Outflow Depth (in)	9.26	9.49	10.32	10.07
Outflow Average (cfs)	0.96	1.24	6.64	3.12
Maximum Direct Flow (cfs)	18.72	23.91	104.52	19.96
Direct Runoff Volume (ac-ft)	1.92519	2.48132	13.25829	6.23111
Direct Flow Depth (in)	9.26	9.49	10.32	10.07
Direct Flow Average (cfs)	0.96	1.24	6.64	3.12
Maximum Precipitation (in)	0.82	0.82	0.82	0.82
Precipitation Total (in)	11.30	11.30	11.30	11.30
Precipitation Volume (ac-ft)	2.35040	2.95307	14.52427	6.99093
Maximum Loss (in)	0.08	0.07	0.03	0.03
Loss Total (in)	2.03	1.80	0.96	1.04
Loss Volume (ac-ft)	0.42311	0.46919	1.23802	0.64439
Maximum Excess (in)	0.76	0.77	0.80	0.80
Excess Total (in)	9.27	9.50	10.34	10.26
Excess Volume (ac-ft)	1.92729	2.48388	13.28624	6.34654
Lag time (minutes)	7.77	7.60	13.58	82.76

Proposed - 25 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	12.65	16.29	73.27	13.86
Outflow Volume (ac-ft)	1.28861	1.67457	9.20321	4.29612
Outflow Depth (in)	6.20	6.41	7.13	6.94
Outflow Average (cfs)	0.65	0.84	4.61	2.15
Maximum Direct Flow (cfs)	12.65	16.29	73.27	13.86
Direct Runoff Volume (ac-ft)	1.28861	1.67457	9.20321	4.29612
Direct Flow Depth (in)	6.20	6.41	7.13	6.94
Direct Flow Average (cfs)	0.65	0.84	4.61	2.15
Maximum Precipitation (in)	0.59	0.59	0.59	0.59
Precipitation Total (in)	8.07	8.07	8.07	8.07
Precipitation Volume (ac-ft)	1.67856	2.10896	10.41568	4.99264
Maximum Loss (in)	0.09	0.07	0.03	0.04
Loss Total (in)	1.87	1.66	0.92	0.99
Loss Volume (ac-ft)	0.38848	0.43259	1.19257	0.61475
Maximum Excess (in)	0.52	0.53	0.56	0.56
Excess Total (in)	6.20	6.41	7.15	7.08
Excess Volume (ac-ft)	1.29008	1.67637	9.22311	4.37789
Lag time (minutes)	7.77	7.60	13.58	82.76

Proposed - 100 Year				
Results	(Ex-1)	(Ex-2)	(Ex-CrKnTr)	(Ex-Off1)
Time to Peak (hrs)	12.1667	12.1667	12.2500	13.4167
Maximum Outflow (cfs)	18.76	23.95	104.95	19.96
Outflow Volume (ac-ft)	1.93560	2.49217	13.31468	6.23489
Outflow Depth (in)	9.31	9.54	10.32	10.08
Outflow Average (cfs)	0.97	1.25	6.67	3.12
Maximum Direct Flow (cfs)	18.76	23.95	104.95	19.96
Direct Runoff Volume (ac-ft)	1.93560	2.49217	13.31468	6.23489
Direct Flow Depth (in)	9.31	9.54	10.32	10.08
Direct Flow Average (cfs)	0.97	1.25	6.67	3.12
Maximum Precipitation (in)	0.82	0.82	0.82	0.82
Precipitation Total (in)	11.30	11.30	11.30	11.30
Precipitation Volume (ac-ft)	2.35040	2.95307	14.58453	6.99093
Maximum Loss (in)	0.08	0.07	0.03	0.03
Loss Total (in)	1.98	1.75	0.96	1.04
Loss Volume (ac-ft)	0.41270	0.45834	1.24179	0.64061
Maximum Excess (in)	0.76	0.77	0.80	0.80
Excess Total (in)	9.32	9.55	10.34	10.26
Excess Volume (ac-ft)	1.93770	2.49473	13.34275	6.35032
Lag time (minutes)	7.77	7.60	13.58	82.76

