

ROUND ROCK SPORTS CENTER EXPANSION

Modification of a Previously Approved Organized Sewage Collection System Plan

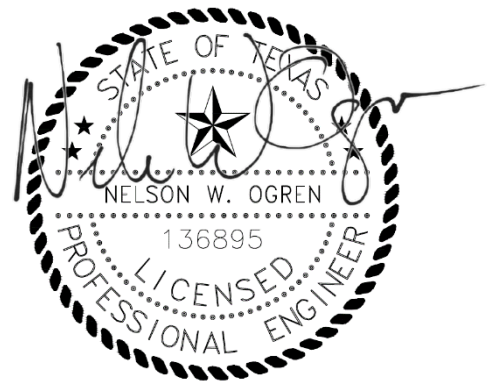
NOVEMBER 2023

Prepared For:

City of Round Rock
212 East Main Street
Round Rock, Texas 78664

Prepared By:

2P Consultants, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664



11/15/2023

**Nelson W. Ogren
Senior Project Manager**



TBPE FIRM #F-19351



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Edwards Aquifer Application Cover Page
(TCEQ-20705)

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.

1. Regulated Entity Name: Round Rock Sports Center				2. Regulated Entity No.: RN 102731577					
3. Customer Name: City of Round Rock				4. Customer No.: CN 600413181					
5. Project Type: (Please circle/check one)	New	<input checked="" type="checkbox"/> Modification		Extension	Exception				
6. Plan Type: (Please circle/check one)	WPAP	CZP	<input checked="" type="checkbox"/> SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential	<input checked="" type="checkbox"/> Non-residential			8. Site (acres):		22.62		
9. Application Fee:	\$650		10. Permanent BMP(s):						
11. SCS (Linear Ft.):	450		12. AST/UST (No. Tanks):		N/A				
13. County:	Williamson		14. Watershed:			Turkey Creek - Brushy Creek			

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.)	—	—	<u> </u> X <u> </u>
Region (1 req.)	—	—	<u> </u> X <u> </u>
County(ies)	—	—	<u> </u> X <u> </u>
Groundwater Conservation District(s)	<u> </u> Edwards Aquifer Authority <u> </u> Barton Springs/ Edwards Aquifer <u> </u> Hays Trinity <u> </u> Plum Creek	<u> </u> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<u> </u> Austin <u> </u> Buda <u> </u> Dripping Springs <u> </u> Kyle <u> </u> Mountain City <u> </u> San Marcos <u> </u> Wimberley <u> </u> Woodcreek	<u> </u> Austin <u> </u> Bee Cave <u> </u> Pflugerville <u> </u> Rollingwood <u> </u> Round Rock <u> </u> Sunset Valley <u> </u> West Lake Hills	<u> </u> Austin <u> </u> Cedar Park <u> </u> Florence <u> </u> Georgetown <u> </u> Jerrell <u> </u> Leander <u> </u> Liberty Hill <u> </u> Pflugerville <u> </u> X Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<u> </u> Edwards Aquifer Authority <u> </u> Trinity-Glen Rose	<u> </u> Edwards Aquifer Authority	<u> </u> Kinney	<u> </u> EAA <u> </u> Medina	<u> </u> EAA <u> </u> Uvalde
City(ies) Jurisdiction	<u> </u> Castle Hills <u> </u> Fair Oaks Ranch <u> </u> Helotes <u> </u> Hill Country Village <u> </u> Hollywood Park <u> </u> San Antonio (SAWS) <u> </u> Shavano Park	<u> </u> Bulverde <u> </u> Fair Oaks Ranch <u> </u> Garden Ridge <u> </u> New Braunfels <u> </u> Schertz	NA	<u> </u> 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.

Nelson Ogren, 2P consultants, LLC

Print Name of Customer/Authorized Agent

11/15/2023

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
(TCEQ-0587)

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.

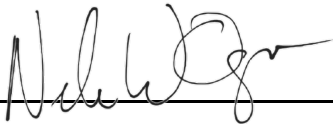
Signature

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: Nelson W. Ogren

Date: 11/15/2023

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Round Rock Sports Center
2. County: Williamson
3. Stream Basin: Onion Branch of Brushy Creek
4. Groundwater Conservation District (If applicable): N/A

5. Edwards Aquifer Zone:

- Recharge Zone
 Transition Zone

6. Plan Type:

- | | |
|--|--|
| <input type="checkbox"/> WPAP | <input type="checkbox"/> AST |
| <input checked="" type="checkbox"/> SCS | <input type="checkbox"/> UST |
| <input checked="" type="checkbox"/> Modification | <input type="checkbox"/> Exception Request |

7. Customer (Applicant):

Contact Person: Richard Will

Entity: City of Round Rock General Services Division

Mailing Address: 212 Commerce Blvd

City, State: Round Rock, TX

Zip: 78664

Telephone: 512-341-3311

FAX: _____

Email Address: richardwill@roundrocktexas.gov

8. Agent/Representative (If any):

Contact Person: Nelson W. Ogren

Entity: 2P Consultants, LLC

Mailing Address: 203 E. Main St., Suite 204

City, State: Round Rock, TX

Zip: 78664

Telephone: 512-344-9664

FAX: _____

Email Address: nogren@2pconsultants.com

9. Project Location:

The project site is located inside the city limits of Round Rock.

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.

2400 Chisholm Trail in Round Rock, TX 78681

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: 12/01/2023

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.

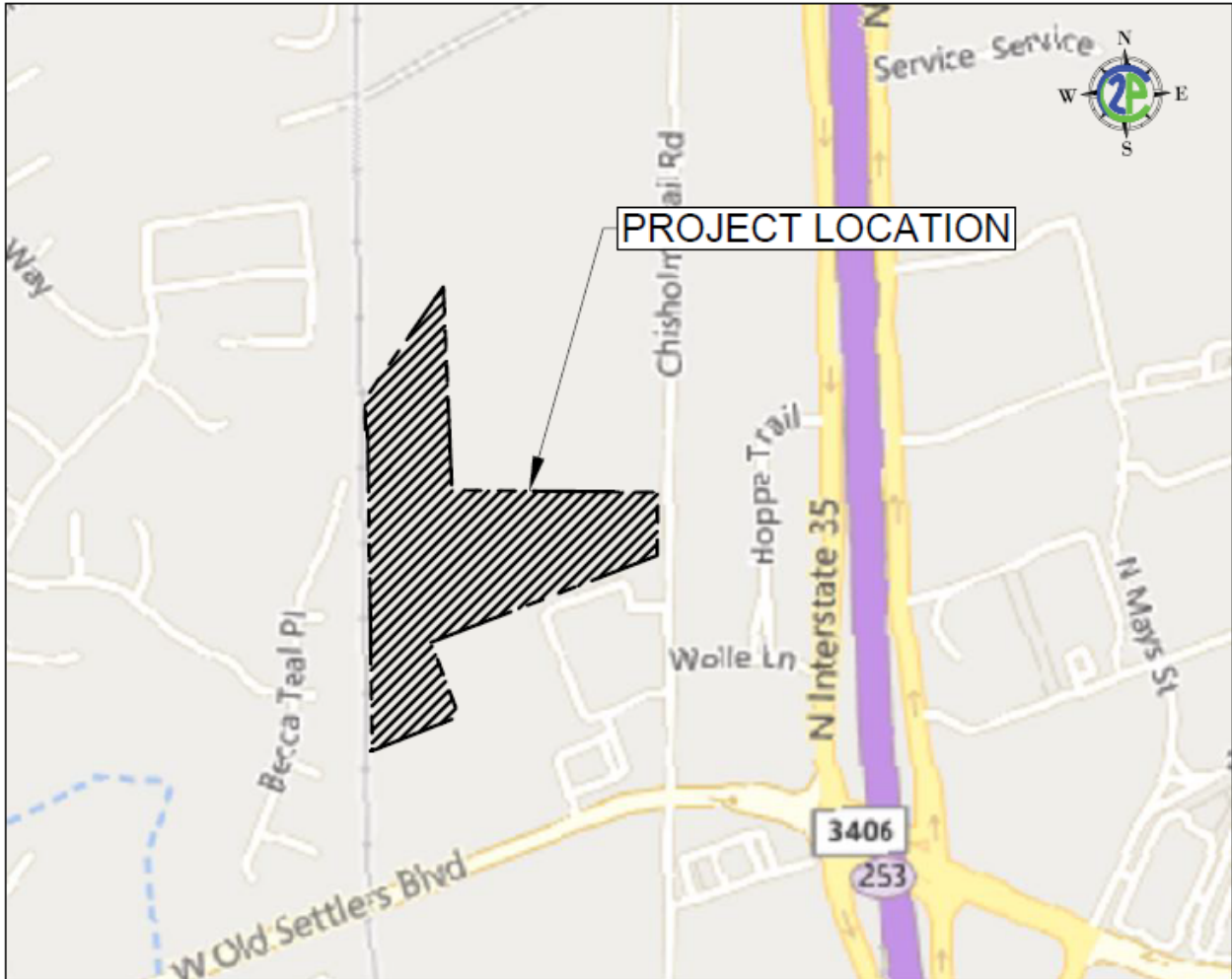
Administrative Information

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.



Attachment 2A – Road Map

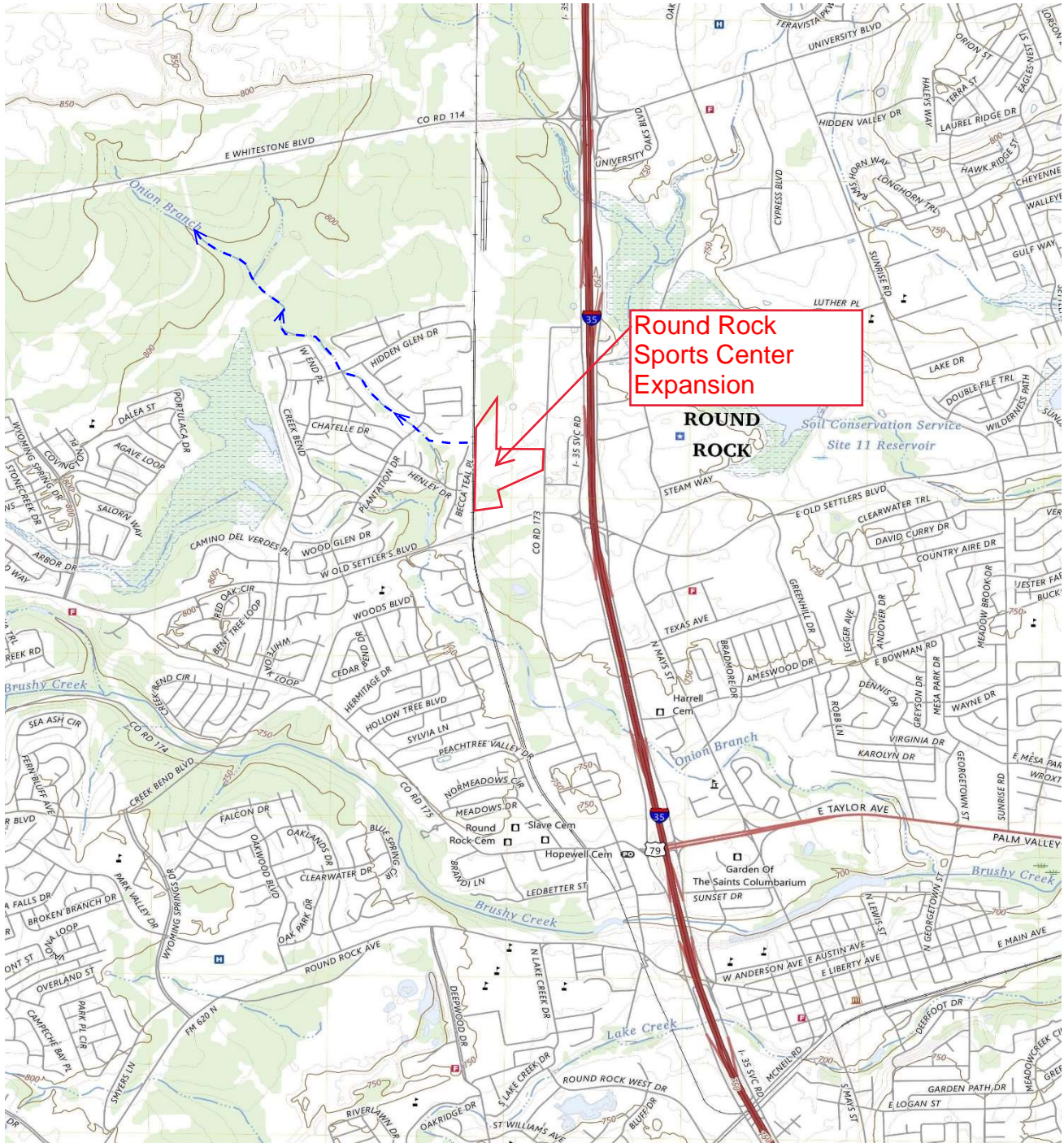


VICINITY MAP

1" = 600'



Attachment 2B – USGS Map



Site Address: 2400 Chisholm Trail Rd, Round Rock, Texas 78681

USGS Quadrangle Name: Round Rock, Texas-Williamson County (No. 30097-E6)



Attachment 2C – Project Description

The proposed Round Rock Sports Center Expansion is located at the address of 2400 Chisholm Trail Rd, in Round Rock, Texas 78681. The site is comprised of a single lot of 22.62 acres in Williamson County, within the City of Round Rock. Legal description for this property; 22.7 Acres situated in the David Curry Survey, Abstract No. 130.

The existing site is a 68,220 square foot indoor sports complex with established access from Chisholm Trail Rd. The property to the north consists of a large FedEx Freight facility; to the west, single-family homes; to the east is Chisholm Trail Rd; to the south, a hotel and an undeveloped plot. The undeveloped plot is lightly forested with a ground surface consisting of brush, weed and grasses in good condition. The existing site was initially developed as a lumber yard before being developed into a sports complex in 2012.

The NRCS Soils Map (2023) for the area shows a combination of Denton Silty Clay (DnA, DnB, and DnC) and Doss Silty Clay (DoC). Denton silty clay and Doss silty clay soils are defined as hydrologic soil group D. An insignificant portion of the Denton silty clay is defined as hydrologic soil group C.

The proposed improvements consist of the addition of 25,961 square feet to the existing building and the corresponding parking, sidewalk, drive aisles, utilities and stormwater facilities. The proposed improvements also include a 60,300 square foot parking lot on the southern edge of the property. No frontage improvements or offsite improvements are included with the proposed expansion.

The existing impervious cover for the site is 423,016 square feet (9.71 ac) and the proposed improvements are adding 121,870 square feet (2.80 ac), for a total site impervious cover is 544,866 square feet (12.51 ac). This increases the overall impervious cover from 43% to 55%.

A portion of the existing site will be demolished to make room for new improvements. 4,540 square yards of asphalt and concrete paving will be demolished, and numerous utilities will be removed and rerouted for the proposed building expansion and new utilities. The area to be demolished is on the western side of the existing Sports Center building. One existing wastewater manhole and approximately 145 feet of existing 8" wastewater main will be removed.

The modified SCS will consist of a new manhole installed over the existing wastewater main and approximately 450 linear feet of new 8" main extended around the west side of the proposed building expansion, with four additional manholes to account for vertical and horizontal changes and the two 6" wastewater services extending to the building. The final manhole and stub will be installed for a potential future onsite building.

Geologic Assessment Form
(TCEQ-0585)



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

3A – Geologic Assessment Form

The completed Geologic Assessment Form (TCEQ-0585) can be found in the following existing Geologic Assessment completed for the FM 3406 Sports Center WW Improvements, which encompasses the Round Rock Sports Center site.