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:
GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

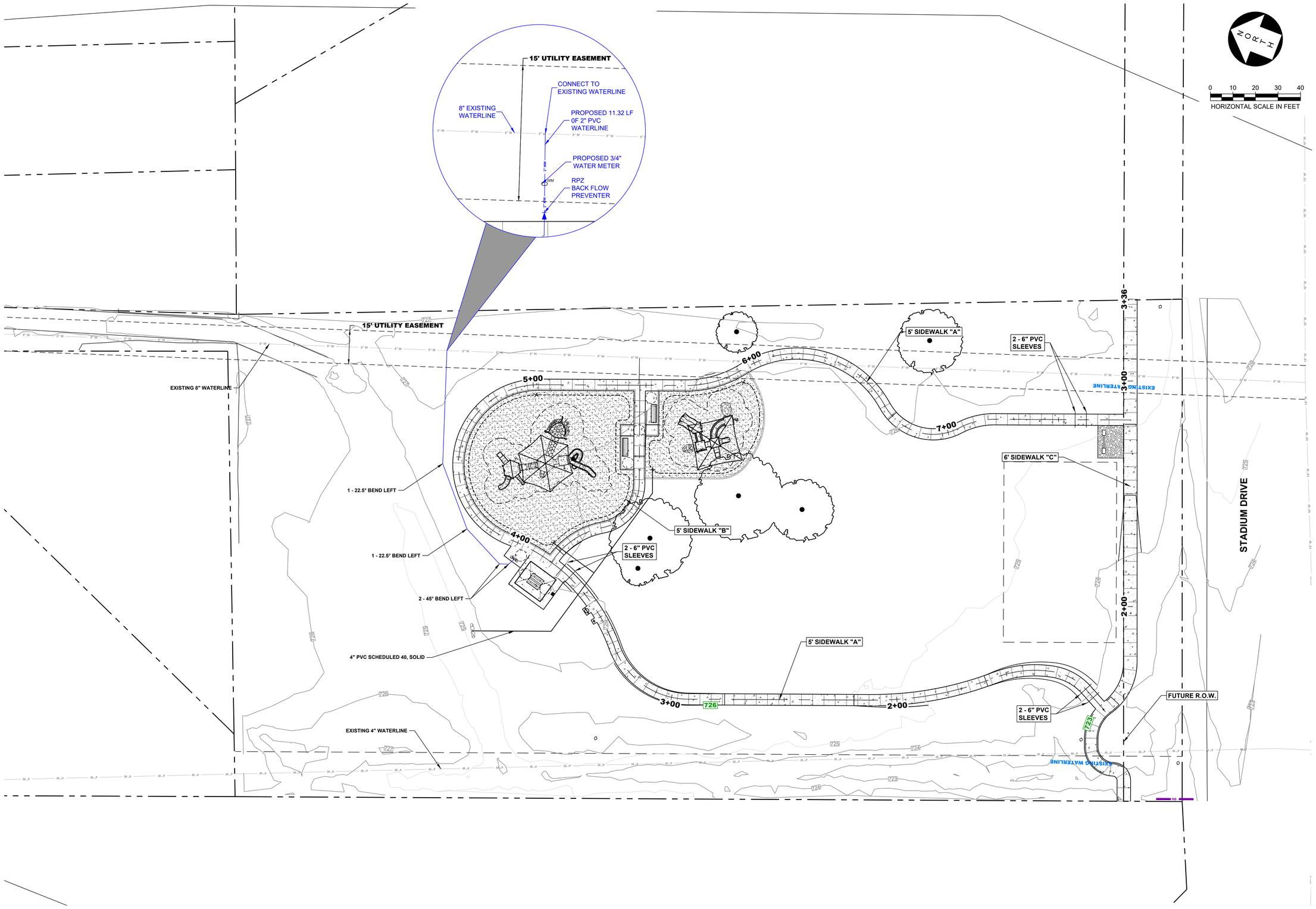
Designed: EGH
Drawn: EGH
Reviewed: ASK
Date Issued:
October 13, 2022
Revisions:

Sheet Title:
DRAINAGE AREA CALCULATIONS

Sheet Number:
C-05 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DRAINAGE\22-503 DRAINAGE PLAN.dwg **LAST SAVED:** 4/1/2023 2:38:33 PM **LAYOUT:** DRAINAGE AREA CALCULATIONS



FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\WATER\22-503-UTILITY PLAN-KRYTAL KNOLL.dwg **LAST SAVED:** 4/1/2023 2:38:26 PM **LAYOUT:** WATER UTILITY PLAN

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS CRYSTAL KNOLL

Project Number:

2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:

October 13, 2022

Revisions:

Sheet Title:

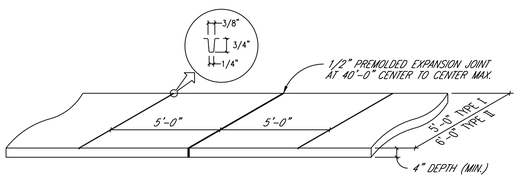
WATER UTILITY PLAN

Sheet Number:

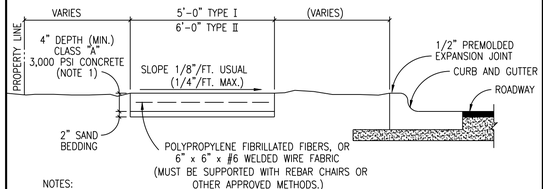
C-06 OF 08

Application Number:

2023-3-SWP



TYPE I – AS REQUIRED FOR SINGLE FAMILY, DUPLEXES AND TOWNHOUSES, TRIPLEXES AND QUADRAPLEXES.
TYPE II – AS REQUIRED FOR MULTI-FAMILY, OTHER NON-RESIDENTIAL USES AND PARKING LOTS/STRUCTURES.
ALL THOROUGHFARES (COLLECTOR AND ABOVE) REQUIRE TYPE II.



NOTES:

1. STANDARD LOCATION OF SIDEWALK SHALL BE IN CONFORMANCE WITH THE UDC.
2. SIDEWALK SHALL CONFORM TO CURRENT TDLR/TAS STANDARDS.
3. ALL SIDEWALKS SHALL BE SUBMITTED AND APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND ENGINEER OF RECORD.
4. ANY VARIANCE IN TEXTURE, GRADE OR ALIGNMENT SHALL BE APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND BY THE CITY ENGINEER.
5. SLIP DOWEL SHALL BE INSTALLED AT EVERY LONGITUDINAL EXPANSION JOINT (UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER DURING ENGINEERING PLAN REVIEW PRIOR TO FINAL DESIGN).

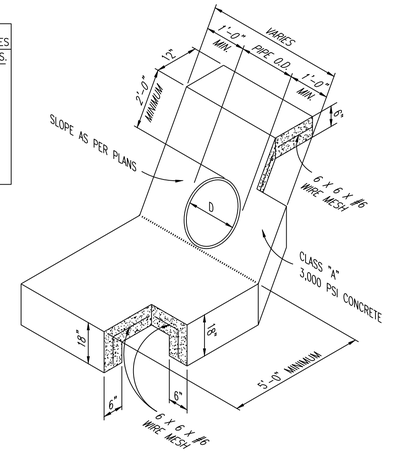
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: REVISED 6/25/2015 WBD
REVISION NOTE: ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SIDEWALK SECTION AND JOINT DETAIL

DRAWING NAME: SD14
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

MINIMUM RIP-RAP QUANTITIES	
PIPE	SQ. YDS.
18"	6.2
24"	6.9
27"	7.8
30"	9.5
36"	10.4
42"	12.0
48"	14.3
54"	16.4



NOTES:

1. WHEN HEADWALLS AND WINGWALLS ARE REQUIRED, THEY SHALL CONFORM TO THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARDS, OR AS DIRECTED BY THE CITY.
2. ENERGY DISSIPATERS SHALL BE REQUIRED IF PIPE VELOCITY IS GREATER THAN 5.0 F.P.S. OR AS DIRECTED BY THE CITY OF GEORGETOWN.
3. SUPPORT REINFORCING WIRE MESH REQUIRED AS SUPPORT FOR APPROACH SLAB AND SHALL BE SUPPORTED BY REBAR CHAIRS OR OTHER APPROVED METHODS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL CONCRETE RIP-RAP AT PIPE

DRAWING NAME: SD19
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

The Architect/Engineer assumes responsibility for appropriate use of this standard.

NOTES:

1. COMMERCIAL SIDEWALKS WIDTHS – 6'
   RESIDENTIAL SIDEWALKS WIDTHS – 5'
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. FLATTER SLOPES THAT WILL STILL DRAIN PROPERLY ARE ENCOURAGED.
3. ALL CONCRETE SURFACES SHALL RECEIVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE IN THE PLANS.
4. FOR PURPOSES OF WARNING, THE CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES.
5. TEXTURES MAY CONSIST OF PAVERS WITH TRUNCATED DOMED SURFACES. TEXTURES ARE REQUIRED TO BE DETECTABLE UNDERFOOT. SURFACES THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.
6. COLOR CONTRAST, FOR EXAMPLE, MAY BE ACCOMPLISHED WITH COLORED CONCRETE PAVERS THAT HAVE TRUNCATED DOMES WHICH WOULD PROVIDE A CONTRAST WITH TYPICALLY LIGHT COLORED CONCRETE.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, VISIBILITY AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. RAISED MEDIANS SEPARATE OPPOSING DIRECTIONS OF TRAFFIC AND PROVIDE A REFUGE AREA FOR PEDESTRIANS IF THEY ARE UNABLE TO CROSS THE ENTIRE ROADWAY IN THE ALLOTTED SIGNAL PHASE. MEDIAN CROSSING SHALL BE A MINIMUM OF 5' WIDE. MEDIANS SHIOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR TROUGH THEM.
9. ALL SIDEWALK PLANS AND DETAILS SHALL BE SUBMITTED AND APPROVED BY "REGISTERED ACCESSIBILITY SPECIALIST" (RAS).
10. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GRATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6 INCHES OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL MEET THE REQUIREMENTS OF A RAMP PER TAS 405.THE ONLY EXCEPTION IS AT CURB RAMPS. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHERE EVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
11. TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SHALL BE PLACED SO NOT TO OBSTRUCT THE ACCESSIBLE ROUTE OR ACT PROTRUDING OBJECTS.
12. ALL SIDEWALKS SHALL BE DOWELED INTO EXISTING SIDEWALKS, DRIVEWALKS, DRIVEWAYS, INLET BOXES, RETAINING WALLS, ETC.
13. ALL SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 1:50, UNLESS A VARIANCE IS PROVIDED BY TDLR.

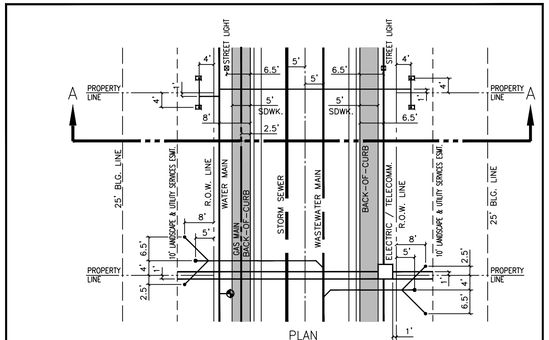
(PENETRATES) A CURB.

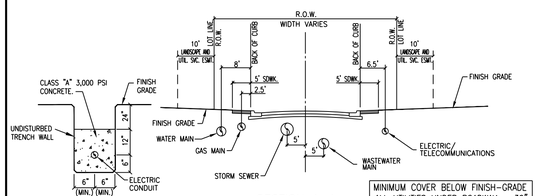
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: REVISED 6/25/2015 WBD
REVISION NOTE: ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
PEDESTRIAN RAMPS GENERAL NOTES

DRAWING NAME: SD28
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB





NOTE: WHEN CROSSING A WATER MAIN, THE ELECTRIC CONDUIT MUST BE ENCASED WITH 3,000 PSI RED CONCRETE FOR FIVE (5) FEET BOTH SIDES FROM THE CROSSING POINT.

ELECTRIC CONDUIT
CONCRETE ENCASEMENT DETAIL

MINIMUM COVER BELOW FINISH-GRADE *ALL UTILITIES UNDER ROADWAY – 36"*	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

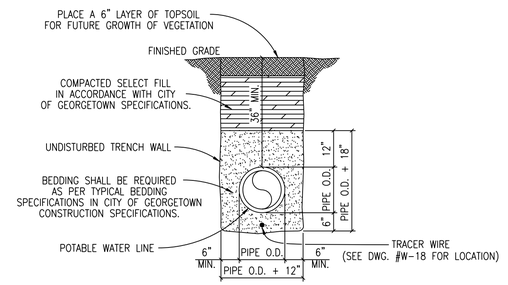
CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
UTILITY ASSIGNMENTS FOR LOCAL STREETS, RESIDENTIAL COLLECTORS AND MAJOR COLLECTORS

DRAWING NAME: W01A
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



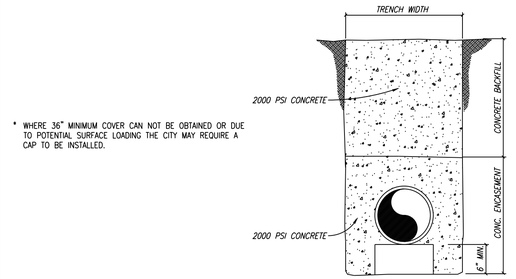
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

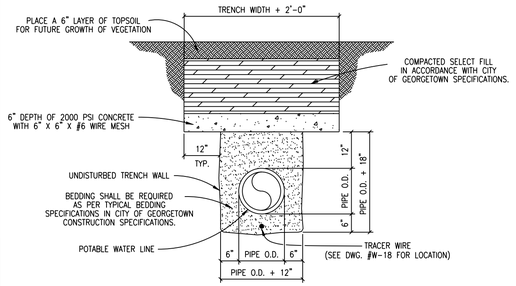
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS

DRAWING NAME: W02
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



* WHERE 36" MINIMUM COVER CAN NOT BE OBTAINED OR DUE TO POTENTIAL SURFACE LOADING THE CITY MAY REQUIRE A CAP TO BE INSTALLED.

CONCRETE BACKFILL
AND CONCRETE ENCASEMENT



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CONCRETE TRENCH CAP DETAIL

DRAWING NAME: W02A
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL ENGINEER

08-22-2022

Project:

GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH
Drawn: EGH
Reviewed: ASK

Date Issued:
October 13, 2022

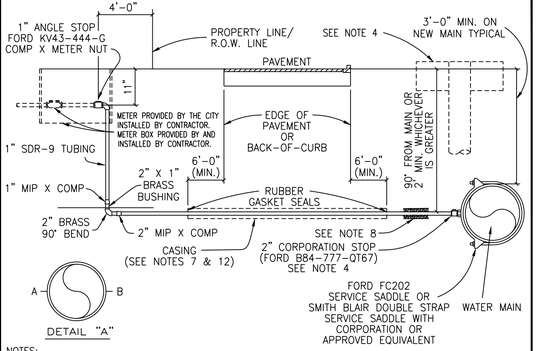
Revisions:

Sheet Title:
DETAIL SHEET (1 OF 2)