SCS GEOLOGIC ASSESSMENT

For

**FM 3406 SPORTS CENTER WW
IMPROVEMENTS
NWC CHISOLM TRAIL RD & FM 3406
ROUND ROCK, WILLIAMSON COUNTY, TEXAS**

Prepared for

**BINKLEY & BARFIELD, INC.
1611 CHISLOM TRAIL ROAD, SUITE 250
ROUND ROCK, TEXAS 78748**

Prepared by

**Professional Service Industries, Inc.
Three Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377**

PSI PROJECT NO.: 0435-2394

August 28, 2015



August 28, 2015

BINKLEY & BARFIELD, INC.
1611 Chisholm Trail Road
Suite 250
Round Rock, TX 78748

Attn: Mr. Rey Gonzalez, P.E., Director of Infrastructure-Central & South Texas Region

Re: SCS-Geologic Assessment
F.M. 3406/Sports Center Wastewater Improvements
Two Wastewater Lines NWC Chisolm Trail Road & F.M. 3406
Round Rock, Texas
PSI Project No. 435-2394

Dear Mr. Gonzalez:

Professional Service Industries, Inc. (PSI) has completed a geologic recharge assessment for the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe surficial geologic units and identify the locations and extent of significant recharge features present in the development area.

AUTHORIZATION

Authorization to perform this assessment was given by an email in response to PSI Proposal No. 160001 between Binkley & Barfield, Inc. and PSI dated August 17, 2015.

PROJECT DESCRIPTION

The subject site is located in Round Rock, Williamson County, Texas, west of Chisolm Trail Road, and north of FM 3406. The 18" diameter new wastewater line is on the north side of FM 3406, to the southwest of Becca Teal Place. The new 8" diameter wastewater line is on the west (back) side of a FedEx facility, east of a north-south running rail road track, and west of Chisolm Trail Road. Both areas were undeveloped land until the late 1990's early 2000's when residential construction began in the vicinity of the southern line (Becca Teal Place), and commercial development in vicinity of the north line (warehouses, parking and storm water basins). Significant construction activities occurred in the southern portion of the northern line segment in 2013, including removal of the old rail spur, and construction of a parking lot.

The area around both wastewater lines have a slope to the west, towards the Onion Branch Creek drainage located west of the site. The site vegetation of the southern line consists primarily of native grasses, ashe juniper, live oak, cedar elm and persimmon trees, with

abundant mountain laurel, agarita, dagger yucca and prickly pear cactus. The vegetation along the north line consists of cut grass associated with the man-made detention ponds that this line traverses.

REGIONAL GEOLOGY

Physiography

From west to east, the two physiographic provinces in Williamson County are: the Edwards Plateau and the Blackland Prairie. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 800 feet to 1,400 feet above sea level.

This area is underlain by beds of limestone that dip gently to the southeast. Southeast of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends north-south across Williamson County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 400 feet to 800 feet above sea level. The faults are predominantly normal, down thrown-to-the Gulf Coast, with near vertical throws.

The subject property lies on the Edwards Plateau. According to the 1974 Austin Sheet of the Geologic Atlas of Texas, published by the Bureau of Economic Geology in cooperation with the University of Texas at Austin, no faults are mapped on the subject site, however, the "Three Mile Fault" is located west of the southern wastewater line, and an offsetting suspect fault is mapped just west of the north-south railroad line.

Stratigraphy and Structure

The site is predominantly clay covered, with few rock outcrops of note. According to the Austin Sheet of the Geologic Atlas of Texas, the underlying rocks at the site are mapped as the Edwards Limestone, undivided, (Ked) which includes the overlying Georgetown Formation. The Edwards is fine to coarse-grained, with abundant chert, medium gray to grayish brown; fossils in the formation are rudistids as reefs and individuals, miliolid (microfossils), and shell fragments; solution zones and collapse breccia common; thickness 300-500 feet.

A more detailed map was reviewed, from "Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas" by Todd B. Housh (2007), and the north wastewater line is mapped on the Georgetown Formation, Member B, which is a chalky, argillaceous limestone and light gray to buff shale, approximately 25 feet thick. The southern wastewater line is mapped on the Edwards Limestone, undivided, as described above.

Man-made features (S-1 and S-2) were detention ponds located on the north wastewater line. Feature S-1 was constructed in 2013, and is located west of detention pond feature S-2, which was constructed in the late 1990's or early 2000's. Based on the previous construction activities in this area, no outcrops were observed.

SITE INVESTIGATION

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

No sensitive features scoring more than 40 points on the F-0585 form were observed on either wastewater line at the subject tract. Notable rock outcrops were sparse, and the predominantly clay covered areas of the subject tract did not have potential recharge features.

SUMMARY

No sensitive features were noted on the subject tract. Please note that subtle features, buried or obscured from view, may be present on the tract. It is possible that clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance. We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

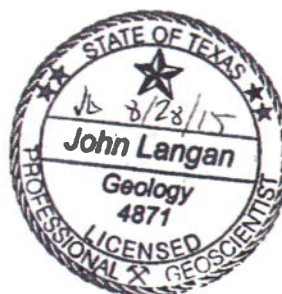
We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.



John Langan, P.G.
Environmental Department Manager



WARRANTY

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

This report has been prepared for the exclusive use of Binkley & Barfield, Inc. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval of Binkley & Barfield, Inc. The general terms and conditions under which this assessment was prepared apply solely to Binkley & Barfield, Inc. No other warranties are implied or expressed.

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: John Langan

Telephone: 210/342-9377

Date: August 28, 2015

Fax: 210/342-9401

Representing: PSI TBPG No. 50128 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: FM 3406 Sports Center WW Improvements

Project Information

1. Date(s) Geologic Assessment was performed: 8/21/15

2. Type of Project:

WPAP

SCS

AST

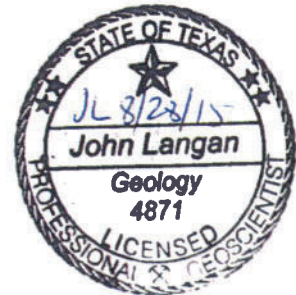
UST

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)
Doss silty cl 1-5% slopes	B	2
Denton silty cl, 3-5% slopes	B	2
Georgetown stony cl loam 1-3% slopes	B	2

Soil Name	Group*	Thickness(feet)

** 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" = 60'
 Site Geologic Map Scale: 1" = 60'
 Site Soils Map Scale (if more than 1 soil type): 1" = 60'
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.

STRATIGRAPHIC COLUMN

**FM 3406 Sports Center Wastewater Improvements
Near NWC FM 3406 & Chisolm Trail Road
Round Rock, Williamson County, Texas**

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Buda Limestone	45	Fine-grained, massive, poorly bedded to nodular, with abundant pelecypods
Del Rio Clay	40-70	Calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine megafossil, <i>Ilmatogyra arietina</i> (formerly <i>exogyra arietina</i>) is widespread throughout the formation.
Georgetown Formation	2-20'	Light tan limestone identified by proximity to Del Rio clay and diagnostic marker fossil: <i>waconella wacoensis</i> brachiopod; low porosity and permeability development.
Edwards Limestone	60-350'	Limestones and dolomites, extensive porosity development in "honeycomb sections, interbedded with massive recrystallized limestones with more limited permeabilities

SOILS NARRATIVE

According to the Soil Survey of Williamson County, published by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Extension Service, issued in 1983, indicated the soils at the subject property (north wastewater line) include Doss silty clay 1-5% slopes (DoC), Eckrant cobbly clay, 1-8% slopes (EaD), Denton silty clay, 3-5% slopes (DnC). The soils in the vicinity of the south wastewater line were mapped as Georgetown stony clay loam, 1-3% slopes (GsB).

Doss silty clay soils occur on uplands, and have a dark grayish brown silty clay surface layer approximately 9 inches thick. The subsoil, to around 19 inches, is a brown silty clay loam, overlying weakly cemented limy earth with limestone fragments. The soil is well drained, with low available water capacity, medium runoff and moderately slow permeability. The soil is mainly used as rangeland, with medium forage yields. The soil is suited for recreation areas, and has fair potential as habitat for openland and rangeland wildlife.

Eckrant cobbly clays are found on undulating uplands, and have a dark grayish brown cobbly clay surface layer to approximately 13 inches. The soil is well drained, with very low available water capacity, rapid runoff and moderately slow permeability. The soil is used as rangeland, with low forage yields. The soil is suited for urban uses, and has fair potential as habitat for rangeland wildlife.

Denton silty clays are located in shallow valleys or on short side slopes of uplands, and have an upper layer of dark brown silty clay about 18" thick, overlying a subsoil of light brown silty clay, to a depth of about 25". The parent material is weathered limestone. The soil is well drained, with medium runoff, slow permeability and medium available water capacity. The soil is mainly used for crops, and forage for temporary grazing, with medium yields. The soil is suitable for urban uses and recreation areas, and has fair potential for habitat for open land and rangeland wildlife.

Georgetown stony clay loam is found on higher parts of uplands, and have a brown stony clay loam surface layer about 7" thick. The subsoil consists of a neutral, reddish brown clay to cobbly clay extending to approximately 35" in depth. The parent material is an indurated fractured limestone that has clay loam in the crevices and fractures. The soil is well drained, with slow permeability, medium runoff, and low available water capacity. The soil is suitable for urban uses, but doesn't support large stands of trees that are sought after for homesites. It is suitable for recreation areas, and has fair potential for habitat for open land and rangeland wildlife.

SITE GEOLOGIC NARRATIVE

Physiography

From west to east, the two physiographic provinces in Williamson County are: the Edwards Plateau and the Blackland Prairie. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 800 feet to 1,400 feet above sea level.

This area is underlain by beds of limestone that dip gently to the southeast. Southeast of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends north-south across Williamson County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 400 feet to 800 feet above sea level. The faults are predominantly normal, down thrown-to-the Gulf Coast, with near vertical throws.

The subject property lies on the Edwards Plateau. According to the 1974 Austin Sheet of the Geologic Atlas of Texas, published by the Bureau of Economic Geology in cooperation with the University of Texas at Austin, no faults are mapped on the subject site, however, the "Three Mile Fault" is located west of the southern wastewater line, and an offsetting suspect fault is mapped just west of the north-south railroad line.

Stratigraphy and Structure

The site is predominantly clay covered, with few rock outcrops of note. According to the Austin Sheet of the Geologic Atlas of Texas, the underlying rocks at the site are mapped as the Edwards Limestone, undivided, which includes the overlying Georgetown Formation (Ked); is fine to coarse-grained, with abundant chert, medium gray to grayish brown; fossils in the formation are rudistids as reefs and individuals, miliolid (microfossils), and shell fragments; solution zones and collapse breccia common; thickness 300-500 feet.

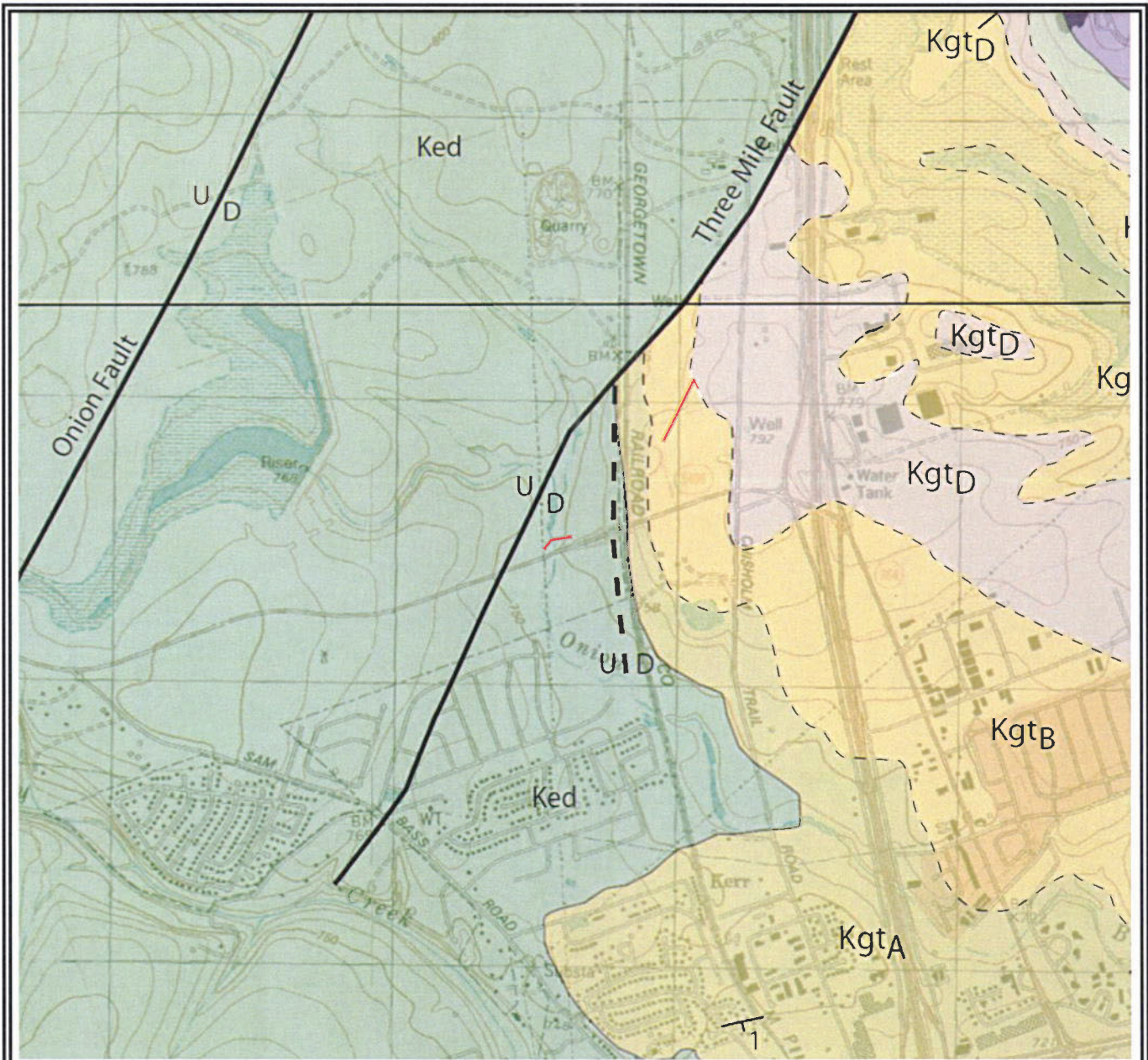
A more detailed map was reviewed, from "Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas" by Todd B. Housh (2007), and the north wastewater line is mapped on the Georgetown Formation, Member B, which is a chalky, argillaceous limestone and light gray to buff shale, approximately 25 feet thick. The southern wastewater line is mapped on the Edwards Limestone, undivided, as described above.

Man-made features (S-1 and S-2) were detention ponds located on the north wastewater line. Feature S-1 was constructed in 2013, and is located west of detention pond feature S-2, which was constructed in the late 1990's or early 2000's. Based on the previous construction activities in this area, no outcrops were observed.

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

SUMMARY

No sensitive features scoring more than 40 points on the F-0585 form were observed on either wastewater line at the subject tract. Notable rock outcrops were sparse, and the predominantly clay covered areas of the subject tract did not have potential recharge features. Please note that subtle features, buried or obscured from view, may be present on the tract. It is possible that clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance. We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.



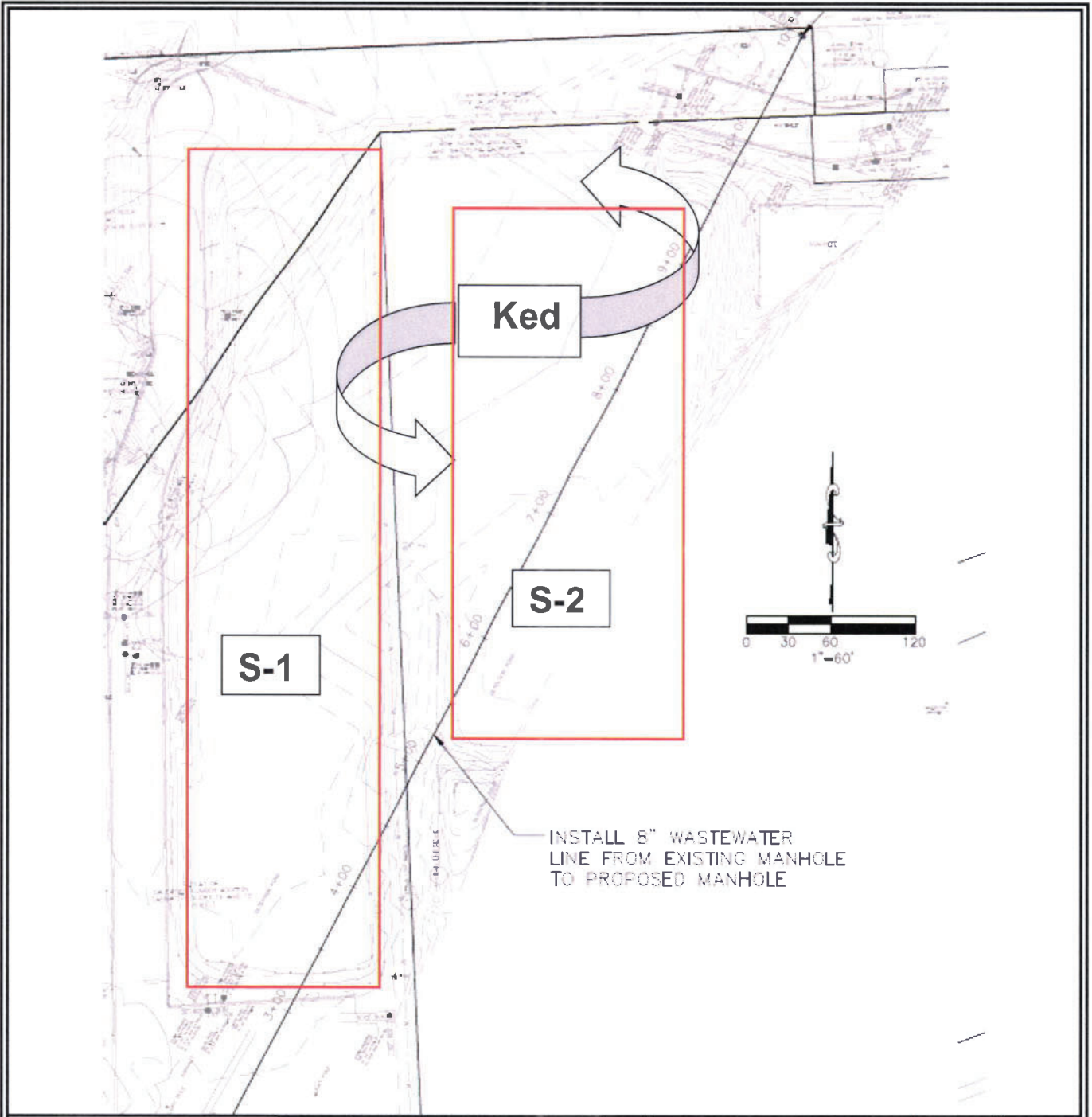
psii Information
To Build On
 Engineering • Consulting • Testing
 PSI, Inc.
 3 Burwood Lane
 San Antonio, Texas 78216

PROJECT NAME:
 FM 3406 Sports Center
 Wastewater Improvements
 Round Rock, Williamson
 County, Texas

PROJECT NO.:435-2394

**Bedrock Geology of
 Round Rock and
 Surrounding Areas,
 Williamson and Travis
 Counties, Texas**
 (Todd Housh, 2007)





INSTALL 8" WASTEWATER LINE FROM EXISTING MANHOLE TO PROPOSED MANHOLE

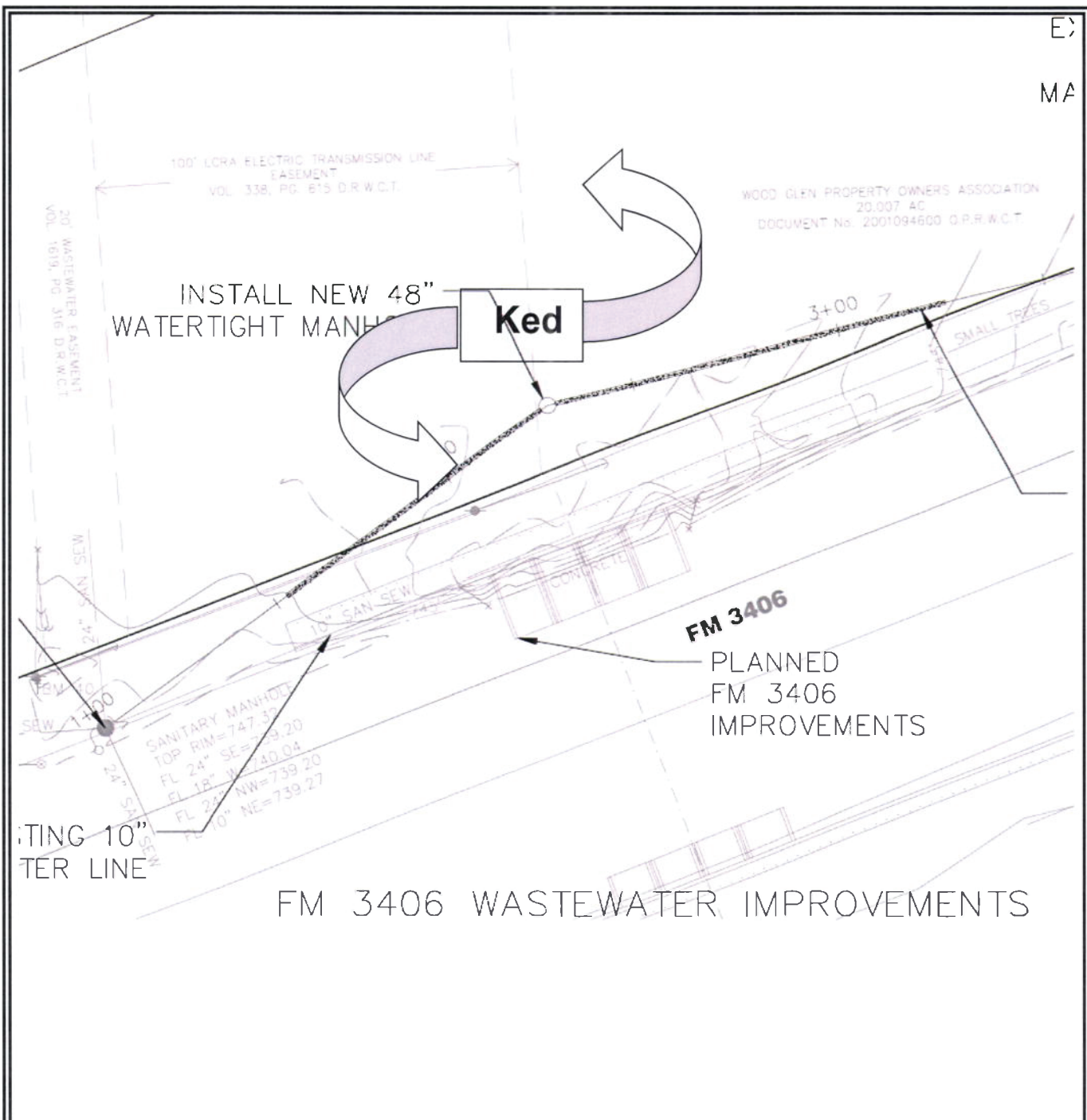
psi Information
To Build On
 Engineering • Consulting • Testing
 PSI, Inc.
 3 Burwood Lane
 San Antonio, Texas 78216

PROJECT NAME:
 FM 3406 Sports Center WW
 Improvements
 Round Rock, Texas



 PROJECT NO.:435-2394

**Geologic Feature
 Map (N Line)**
 Ked- Cretaceous Edwards Fm.
 undivided





FM 3406 WASTEWATER IMPROVEMENTS

 <p>Information To Build On Engineering • Consulting • Testing PSI, Inc. 3 Burwood Lane San Antonio, Texas 78216</p>	<p>PROJECT NAME: FM 3406 Sports Center WW Improvements Round Rock, Texas</p> <p>PROJECT NO.: 435-2394</p>	<p>Geologic Feature Map (S Line) Ked- Cretaceous Edwards Fm. undivided</p>	
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GEOLOGIC ASSESSMENT TABLE PROJECT NAME: FM 3406 Sports Center WW Improvements

LOCATION		FEATURE CHARACTERISTICS												EVALUATION		PHYSICAL SETTING		
1A FEATURE ID	1B* LATITUDE	1C* LONGITUDE	2A FEATURE TYPE	2B POINTS	3 FORMATION	4 DIMENSIONS (FEET) X Y Z			5 THICK (DEGREES)	5A %	6 DENSITY (G/CM ³)	7 APERTURE (FEET)	8A INFILL	8B RELATIVE INFILTRATION RATE	9 TOTAL	10 SENSITIVITY	11 CATCHMENT AREA (ACRES)	12 TOPOGRAPHY
S-1	30-32-28	97-41-54	MB	30	Ked	600	150	6						3	33	X	X	detention pd
S-2	30-32-29	97-41-51	MB	30	Ked	525	205	6						3	33	X	X	detention pd

* DATUM:

2A TYPE	2B POINTS
Cave	30
Solution cavity	20
Solution-enlarged fracture(s)	20
Fault	20
Other natural bedrock features	5
Manmade feature in bedrock	30
Swallow hole	30
Sinkhole	20
Non-karst closed depression	5
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

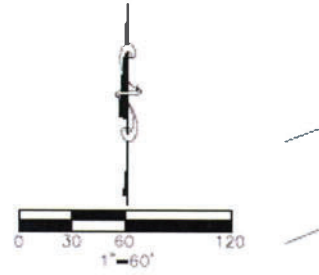
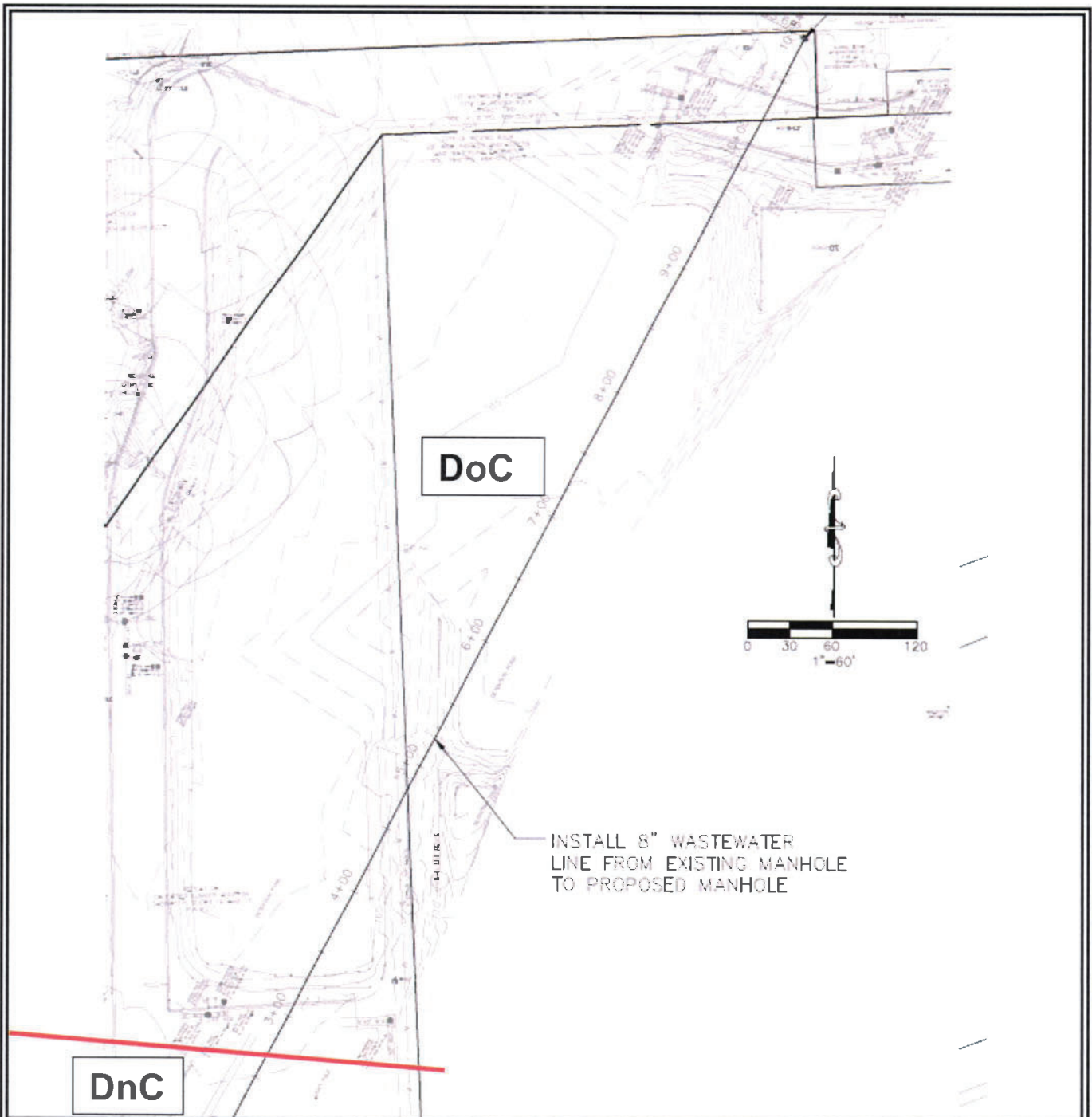
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understand, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that 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 Chapter 213



Date: August 28, 2015

Sheet 1 of 1



DnC

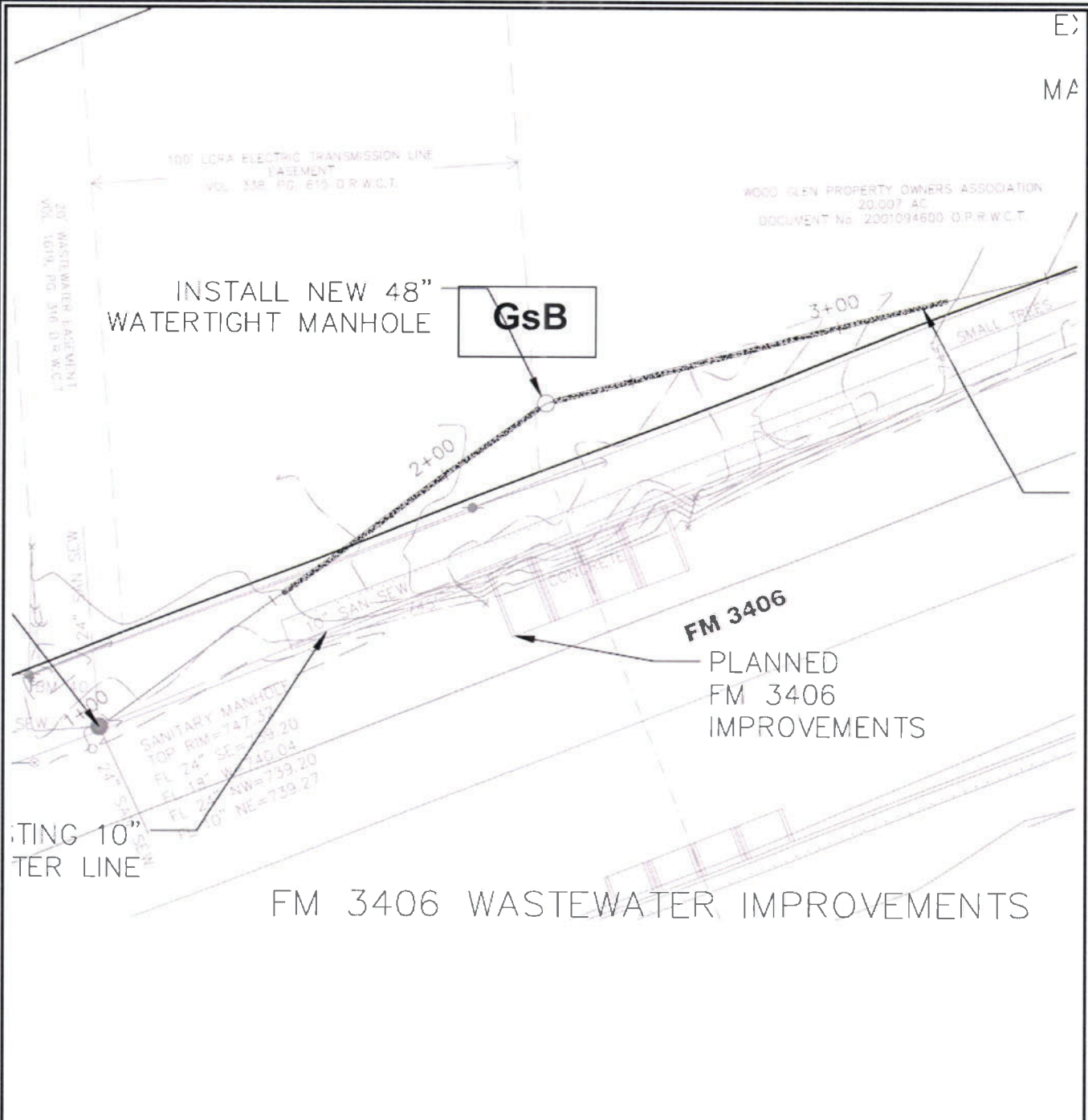
psi Information
To Build On
 Engineering • Consulting • Testing
 PSI, Inc.
 3 Burwood Lane
 San Antonio, Texas 78216

PROJECT NAME:
 FM 3406 Sports Center WW
 Improvements
 Round Rock, Texas

 PROJECT NO.:435-2394

Soil Map
 DoC- Doss silty clay, 1-5%
 slopes
 DnC- Denton silty clay, 3-5%
 slopes





INSTALL NEW 48"
WATERTIGHT MANHOLE

GsB

WOOD GLEN PROPERTY OWNERS ASSOCIATION
20.007 AC
DOCUMENT No. 2001094600 O.P.R.W.C.T.