Sheet Number:
C-07 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DETAILS - MISC\C22-503-DETAILS.dwg **LAST SAVED:** 10/17/2022 2:10:19 PM **LAYOUT:** DETAIL SHEET (1 OF 2)



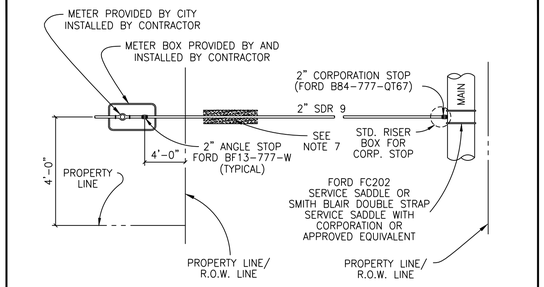
NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL, (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200:SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE-ELEVATION

DRAWING NAME: W03
SCALE: NTS | DATE: 1/2013
DRAWN BY: – | APPROVED BY: MH



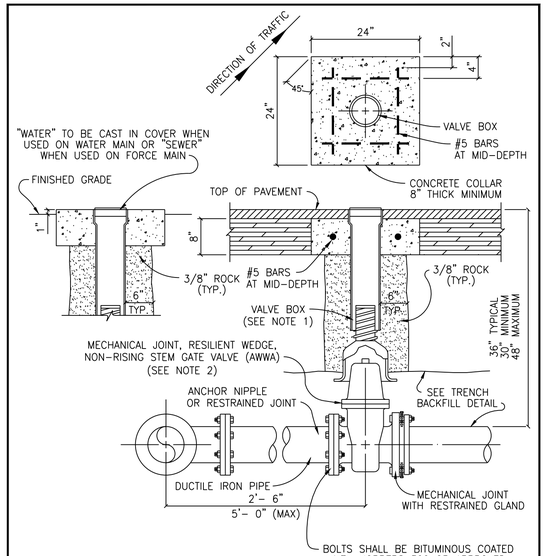
NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SINGLE WATER SERVICE PLAN

DRAWING NAME: W04
SCALE: NTS | DATE: 1/2013
DRAWN BY: – | APPROVED BY: MH



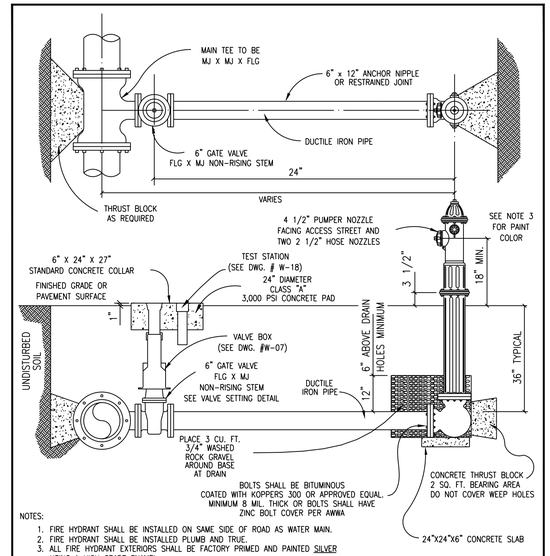
NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR – 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL – SERIES 2500
   B. MUELLER – 2360 SERIES
   C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING

DRAWING NAME: W07
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



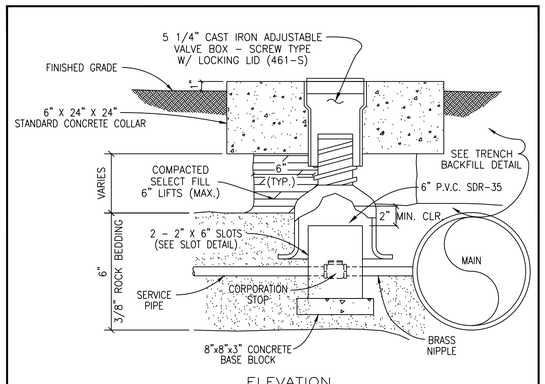
NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "HYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL FIRE HYDRANT INSTALLATION

DRAWING NAME: W10
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

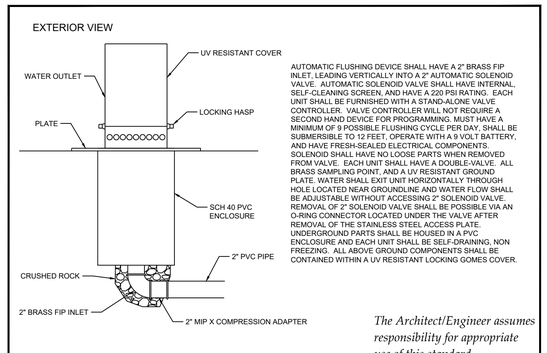


The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
STANDARD RISER BOX FOR CORPORATION STOP

DRAWING NAME: W08
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

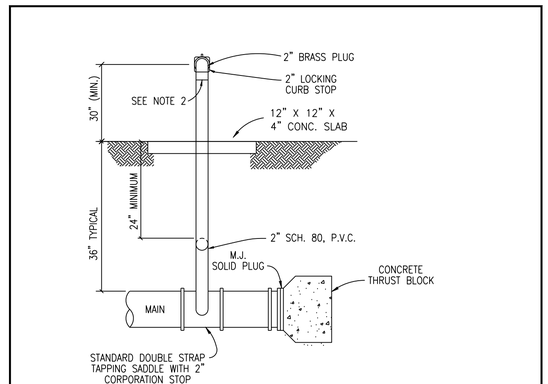


The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: TRANSFERED FROM TCTSUD

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
AUTOMATIC FLUSHING VALVE

DRAWING NAME: W-08C
SCALE: NTS | DATE: 7/2015
DRAWN BY: TP | APPROVED BY: –



NOTE:
1. ATTACH FIRE HYDRANT CONNECTION AT THE END OF THE BLOW OFF VALVE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
STANDARD BLOW-OFF

DRAWING NAME: W09
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

KPA ENGINEERS
KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
kpaengineers.com

STATE OF TEXAS
ADDISON SKRLA
137146
LICENSED
PROFESSIONAL
ENGINEER

08-22-2022

Project:
GEORGETOWN NEIGHBORHOOD PARK IMPROVEMNTS
CRYSTAL KNOLL

Project Number:
2022-CLA503

Designed: EGH

Drawn: EGH

Reviewed: ASK

Date Issued:
October 13, 2022

Revisions:

Sheet Title:
DETAIL SHEET (2 OF 2)

Sheet Number:
C-08 OF 08

Application Number:
2023-3-SWP

FILE: P:\Georgetown\2022\2022-503 Georgetown Neighborhood Park Improvements\CAD\Plans\CRYSTAL KNOLL PARK\DETAILS - MISC\C22-503-DETAILS.dwg LAST SAVED: 10/17/2022 2:10:19 PM LAYOUT: DETAIL SHEET (2 OF 2)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Crystal Knoll
Date Prepared: 6/27/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	1.29	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	0.17	acres
Total post-development impervious cover fraction * =	0.13	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	148	lbs.

*** The values entered in these fields should be for the total project area.**

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	1.29	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.17	acres
Post-development impervious fraction within drainage basin/outfall area =	0.13	
$L_{M\ THIS\ BASIN}$ =	148	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	1.29	acres
A_I =	0.17	acres
A_P =	1.12	acres
L_R =	176	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**3482**	lbs.
F =	**19.73**	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**4.00**	inches
Post Development Runoff Coefficient =	**0.15**	
On-site Water Quality Volume =	**2844**	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**569**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**3412**	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

16. Vegetated Filter Strips Designed as Required in RG-348 Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.
The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.

7/14/2023

Addison Skrla, P.E.
KPA Engineers

Permanent Stormwater Section
TCEQ-0600

Attachment G - Inspection, Maintenance, Repair and Retrofit Plan for BMPs

The vegetative area will be maintained by the City of Georgetown per their standard right-of-way maintenance agreements and procedures.