FM 3406
PLANNED
FM 3406
IMPROVEMENTS

EXISTING 10"
WATER LINE

FM 3406 WASTEWATER IMPROVEMENTS

psi Information
To Build On
Engineering • Consulting • Testing
PSI, Inc.
3 Burwood Lane
San Antonio, Texas 78216

PROJECT NAME:
FM 3406 Sports Center WW
Improvements
Round Rock, Texas

PROJECT NO.:435-2394

Soil Map (S Line)
GsB- Georgetown stony clay
loam, 1-3% slopes





1. View northeast from the western limit of the new 18" diameter wastewater line along FM 3406 in Round Rock, Texas.



2. View southwest along the wastewater line from north of the concrete culvert north of FM 3406.



3. View south of the wastewater line easement area.



4. View east along the wastewater line.



5. View north of the wastewater line buffer area in the eastern portion of the line



6. View west along the wastewater line from the eastern portion of the line, showing dense vegetation with no outcrops.



7. View west along the line from the eastern limit.



8. View north of the wastewater line buffer area from the eastern end of the line.



9. View northeast from near the southern limit of the north wastewater line located west of the Fed Ex facility, between the railroad tracks to the west, and Chisolm Trail Road to the east in Round Rock, Texas.



10. View west from the southern limit of the north wastewater line.



11. View southwest from near the northern limit of the north wastewater line. Detention pond feature S-2 is in the background.



12. View northeast along the north wastewater line from just south of detention pond feature S-1.

Modification of a Previously Approved Plan Form (TCEQ-0590)

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), 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.

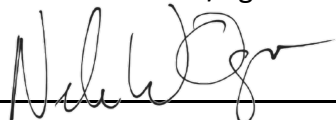
Signature

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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Nelson W. Ogren

Date: 11/15/2023

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: Round Rock Sports Center
Original Regulated Entity Name: Round Rock Sports Center
Regulated Entity Number(s) (RN): RN102731577
Edwards Aquifer Protection Program ID Number(s): 12082301
 The applicant has not changed and the Customer Number (CN) is: CN600413181
 The applicant or Regulated Entity has changed. A new Core Data Form has been provided.
2. **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
- Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - Development of land previously identified as undeveloped in the original water pollution abatement plan;
 - Physical modification of the approved organized sewage collection system;
 - Physical modification of the approved underground storage tank system;
 - Physical modification of the approved aboveground storage tank system.
4. Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

<i>WPAP Modification</i>	<i>Approved Project</i>	<i>Proposed Modification</i>
<i>Summary</i>		
Acres	_____	_____
Type of Development	_____	_____
Number of Residential Lots	_____	_____
Impervious Cover (acres)	_____	_____
Impervious Cover (%)	_____	_____
Permanent BMPs	_____	_____
Other	_____	_____

<i>SCS Modification</i>	<i>Approved Project</i>	<i>Proposed Modification</i>
<i>Summary</i>		
Linear Feet	<u>984'</u>	<u>450'</u>
Pipe Diameter	<u>8"</u>	<u>8"</u>
Other	_____	_____

AST Modification	Approved Project	Proposed Modification
Summary		
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification	Approved Project	Proposed Modification
Summary		
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. **Attachment B: Narrative of Proposed Modification.** A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. **Attachment C: Current Site Plan of the Approved Project.** A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
 - The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
 - Acreage has not been added to or removed from the approved plan.

8. 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.



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 4A – Original Approval Letter and Approved Modification Letters

The original Approval Letter - EAPP ID 11-15092901, dated November 23, 2015, is included as Attachment 4A.

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



COPY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 23, 2015

Mr. Jeff Bell
City of Round Rock
2008 Enterprise Drive
Round Rock, Texas 78664

Re: Edwards Aquifer, Williamson County
Round Rock Sports Center (RRSC), 2400 Chisholm Trail, Round Rock, Texas
Request for Approval of an Organized Sewage Collection System Plan (SCS)
30 Texas Administrative Code (TAC) Chapter 213 and Chapter 217 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 11-15092901

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the organized sewage collection system plans and specifications for the above-referenced project submitted to the Austin Regional Office by Binkley & Barfield, Inc. on behalf of the City of Round Rock on September 29, 2015. Final review of the SCS submittal was completed after additional material was received on November 17, 2015. As presented to the TCEQ, the construction documents were prepared by a Texas licensed professional engineer to be in general compliance with the requirements of 30 TAC Chapter 213 and Chapter 217. Therefore, based on the Texas licensed professional engineer's concurrence of compliance, the planning materials for construction of the proposed sewage collection system and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires (2) two years from the date of this letter unless, prior to the expiration date, more than 10 percent of construction has commenced, or an extension of time has been requested.*

PROJECT DESCRIPTION

Round Rock Sports Center is a commercial development over the Edwards Aquifer Recharge Zone. The primary building is an indoor sports complex, supported by parking, driveways, and outdoor activity areas. RRSC has a Water Pollution Abatement Plan approved currently October 23, 2012 under Edwards ID 11-12082301. A modification to that approval is being planned. The approved commercial project has an area of approximately 22.6 acres with its treatment draining to a series of StormTroopers.

This SCS proposed is a gravity system consisting of 984 linear feet of 8-inch SDR-26 PVC ASTM D2241. The manholes will be precast manholes per City of Round Rock standard detail. The system will be connected to a new manhole and onto the existing Brushy Creek Regional WWTP.

TCEQ Region 11 • P.O. Box 13087 • Austin, Texas 78711-3087 • 512-339-2929 • Fax 512-339-3795

Austin Headquarters: 512-239-1000 • tceq.texas.gov • How is our customer service? tceq.texas.gov/customersurvey

printed on recycled paper using vegetable-based ink

GEOLOGY

The geologic assessment (GA) was conducted on August 28, 2015 by Professional Service Industries. The surficial geologic unit identified on the site was the Edwards Limestone, but the site is predominately clay covered. No sensitive features identified in the GA fell within the project boundaries for this application.

TCEQ conducted a site assessment on October 29, 2015. No other sensitive features were observed during the site assessment. The site was generally as described in the GA and drainage is generally to the north.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

Prior to Commencement of Construction:

2. All contractors conducting regulated activities at the project location shall be provided a copy of this notice of approval. At least one complete copy of the approved SCS plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
3. Modification to the activities described in the referenced SCS application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
4. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
5. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved application, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

During Construction:

6. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213 and Chapter 217. The applicant shall remain responsible for the provisions and conditions of this approval

until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.

7. If sediment escapes the construction site, the 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). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
8. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas licensed professional engineer.
9. The following records shall be maintained by the applicant and made available to the executive director upon request: the dates trenching 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 and completed.
10. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
11. Intentional discharges of sediment laden water during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, sit fence rings, etc.
12. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

13. Certification by a Texas licensed professional engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines that were tested and are being certified as complying with the appropriate regulations.

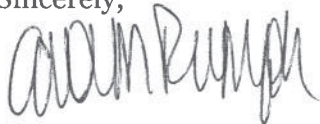
Every five years after the initial certification, the sewage collection system shall be retested. Any lines that fail the test must be repaired and retested. Certification that the

system continues to meet the requirements of 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office.

14. If ownership of this organized sewage collection system is legally transferred, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
15. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Kevin Smith, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at (512)339-2929.

Sincerely,



Carolyn Runyon, Water Section Manager
Austin Region Office
Texas Commission on Environmental Quality

CDR/ks

cc: Mr. Brian Rice, P.E., Binkley & Barfield, Round Rock
Ms. Alysha Girard, P.E., Storm Water Manager, City of Round Rock
The Honorable Dan A. Gattis, County Judge, Williamson County
TCEQ Central Records, Building F, MC 212



Attachment 4B – Narrative of Proposed Modification

The proposed Round Rock Sports Center Expansion is a modification of one previously approved Sewage Collection System plan.

EAPP ID 11-15092901 - The original SCS for “The Round Rock Sports Center” proposed the installation of 984 linear feet of 8” wastewater main on the Sports Center Site. The original Approval Letter, dated November 23, 2015, is included as Attachment 4A. The available design plans, dated August 10, 2015, are included as Attachment 4C.

The proposed Round Rock Sports Center Expansion consist of constructing a 25,961 square foot building addition and the corresponding parking, sidewalk, drive aisles, utilities and stormwater facilities. The proposed improvement also includes a 60,300 square foot parking lot on the previously undeveloped southern edge of the property. The existing impervious cover for the site is 423,016 square feet and the proposed improvements are adding 121,870 square feet of impervious cover. The proposed total site impervious cover is 544,866 square feet. The overall impervious cover is increasing from 43% to 55%.

The significant modification to the existing Sewage Collection System includes the demolition of a wastewater manhole and 6” service to the existing building, and removal of approximately 145 linear feet of existing 8” main. A new manhole will be installed over the existing wastewater main and approximately 450 linear feet of new 8” main extended around the west side of the proposed building expansion, with four additional manholes to account for vertical and horizontal changes and the two 6” wastewater services extending to the building. The final manhole and stub will be installed for a potential future onsite building.



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 4C – Current Site Plan of the Approved Project

The available design plans – FM 3406 / Sports Center Wastewater Improvements, dated August 10, 2015, are included as Attachment 4C.

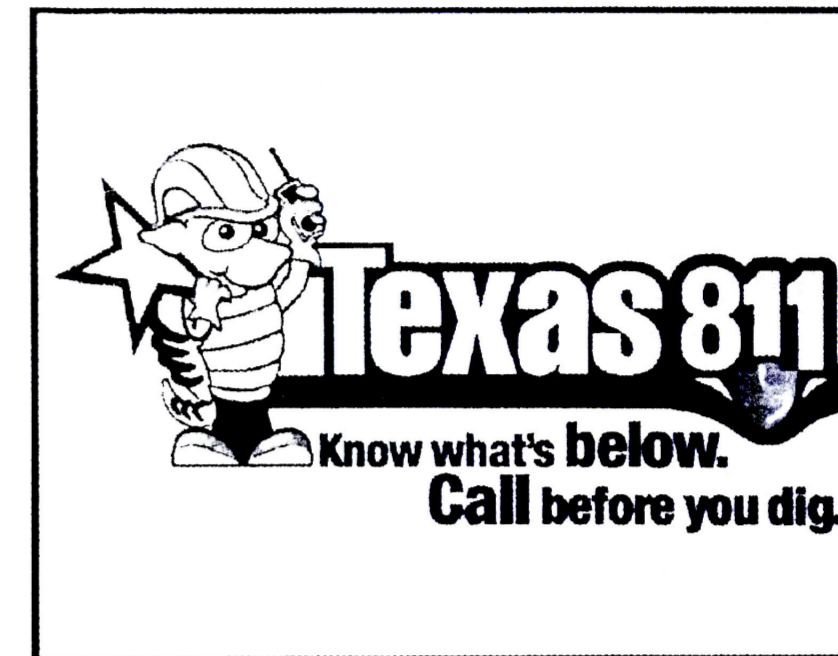
CITY OF ROUND ROCK, TEXAS



100% SUBMITTAL

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES
3	OVERALL PLAN
4	SPORTS CENTER PLAN AND PROFILE
5	FM 3406 PLAN AND PROFILE
6	EROSION SEDIMENTATION CONTROL & TREE PROTECTION PLAN
7	STORMWATER POLLUTION & PREVENTION PLAN (SWPPP)
8	EROSION SEDIMENTATION CONTROL & TREE PROTECTION DETAILS
9	DETAILS - 1
10	DETAILS - 2

FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS



ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
 (NEW STATEWIDE NUMBER)
 1-800-545-6005

SUBMITTAL PREPARED BY:

Binkley & Barfield, Inc.
 consulting engineers
 Texas Registration Number F-257
 1611 CHISHOLM TRAIL RD, STE 250 ROUND ROCK, TEXAS 78681

CONTACT: BINKLEY & BARFIELD, INC.

REY GONZALEZ, P.E., PROJECT MANAGER
 BINKLEY & BARFIELD, INC.
 1611 CHISHOLM TRAIL RD, STE 250
 ROUND ROCK, TEXAS 78681
 (512) 292-0006

APPROVALS:

SUBMITTED FOR APPROVAL BY:

RG 8/10/15
 PROJECT ENGINEER - REYNALDO GONZALEZ, P.E. DATE

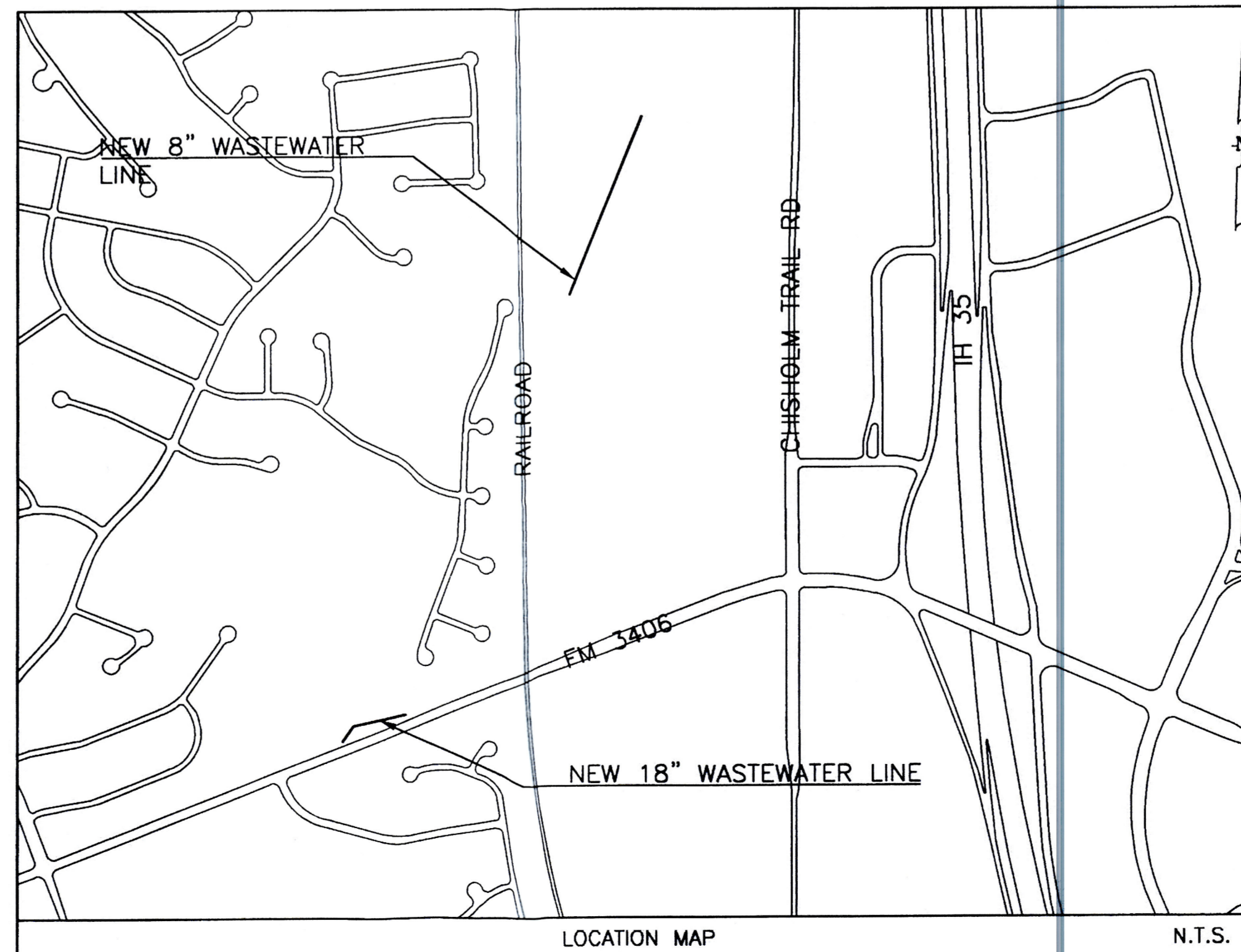
APPROVED FOR CONSTRUCTION:

[Signature] 8/10/15
 CITY OF ROUND ROCK DATE
 UES DEPARTMENT

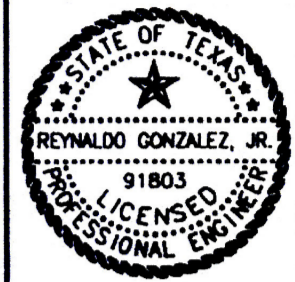
ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF ROUND ROCK MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

CORRECTIONS RECORD

NO.	DESCRIPTION	BY	REVISE (R) ADD (D) VOID (V) SHEET NO.'s	TOTAL # SHEETS IN PLAN SET	NET CHANGE IMP. COVER (sq.ft.)	TOTAL SITE IMP. COVER (sq.ft.)/%	CITY APPROVAL/ DATE	DATE IMAGED
1	Added manhole, shifted 18" line	RG	(R) 3,5	10	N/A	N/A		



CITY OF ROUND ROCK
 FM 3406/SPORTS CENTER
 WASTEWATER IMPROVEMENTS



F:\204000_Sports Center_FM_3406-WW Imps\CADD\SHEETS\GENERAL NOTES.dwg---GENERAL NOTES Plotted Oct 15, 2015 at 16:50pm by bhphs-pry | Last Saved by: bhphs-pry

CITY OF ROUND ROCK GENERAL CONSTRUCTION NOTES

- All construction shall be in accordance with the City of Round Rock Standard Specifications Manual.
- Any existing utilities, pavement, curbs, sidewalks, structures, trees, etc., not planned for destruction or removal that are damaged or removed shall be repaired or replaced at his expense.
- The Contractor shall verify all depths and locations of existing utilities prior to any construction. Any discrepancies with the construction plans found in the field shall be brought immediately to the attention of the Engineer who shall be responsible for revising the plans are appropriate.
- Manhole frames, covers, valves, cleanouts, etc. shall be raised to finished grade prior to final paving construction.
- The Contractor shall give the City of Round Rock 48 hours notice before beginning each phase of construction.
- All areas disturbed or exposed during construction shall be revegetated in accordance with the plans and specifications. Revegetation of all disturbed or exposed areas shall consist of sodding or seeding, at the Contractor's option. However, the type of revegetation must equal or exceed the type of vegetation present before construction.
- Prior to any construction, the Engineer shall convene a preconstruction conference between the City of Round Rock, himself, the Contractor, other utility companies, any affected parties and any other entity the City or Engineer may require.
- The Contractor and the Engineer shall keep accurate records of all construction that deviates from the plans. The Engineer shall furnish the City of Round Rock accurate "As-Built" drawings following completion of all construction. These "As-Built" drawings shall meet with the satisfaction of the Engineering and Development Services Department prior to final acceptance.
- The Round Rock City Council shall not be petitioned for acceptance until all necessary easement documents have been signed and recorded.
- When construction is being carried out within easements, the Contractor shall confine his work to within the permanent and any temporary easements. Prior to final acceptance, the Contractor shall be responsible for removing all trash and debris within the permanent and temporary easements. Clean-up shall be to the satisfaction of the City Engineer.
- Prior to any construction, the Contractor shall apply for and secure all proper permits from the appropriate authorities.
- Available benchmarks (City of Round Rock Datum) that may be utilized for the construction of this project are described as follows:
FM 3406: TBM 30 - Top of 5/8" iron rod with Baseline cap at the south edge of dirt road, across from control point 3. Elevation = 754.14.
TBM 40 - Set railroad spike in power pole on south end of project, across from control point 4. Elevation = 747.56.
Sports Center: TBM 10 - Top of south bolt on light pole base at the north end of the project 7 feet west of back of curb. Elevation = 769.90.
TBM 20 - Top of northeast bolt on light pole base, 60 feet +/- southwest of sanitary manhole at the south end of the project 7 feet west of asphalt parking. Elevation 768.92.

TRENCH SAFETY NOTES:

- In accordance with the Laws of the State of Texas and the U. S. Occupational Safety and Health Administration regulations, all trenches over 5 feet in depth in either hard and compact or soft and unstable soil shall be sloped, shored, sheeted, braced or otherwise supported. Furthermore, all trenches less than 5 feet in depth shall also be effectively protected when hazardous ground movement may be expected. Trench safety systems to be utilized for this project will be provided by the contractor.
- In accordance with the U. S. Occupational Safety and Health Administration regulations, when persons are in trenches 4-feet deep or more, adequate means of exit, such as a ladder or steps, must be provided and located so as to require no more than 25 feet of lateral travel.
- If trench safety system details were not provided in the plans because trenches were anticipated to be less than 5 feet in depth and during construction it is found that trenches are in fact 5 feet or more in depth or trenches less than 5 feet in depth are in an area where hazardous ground movement is expected, all construction shall cease, the trenched area shall be barricaded and the Engineer notified immediately. Construction shall not resume until appropriate trench safety system details, as designed by a professional engineer, are retained and copies submitted to the City of Round Rock.

STREET AND DRAINAGE NOTES:

- All testing shall be done by an independent laboratory at the Owner's expense. Any retesting shall be paid for by the Contractor. A City Inspector shall be present during all tests. Testing shall be coordinated with the City Inspector and he shall be given a minimum of 24 hours notice prior to any testing.
- Backfill behind the curb shall be compacted to obtain a minimum of 95% maximum density to within 3" of top of curb. Material used shall be primarily granular with no rocks larger than 6" in the greatest dimension. The remaining 3" shall be clean topsoil free from all clods and suitable for sustaining plant life.
- Depth of cover for all crossings under pavement including gas, electric, telephone, cable tv, water services, etc., shall be a minimum of 30" below subgrade.
- Street rights-of-way shall be graded at a slope of 1/4" per foot toward the curb unless otherwise indicated. However, in no case shall the width of right-of-way at 1/4" per foot slope be less than 10 feet unless a specific request for an alternate grading scheme is made to and accepted by the City of Round Rock Engineering and Development Services Department.
- Barricades built to City of Round Rock standards shall be constructed on all dead-end streets and as necessary during construction to maintain job and public safety.
- All R.C.P. shall be minimum class III.
- The subgrade material for the streets shown herein was tested by N/A and the paving sections designed in accordance with the current City of Round Rock design criteria. The paving sections are to be constructed as follows:
Flex. Base HMAc Lime Stab. Street Station Thickness Thickness Thickness

The Geotechnical Engineer shall inspect the subgrade for compliance with the design assumptions made during preparation of the Soils Report. Any adjustments that are required shall be made through revision of the construction plans.

- Where P's are over 20, subgrades must be stabilized utilizing a method acceptable to the City Engineer. The Geotechnical Engineer shall recommend an appropriate subgrade stabilization if sulfates are determined to be present.

WATER AND WASTEWATER NOTES:

- Pipe material for water mains shall be PVC (AWWA C-900, min. class 200), or Ductile Iron (AWWA C-100, min. class 200). Water services (2" or less) shall be polyethylene tubing (Black, 200 psi, DR 9).
- Pipe material for pressure wastewater mains shall be PVC (AWWA C-900, min. class 150), or Ductile Iron (AWWA C-100, min. class 200). Pipe material for gravity wastewater mains shall be PVC (ASTM D2241 or D3034, max. DR=26), Ductile Iron (AWWA C-100, min. class 200).
- Unless otherwise accepted by the City Engineer, depth of cover for all lines out of the pavement shall be 42" min., and depth of cover for all lines under pavement shall be a min. of 30" below subgrade.
- All fire hydrant leads shall be ductile iron pipe (AWWA C-100, min. class 200).
- All iron pipe and fittings shall be wrapped with minimum 8-mil polyethylene and sealed with duct tape or equal accepted by the City Engineer.
- The Contractor shall contact the City Inspector to coordinate utility tie-ins and notify him at least 48 hours prior to connecting to existing lines.
- All manholes shall be concrete with cast iron ring and cover. All manholes located outside of the pavement shall have bolted covers. Tapping of fiberglass manholes shall not be allowed.
- The Contractor must obtain a bulk water permit or purchase and install a water meter for all water used during construction. A copy of this permit must be carried at all times by all who use water.
- Line flushing or any activity using a large quantity of water must be scheduled with the City Inspector.
- The Contractor, at his expense, shall perform sterilization of all potable water lines constructed and shall provide all equipment (including test gauges), supplies (including concentrated chlorine disinfecting material), and necessary labor required for the sterilization procedure. The sterilization procedure shall be monitored by City of Round Rock personnel. Water samples will be collected by the City of Round Rock to verify each treated line has attained an initial chlorine concentration of 50 ppm. Where means of flushing is necessary, the Contractor, at his expense, shall provide flushing devices and remove said devices prior to final acceptance by the City of Round Rock.

- The Contractor, at his expense, shall perform quality testing for all wastewater pipe installed and pressure pipe hydrostatic testing of all water lines constructed and shall provide all equipment (including pumps and gauges), supplies and labor necessary to perform the tests. Quality and pressure testing shall be monitored by City of Round Rock personnel.

- The Contractor shall coordinate testing with the City Inspector and provide no less than 24 hours notice prior to performing sterilization, quality testing or pressure testing.
- The Contractor shall not open or close any valves unless authorized by the City of Round Rock.
- All valve boxes and covers shall be cast iron.
- All water service, wastewater service and valve locations shall be appropriately marked as follows:
water service "W" on top of curb wastewater service "S" on top of curb valve "V" on face of curb

Tools for marking the curb shall be provided by the Contractor. Other appropriate means of marking service and valve locations shall be provided in areas without curbs. Such means of marking shall be as specified by the Engineer and accepted by the City of Round Rock.

- Contact City of Round Rock Engineering and Development Services Department for assistance in obtaining existing water and wastewater locations.
- The City of Round Rock Fire Department shall be notified 48 hours prior to testing of any building sprinkler piping in order that the Fire Department may monitor such testing.
- Sand, as described in Specification item 510 pipe, shall not be used as bedding for water and wastewater lines. Acceptable bedding materials are pipe bedding stone, pea gravel and in lieu of sand, a naturally occurring or manufactured stone material conforming to ASTM C33 for stone quality and meeting the following gradation specification:

Sieve Size	Percent Retained	By Weight
1/2"	0	3/8" 0-2 #4 40-85 #10 95-100

- The Contractor is hereby notified that connecting to, shutting down, or terminating existing utility lines may have to occur at off-peak hours. Such hours are usually outside normal working hours and possibly between 12 a.m. and 6 a.m.
- All wastewater construction shall be in accordance with the Texas Commission on Environmental Quality (TCEQ) Regulations, 30 TAC Chapter 213 and 217, as applicable. Whenever TCEQ and City of Round Rock Specifications conflict, the more stringent shall apply.
- Temporary bypass pumping will be required for the construction of the 3406 wastewater pipeline. Contractor to provide temporary pumps, piping and appurtenance for bypass pumping.

TRAFFIC MARKING NOTES:

- Any methods, street markings and signage necessary for warning motorists, warning pedestrians or diverting traffic during construction shall conform to the Texas Manual of Uniform Traffic Control Devices for Streets and Highways, latest edition.
- All pavement markings, markers, paint, traffic buttons, traffic controls and signs shall be installed in accordance with the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges and the Texas Manual of Uniform Traffic Control Devices for Streets and Highways, latest editions.

EROSION AND SEDIMENTATION CONTROL NOTES:

- Erosion control measures, site work and restoration work shall be in accordance with the City of Round Rock Erosion and Sedimentation Control Ordinance.
- All slopes shall be sodded or seeded with approved grass, grass mixtures or ground cover suitable to the area and season in which they are applied.
- Silt fences, curb berms, sedimentation basins and similarly recognized techniques and materials shall be employed during construction to prevent point source sedimentation loading of downstream facilities. Such installation shall be regularly inspected by the City of Round Rock for effectiveness. Additional measures may be required if, in the opinion of the City Engineer, they are warranted.
- All temporary erosion control measures shall not be removed until final inspection and approval of the project by the Engineer. It shall be the responsibility of the Contractor to maintain all temporary erosion control structures and to remove each structure as approved by the Engineer.
- All mud, dirt, rocks, debris, etc., spilled, tracked or otherwise deposited on existing paved streets, drives and areas used by the public shall be cleaned up immediately.

TCEQ ORGANIZED SCS GENERAL CONSTRUCTION NOTES

- TCEQ-0596 (Rev. 10-01-10) TCEQ-0596 (Rev. 10-01-10)
- This Organized Sewage Collection System must be designed and constructed in accordance with the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules 30 Texas Administrative Code (TAC) §§213.5(c) and 217.51 - 217.70 and 30 TAC Chapter 217, Subchapter D, and the City of Standard Specifications.

- All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the Sewage Collection System plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.
- No later than 48 hours prior to commencing any regulated activity, the applicant or his agent must notify the Regional Office, in writing, of the date on which the regulated activity will begin.
- Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

- All temporary erosion and sedimentation controls must be installed prior to construction, must be maintained during construction, and must be removed when sufficient vegetation is established to control the erosion and sedimentation and the construction area is stabilized.
- The sewer line trench details showing the cross section with the dimensions, pipe placement, and backfill instructions are included on Plan Sheet ___ of 30 TAC §§217.53(c) and 217.65.

Gravity lines must have a SDR 35 or less. Pressurized sewer systems must have pipe with a minimum working pressure rating of 150 psi.

The ASTM, ANSI, or AWWA specification numbers for the pipe(s) and joints are _____

The pipe material, the pressure classes, and the SDR and/or DR designations are _____

- If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the Texas Commission on Environmental Quality of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing within two working days. The applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

- Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of six (6) inches.

- Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

- All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet ___ of ____

It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

- Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(a) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

- Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____

If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____

Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

- New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet ___ of ____ (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet ___ of ____ and marked after backfilling as shown in the detail on Plan Sheet ___ of ____

- Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes A, B, or C. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

- Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

- All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
 - For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
 - Low Pressure Air Test.
 - A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
 - For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
 - A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
 - Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:
$$T = \frac{K \times D \times L}{Q}$$

Where:
T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 x D x L, but not less than 1.0
D = average inside pipe diameter in inches
L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface
 - Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C-3:

Pipe Diameter (Inches)	Minimum Time (Seconds)	Maximum Length Time (Feet)	Time For Leakage (Seconds/100sq Ft)
4	242	298	1850
6	454	598	3920
8	667	839	5290
10	880	1099	7040
12	1093	1359	8790
14	1306	1619	10540
16	1519	1879	12290
18	1732	2139	14040
20	1945	2399	15790
24	2511	3119	19670
27	2824	3519	22210
30	3137	3919	24750
36	3809	4719	29670

- An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
 - If any pressure loss or leakage has occurred during the first 25% of testing period, then the test must continue for the entire test duration as outlined above or until failure.
 - Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
 - A testing procedure for pipe with an inside diameter greater than 36 inches must be approved by the executive director.
- Infiltration/Exfiltration Test.
 - The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
 - An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
 - The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
 - For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
 - If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

- If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
 - For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
 - Mandrel Sizing.
 - A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
 - If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
 - Mandrel Design.
 - A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
 - A mandrel must have nine or more odd number of runners or legs.
 - A barrel section length must equal at least 75% of the inside diameter of a pipe.
 - Each size mandrel must use a separate proving ring.

- Mandrel Design.
 - An adjustable or flexible mandrel is prohibited.
 - A test may not use television inspection as a

- If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
- For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
 - A deflection test method must be accurate to within plus or minus 0.2% deflection.
 - An owner shall not conduct a deflection test until at least 30 days after the final backfill.
 - Gravity collection system pipe deflection must not exceed five percent (5%).
 - If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

- All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
 - All manholes must pass a leakage test.
 - An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.

- Hydrostatic Testing.
 - The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
 - To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
 - A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.
- Vacuum Testing.
 - To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
 - No grout must be placed in horizontal joints before testing.
 - Stub-outs, manhole boots, and pipe joints must be secured to prevent movement while a vacuum is drawn.
 - An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
 - A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
 - There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
 - A test does not begin until after the vacuum pump is off.
 - A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

- All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

SEQUENCE OF CONSTRUCTION:

- CONTRACTOR SHALL VIDEO OR PHOTO DOCUMENT ALL PUBLIC AND PRIVATE FACILITIES WITHIN THE LIMITS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO ALL EXISTING DRIVEWAYS, DRIVEWAY CULVERTS, ROADWAYS, TREES, DRAINAGE CULVERTS, FENCES, MAILBOXES, ETC.
- INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION PRIOR TO ANY CLEARING GRUBBING OR EXCAVATION. CITY ENVIRONMENTAL INSPECTOR MUST APPROVE OF EROSION CONTROL INSTALLATION PRIOR TO CONSTRUCTION.
- CONSTRUCT WASTEWATER IMPROVEMENTS PER PLANS. CONTRACTOR SHALL COMMENCE WORK WITHIN 10 DAYS OF NTP. SUBSTANTIALLY COMPLETE FM 3406 WASTEWATER IMPROVEMENTS WITHIN 45 DAYS OF NTP. SUBSTANTIALLY COMPLETE SPORTS CENTER WASTEWATER IMPROVEMENTS WITHIN 90 DAYS OF NTP. FINAL COMPLETION OF CONTRACT WITHIN 120 DAYS OF NTP.

- IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING.
- SCHEDULE PRELIMINARY WALK-THROUGH INSPECTION WITH CITY PRIOR TO THE REMOVAL OF EROSION CONTROLS.

- COMPLETE ANY PUNCHLIST ITEMS THAT ARE DEVELOPED DURING THE PRELIMINARY WALK-THROUGH.

- SCHEDULE FINAL WALK-THROUGH INSPECTION ONCE ALL PRELIMINARY WALK-THROUGH PUNCHLIST ITEMS ARE COMPLETE.

- COMPLETE PERMANENT EROSION CONTROL AND SITE RESTORATION. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION, ONLY AFTER CLEARANCE WITH THE ENVIRONMENTAL INSPECTOR. RESTORE ANY AREA DISTURBED DURING REMOVAL OF EROSION/ SEDIMENTATION CONTROLS AND TREE PROTECTION.

NO.	REVISION DESCRIPTION

DATE	BY	NO.

8/10/15

Binkley & Barfield, Inc.

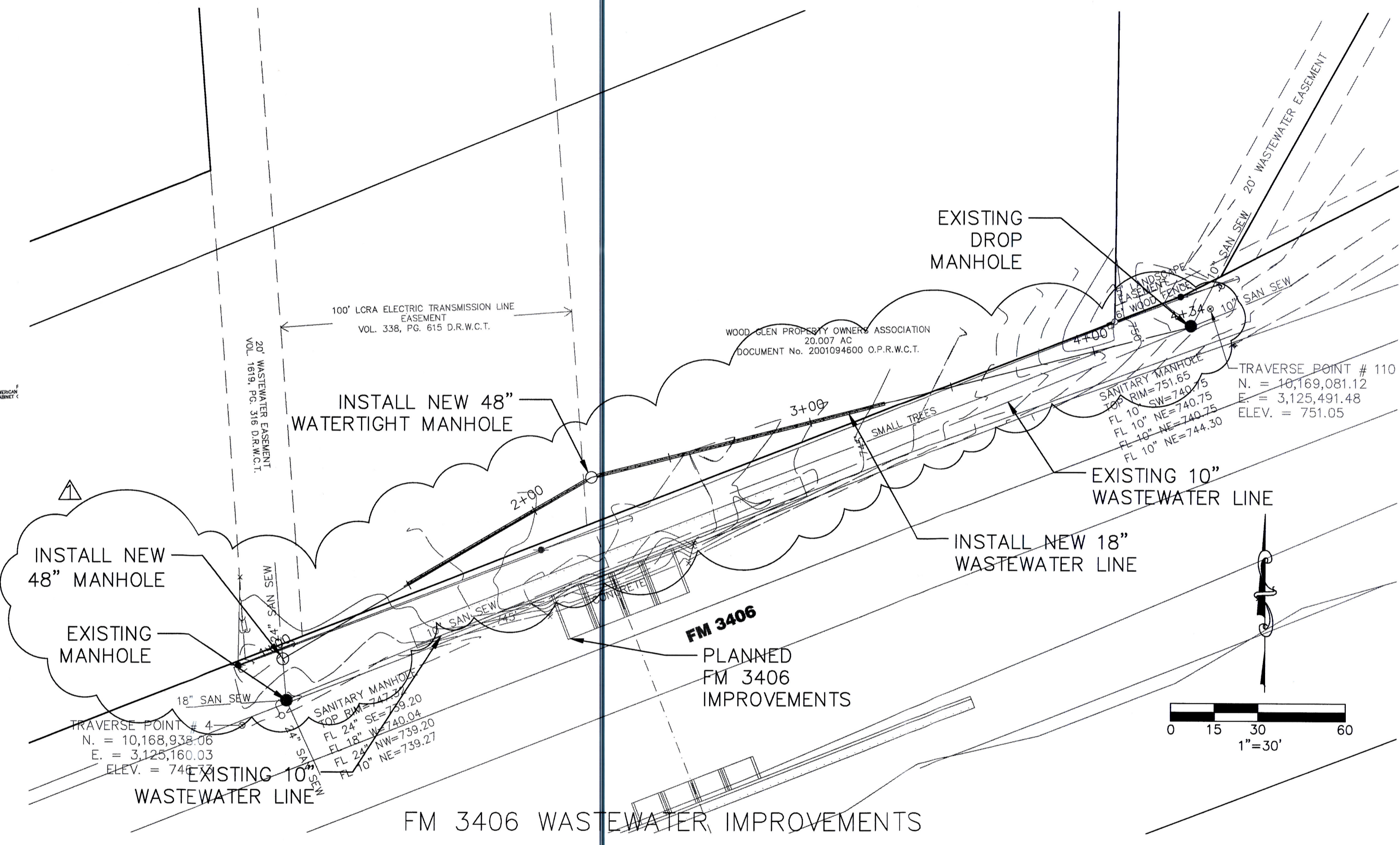
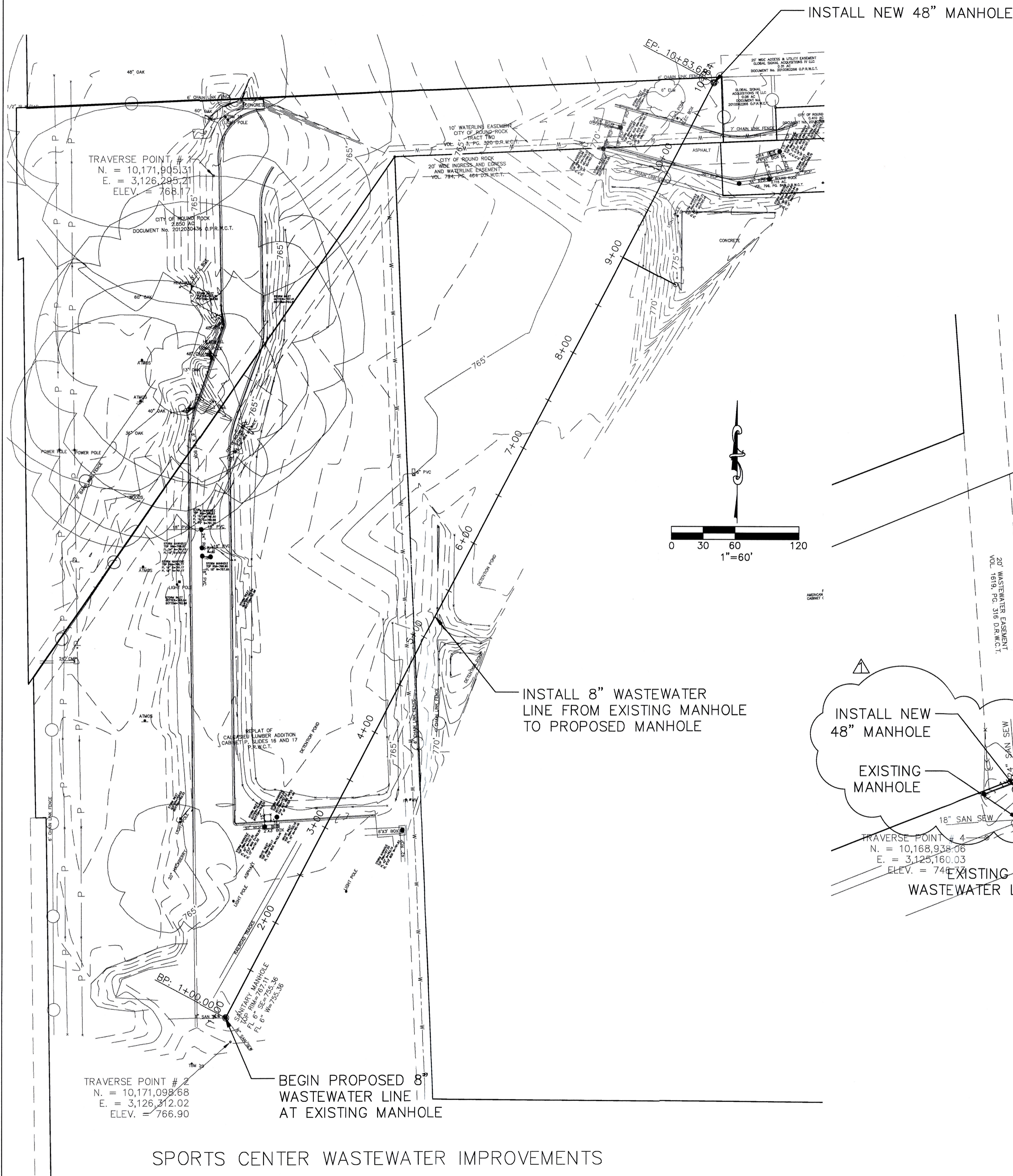
consulting engineers Texas Registration Number F-257
1611 CHISHOLM TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78881

FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS

GENERAL NOTES

NOTES	NAME	DATE
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SPORTS CENTER WASTEWATER IMPROVEMENTS

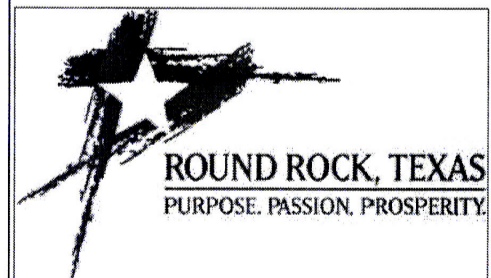
REV. NO.	BY	DATE	REVISION DESCRIPTION
1	RC	10/14/15	ADDED MANHOLE, SHIFTED 18" LINE



Binkley & Barfield, Inc.
 consulting engineers
 1611 CHISHOLM TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78761
 Texas Registration Number F-257

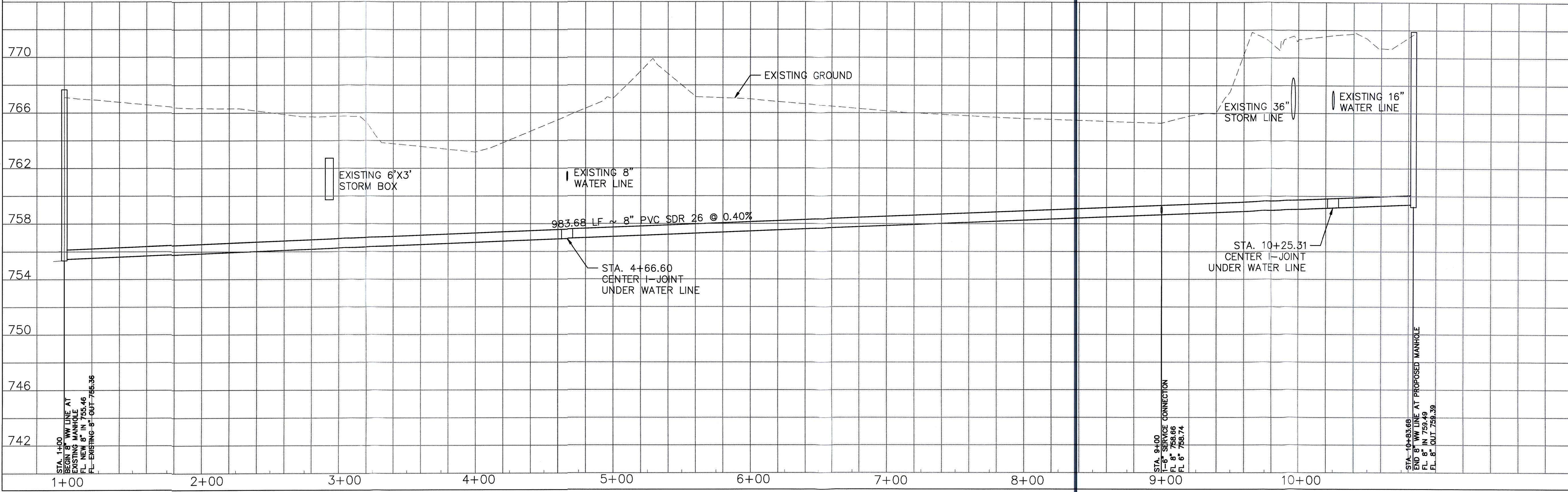
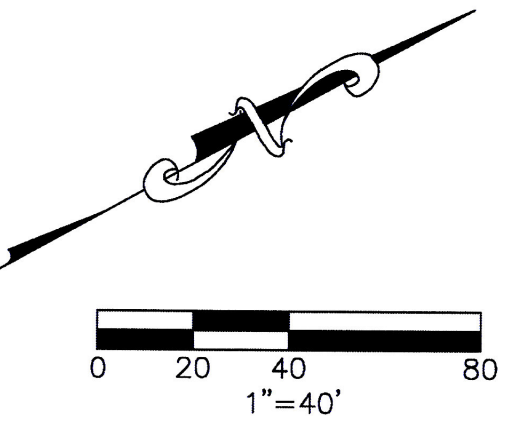
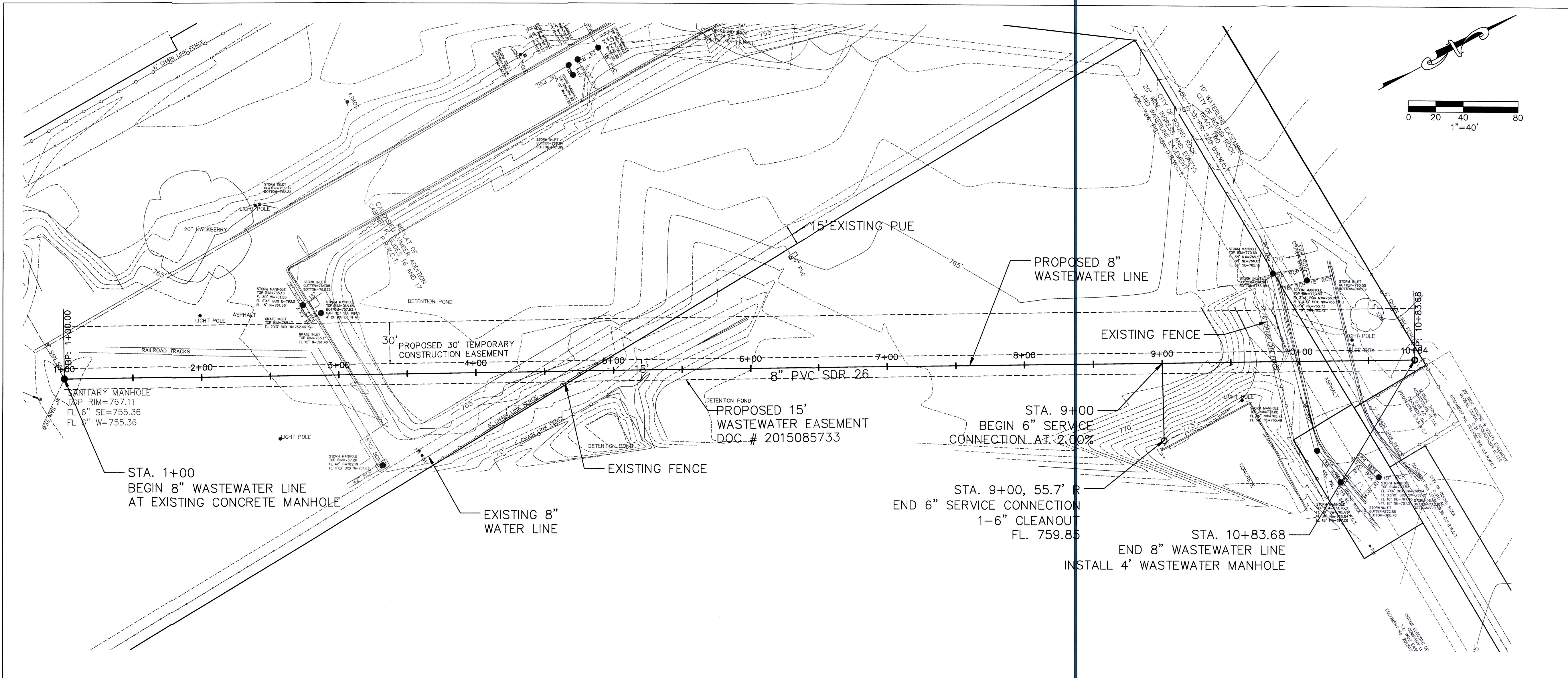
FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS

OVERALL PLAN

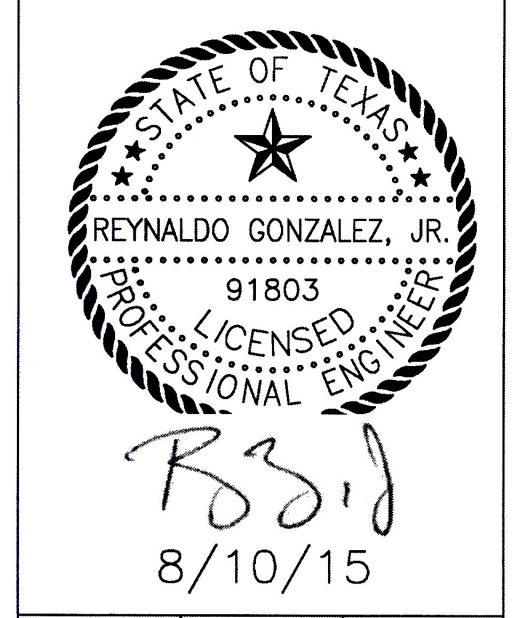


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 consulting engineers Texas Registration Number F-257
 1611 CHRISTINA TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78761

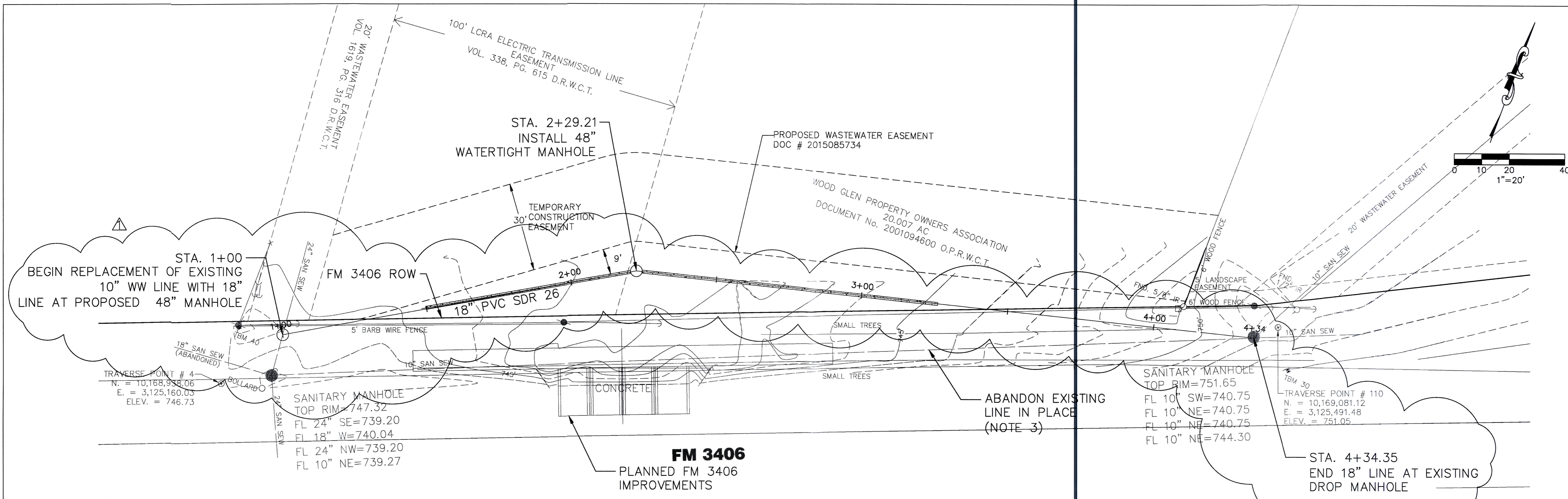
**FM 3406/SPORTS CENTER
 WASTEWATER IMPROVEMENTS**

SPORTS CENTER PLAN AND PROFILE

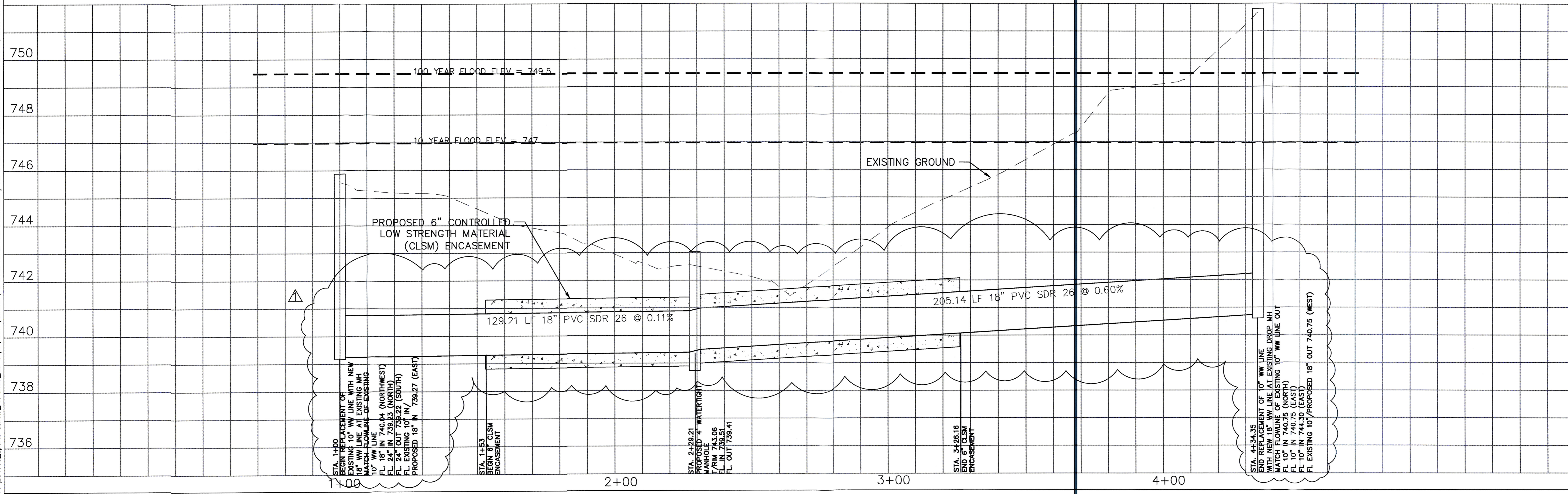


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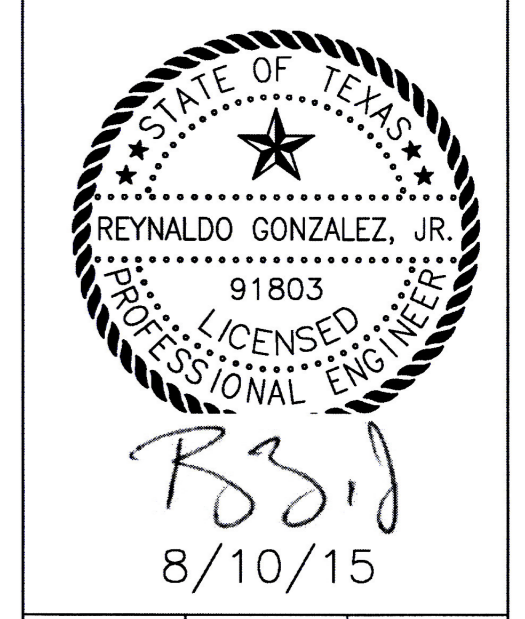
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- NOTES:**
- EXISTING MANHOLES TO BE RECOATED PER WASTEWATER DETAIL WW-01.
 - UPSIZING OF THE PENETRATIONS IN THE EXISTING MANHOLES TO BE DONE BY CORING. REFERENCE WASTEWATER DETAIL WW-10 FOR CONNECTION REQUIREMENTS.
 - ABANDON EXISTING LINE IN PLACE BY PLUGGING BOTH ENDS OF THE LINE AND GROUTING AROUND PLUGS.



REV. NO.	BY	DATE	REVISION DESCRIPTION
1	RG	10/14/15	ADDED MANHOLE, SHIFTED 18" LINE



Binkley & Barfield, Inc.
consulting engineers Texas Registration Number F-237
1611 CHISHOLM TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78681

FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS

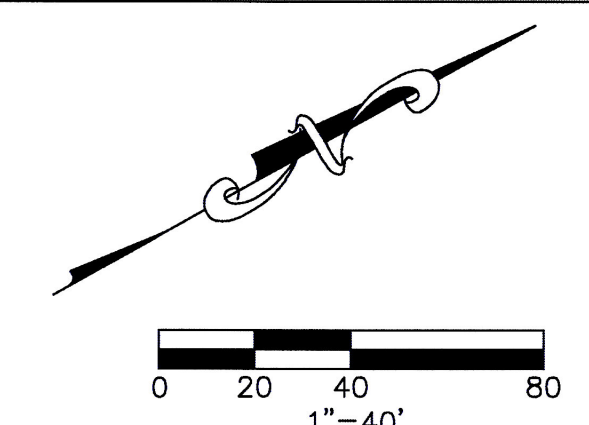
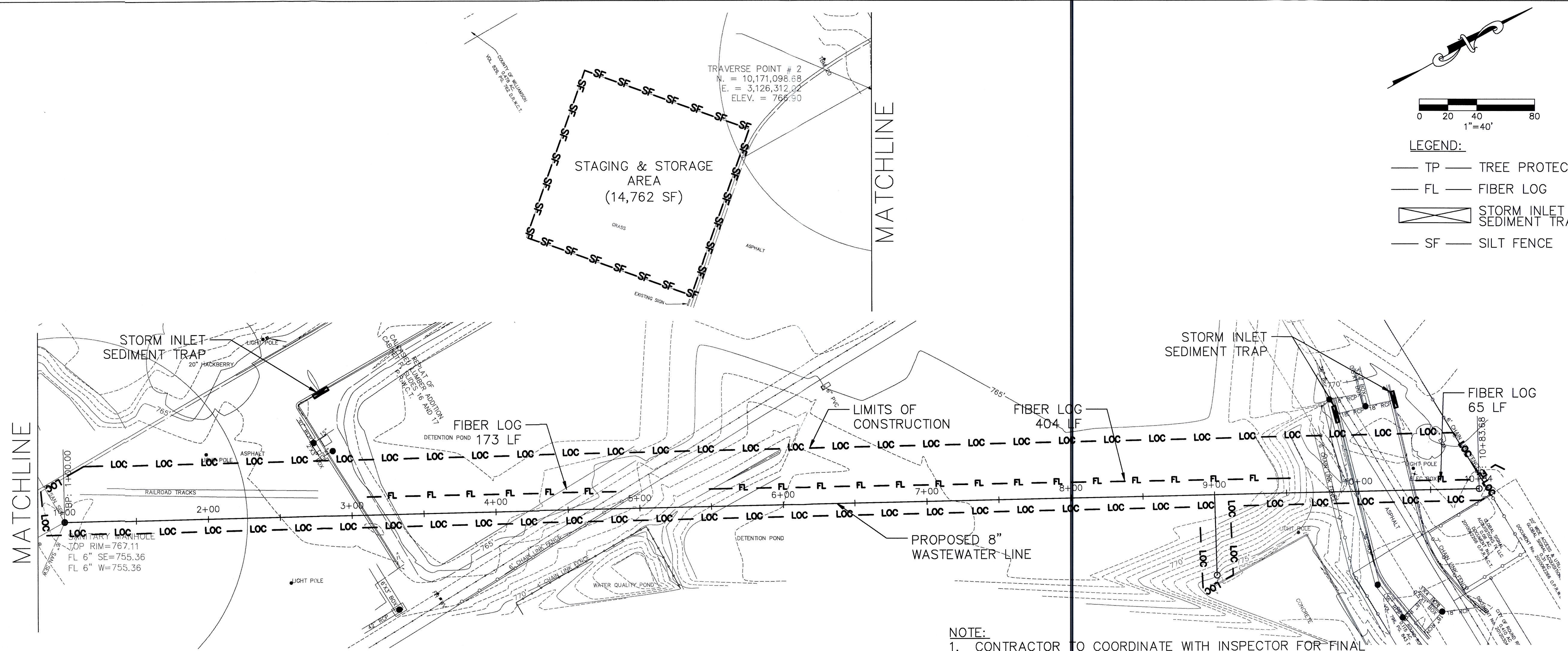
FM 3406 PLAN AND PROFILE

ROUND ROCK, TEXAS
PURPOSE. PASSION. PROSPERITY.