Once established, all vegetated areas will require the following maintenance:

- ***Pest Management***

  An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

- ***Seasonal Mowing and Lawn Care***

  If the filter area is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices; however, herbicide use should be kept to a minimum. Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

- ***Inspection***

  Inspect filter area at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

- ***Debris and Litter Removal***

  Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structure (i.e. level spreaders) should be kept free of obstructions to reduce floatable being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

- ***Sediment Removal***

  Sediment removal is not normally required in filter area, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

- ***Grass Reseeding and Mulching***

A healthy dense grass should be maintained on the filter area. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.

Owner/ Responsible Party

City of Georgetown

Permanent Stormwater Section
TCEQ-0600

Attachment H – Pilot-Scale Field Testing Plan

There are no proposed BMPs in this project that are not recognized by the Executive Director and therefore there is no plan for pilot-scale field testing for this project.

Permanent Stormwater Section
TCEQ-0600

Attachment I – Measures for Minimizing Surface Stream Contamination

As has been previously stated in this application, vegetated areas will effectively stream contaminants from storm water occurring due to the proposed improvements thus minimizing if not eliminating any related surface stream contamination. Additionally, the temporary BMPs previously described (silt fence, etc.) will also serve to treat and minimize contamination runoff. These BMPs will also serve to decrease velocities before exiting the project site.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Dave Melaas,
Print Name

Park Development Manager,
Title - Owner/President/Other

of City of Georgetown,
Corporation/Partnership/Entity Name

have authorized Addison Skrla, P.E., CFM
Print Name of Agent/Engineer

of Kasberg, Patrick & Associates, LP
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

6.29.23

Applicant's Signature Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Dave Mebas known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 29th day of June, 2023.

NOTARY PUBLIC

Jill Kellum

Typed or Printed Name of Notary

JILL KELLUM
Notary Public, State of Texas
Comm. Expires 12-16-2024
Notary ID 125145378

MY COMMISSION EXPIRES: 12-16-2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Georgetown Neighborhood Park Improvements Crystal Knoll

Regulated Entity Location: Georgetown, Texas

Name of Customer: City of Georgetown

Contact Person: Dave Melaas Phone: 512-930-3595

Customer Reference Number (if issued):CN N/A

Regulated Entity Reference Number (if issued):RN N/A

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☒ Austin Regional Office

☒ Mailed to: TCEQ - Cashier

Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier

12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	1 Each	$ 500
Extension of Time	Each	$

Signature: Addison Shaw Date: 6/28/23

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	***Fee***
Extension of Time Request	$150

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)*

☒ Other **Exception Request**

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN		**RN**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* | *If new Customer, enter previous Customer below:*

City of Georgetown

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
		746000974	N/A

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☒ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☒ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

1101 N. College Street

City	Georgetown	**State**	TX	**ZIP**	78665	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	dave.melaas@georgetown.org

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** *(if applicable)*

(512) 930-3595		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Georgetown Neighborhood Park Improvements Crystal Knoll

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	N/A							
	City	Georgetown	**State**	TX	**ZIP**	78626	**ZIP + 4**	
24. County	Williamson							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	The project is located at the Northeast corner of NE Inner Loop and Stadium Drive, in North Gerogetown, Texas.

26. Nearest City	**State**	**Nearest ZIP Code**
Georgetown	TX	78626

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	30.683		**28. Longitude (W) In Decimal:**	97.411	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	40	59	97	23	99

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Neighboorhood Park

34. Mailing Address:	**N/A**							
	City		**State**		**ZIP**		**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
( ) -		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Addison Skrla, P.E., CFM	41. Title:	Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 819-9478		( ) -	askrla@kpaengineers.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Kasberg, Patrick & Associates, LP	Job Title:	Project Manager
Name *(In Print)*:	Addison Skrla, P.E., CFM	Phone:	(512) 819- 9478
Signature:	Addison Skrla	Date:	6/28/23