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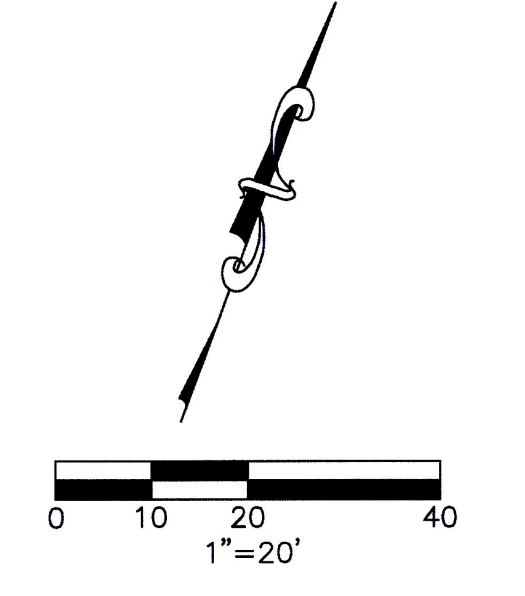
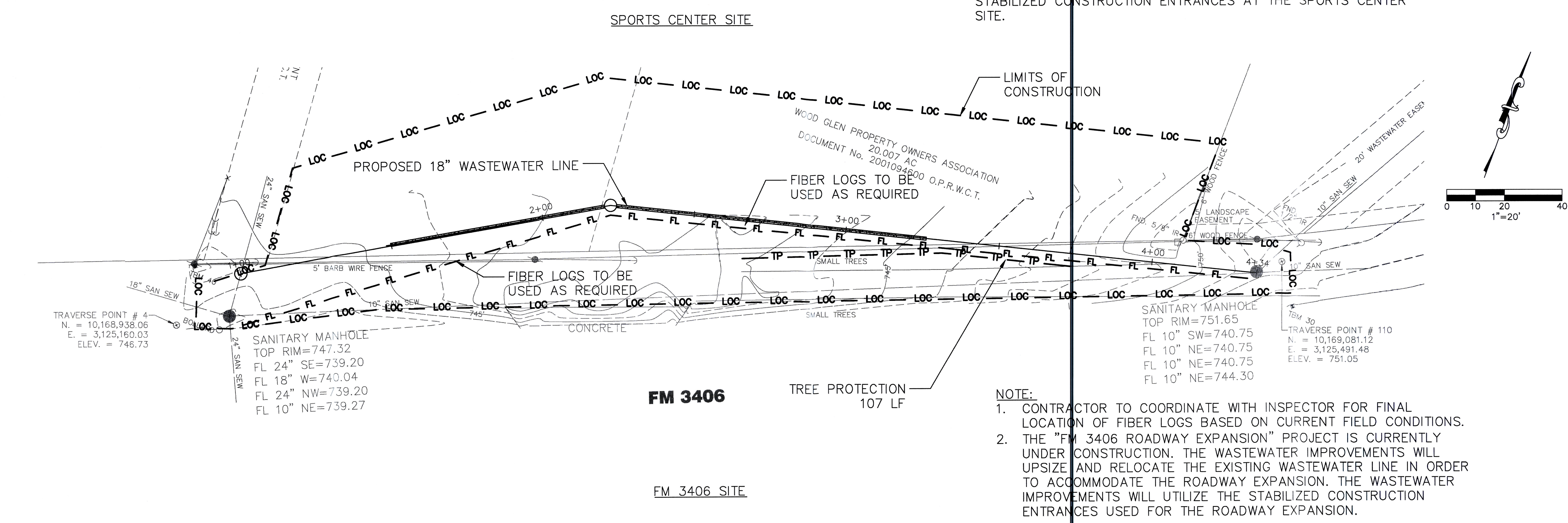
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- LEGEND:
- TP — TREE PROTECTION
 - FL — FIBER LOG
 - Storm Inlet Sediment Trap
 - SF — SILT FENCE

- NOTE:
- CONTRACTOR TO COORDINATE WITH INSPECTOR FOR FINAL LOCATION OF FIBER LOGS BASED ON CURRENT FIELD CONDITIONS.
 - EXISTING PARKING LOTS AND DRIVES WILL BE UTILIZED AS STABILIZED CONSTRUCTION ENTRANCES AT THE SPORTS CENTER SITE.



- NOTE:
- CONTRACTOR TO COORDINATE WITH INSPECTOR FOR FINAL LOCATION OF FIBER LOGS BASED ON CURRENT FIELD CONDITIONS.
 - THE "FM 3406 ROADWAY EXPANSION" PROJECT IS CURRENTLY UNDER CONSTRUCTION. THE WASTEWATER IMPROVEMENTS WILL UPSIZE AND RELOCATE THE EXISTING WASTEWATER LINE IN ORDER TO ACCOMMODATE THE ROADWAY EXPANSION. THE WASTEWATER IMPROVEMENTS WILL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCES USED FOR THE ROADWAY EXPANSION.

REVISION DESCRIPTION
DATE
REV BY
REV NO

STATE OF TEXAS
REYNALDO GONZALEZ, JR.
91803
LICENSED PROFESSIONAL ENGINEER

8/10/15

Binkley & Barfield, Inc.
consulting engineers Texas Registration Number F-257
1611 CHISHOLM TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78761

**FM 3406/SPORTS CENTER
WASTEWATER IMPROVEMENTS**

**EROSION SEDIMENTATION CONTROL & TREE
PROTECTION PLAN**

ROUND ROCK, TEXAS
PURPOSE. PASSION. PROSPERITY.

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A. GENERAL SITE DATA

PROJECT LIMITS:

THIS PROJECT LIMITS FOR THE SPORTS CENTER PORTION ARE THE BOUNDARY OF THE 30' T.C.E. TO THE BOUNDARY OF THE 15' WASTEWATER EASEMENT GOING FROM THE MANHOLE IN THE PARKING LOT TO THE PROPERTY LINE TO THE NORTH. THE LIMITS FOR THE FM 3406 PORTION ARE THE 30' T.C.E. ON THE NORTH SIDE TO FM 3406 ON THE SOUTH SIDE, GOING FROM THE WESTERN MANHOLE TO THE EASTERN MANHOLE.

PROJECT SITE MAPS:

- 1. PROJECT LATITUDE: 30.541454
2. PROJECT LONGITUDE: -97.697682
3. PROJECT LOCATION MAP: SEE COVER SHEET
4. DRAINAGE PATTERNS: NORTH TO SOUTH
5. MAJOR CONTROLS AND LOCATIONS OF THE STABILIZATION PRACTICES: SEE EROSION AND SEDIMENTATION CONTROL SHEET
6. SURFACE WATERS AND DISCHARGE LOCATIONS: N/A

PROJECT DESCRIPTION:

THIS PROJECT WILL CONSIST OF 341 FEET OF NEW 18" PVC SDR 26 ALONG FM 3406 WITH ONE NEW 48" MANHOLE, AND 984 FEET OF NEW 8" PVC SDR 26 AT THE SPORTS COMPLEX CONNECTING TO A NEW 48" MANHOLE.

MAJOR SOIL DISTURBING SEQUENCE OF CONSTRUCTION:

- 1. VIDEO OR PHOTO DOCUMENT ALL PUBLIC AND PRIVATE FACILITIES WITHIN THE LIMITS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO ALL EXISTING DRIVEWAYS, DRIVEWAY CULVERTS, ROADWAYS, TREES, DRAINAGE CULVERTS, FENCES, MAILBOXES, ETC.
2. INSTALL CONTROLS AS INDICATED ON THE EROSION & SEDIMENT CONTROL SHEET. CITY ENVIRONMENTAL INSPECTOR MUST APPROVE PRIOR TO CONSTRUCTION.
3. MAJOR SOIL DISTURBING ACTIVITIES MAY INCLUDE CLEARING AND GRUBBING, EXCAVATION, FINAL GRADING, AND PLACEMENT OF TOP SOIL.
4. CONSTRUCT WASTEWATER IMPROVEMENTS PER PLANS.
5. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP, OR REVEGETATION MATTING.
6. SCHEDULE PRELIMINARY WALK-THROUGH INSPECTION WITH CITY PRIOR TO REMOVAL OF EROSION CONTROLS.
7. COMPLETE ANY PUNCHLIST ITEMS THAT ARE DEVELOPED DURING PRELIMINARY WALK-THROUGH.
8. SCHEDULE FINAL WALK-THROUGH INSPECTION ONCE ALL PRELIMINARY WALK-THROUGH PUNCHLIST ITEMS ARE COMPLETE.
9. COMPLETE PERMANENT EROSION CONTROL AND SITE RESTORATION. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION, ONLY AFTER CLEARANCE WITH THE ENVIRONMENTAL INSPECTOR. RESTORE ANY AREA DISTURBED DURING REMOVAL OF EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION.

EXISTING AND PROPOSED SITE CONDITIONS:

DESCRIPTION OF EXISTING VEGETATIVE COVER: GRASS LAND (IE.; GRASS LAND, WOODS, PARK LAND, ETC.)
PERCENTAGE OF EXISTING VEGETATIVE COVER: 85%
DESCRIPTION OF SOILS: FM 3406: GEORGETOWN STONE CLAY LOAM, 1-3% SLOPES
SPORTS CENTER: DENTON SILTY CLAY, 3-5% SLOPES (20%)
DOSS SILTY CLAY, MOIST, 1-5% SLOPES (80%)
TOTAL PROJECT AREA: 1.75 ACRES
TOTAL PROJECT AREA DISTURBED: 1.49 ACRES (85%)

WEIGHTED RUNOFF COEFFICIENT:
PRE-CONSTRUCTION: N/A (RATIONAL METHOD COEFFICIENT)
POST-CONSTRUCTION: N/A (RATIONAL METHOD COEFFICIENT)

RECEIVING WATERS:

NAME OF RECEIVING WATERS THAT WILL RECEIVE DISCHARGES FROM DISTURBED AREAS OF THE PROJECT: ONION BRANCH
AN IMPAIRED STREAM (___ DOES ___X___ DOES NOT) PASSES THROUGH THE PROJECT SITE. STREAM NAME: _____ SEGMENT NO.: _____
SITE IS IN A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4). MS4 OPERATOR: CITY OF ROUND ROCK
A WATER POLLUTION ABATEMENT PLAN (WPAP) OR CONTRIBUTING ZONE PLAN (___ IS ___X___ IS NOT) REQUIRED.
USACE WETLANDS (___ ARE ___X___ ARE NOT) LOCATED ON THIS SITE. CONTRACTOR SHALL DISTURB WITHOUT SPECIFIC AUTHORIZATION.

B. BEST MANAGEMENT PRACTICES

SOIL STABILIZATION PRACTICES: (SELECT T=TEMPORARY OR P=PERMANENT BMP)
___ SEEDING
___ P MULCHING
___ SODDING
___ VEGETATIVE BUFFER ZONES
___ PRESERVATION OF NATURAL RESOURCES
___ SOIL BLANKETS AND MATTING
___ COMPOST MULCH
___ OTHER: _____
NOTE: SEE EROSION & SEDIMENT CONTROL SHEET FOR LOCATIONS OF BMPS.

STRUCTURAL PRACTICES: (SELECT T=TEMPORARY OR P=PERMANENT BMP)
___ T FIBER ROLLS/SILT FENCE
___ ROCK BERMS
___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
___ PIPE SLOPE DRAINS
___ CURB AND GUTTER
___ STORM SEWER
___ CONSTRUCTION EXIT
___ SEDIMENT TRAPS
___ SEDIMENT BASINS
___ T STORM INLET SEDIMENT TRAP
___ STONE OUTLET STRUCTURES
___ VELOCITY CONTROL DEVICES
___ OTHER: _____
NOTE: SEE EROSION & SEDIMENT CONTROL SHEET FOR LOCATION OF BMPS.

STORM WATER MANAGEMENT:
1. ELEMENTS THAT CONVEY STORM WATER ARE DESIGNED TO ALLOW ADEQUATE VOLUME AND VELOCITY, MINIMIZING ANY SIGNIFICANT EROSION OCCURENCES.
2. ADDITIONAL FACTORS AFFECTING THE POST-CONSTRUCTION STORM WATER AT THE PROJECT LOCATION INCLUDE:
___ X EXISTING OR NEW VEGETATION PROVIDING FOR NATURAL FILTRATION
___ X PRESERVATION OF BUFFER ZONES ALONG NATURAL WATERWAYS
___ X OPEN AREAS PROVIDES FOR INFILTRATION
___ VELOCITY DISSIPATION DEVICES TO MINIMIZE EROSION
___ DETENTION/RETENTION POND TO MINIMIZE INCREASED SITE RUNOFF
___ OTHER: _____
3. CONCRETE TRUCK WASH WATER DISCHARGES ON THIS SITE IS PROHIBITED AND SHALL NOT CONTAMINATE SURFACE WATER. CONCRETE TRUCK WASH-OUT LOCATIONS SHALL NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW AND WILL BE INSPECTED REGULARLY FOR DISCHARGES.
4. HAZARDOUS SPILL/LEAK SHALL BE PREVENTED OR MINIMIZED. AT A MINIMUM, THIS INCLUDES ASPHALT PRODUCTS, FUELS, OILS, LUBRICANTS, SOLVENTS, PAINTS, ACIDS, CONCRETE CURING COMPOUNDS, AND CHEMICAL ADDITIVES FOR SOIL STABILIZATION. BMPS SHALL BE IMPLEMENTED TO THE STORAGE AREAS OF THESE PRODUCTS. ALL SMALL SPILLS MUST BE CLEANED AND DISPOSED OF PROPERLY. REPORT ANY RELEASE AT OR ABOVE THE REPORTABLE QUANTITY (RQ) DURING A 24-HOUR PERIOD TO TCEQ AT 1-800-832-8224, EPA NATIONAL RESPONSE CENTER AT 1-800-424-8802, AND THE CITY OF ROUND ROCK STORM WATER PROGRAM AT 512-218-5555. FOR SPILLS AND LEAKS OF HAZARDOUS AND TOXIC MATERIALS SEE FINAL RQ IN TABLE 302.4 IN 40 CFR § 302.4.

REPORTABLE QUANTITIES FOR SPILLS

Table with 3 columns: MATERIAL, WHERE DISCHARGED, REPORTABLE QUANTITY. Rows include OIL & OIL PRODUCTS, CRUDE OIL, DIESEL FUEL & GASOLINE, DEGREASERS (CAUSTICS), HYDROCHLORIC & SULFURIC ACIDS (BATTERY ACID), ANTIFREEZE, HAZARDOUS SUBSTANCE, and SOLID WASTE.

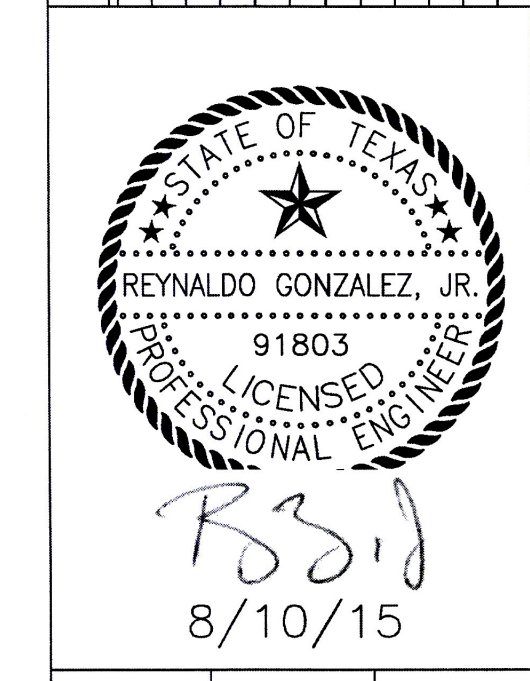
AUTHORIZED NON-STORM WATER DISCHARGES:
1. DISCHARGES FROM FIRE FIGHTING ACTIVITIES
2. AIR CONDITIONING CONDENSATE
3. WATER TO CONTROL DUST IN ROADWAYS
4. GROUND WATER ENCOUNTERED DURING EXCAVATION
5. POTABLE WATER SOURCES
6. UNCONTAMINATED FIRE HYDRANT FLUSHINGS (EXCLUDING HYPER-CHLORINATED WATER)
7. LAWN WATERING OR IRRIGATION
8. VEHICLE, EXTERNAL BUILDING, AND PAVEMENT WASH WATER WHERE DETERGENTS AND SOAPS ARE NOT USED

C. OTHER REQUIREMENTS AND PRACTICES

MAINTENANCE PROCEDURES:
1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR. IF A REPAIR IS NECESSARY, IT SHALL BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM EQUIPMENT. IF MAINTENANCE PRIOR TO THE NEXT ANTICIPATED STORM EVENT IS IMPRACTICABLE, MAINTENANCE MUST BE SCHEDULED AND ACCOMPLISHED AS SOON AS PRACTICABLE.
2. DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED, TEMPORARILY OR PERMANENTLY, SHALL BE STABILIZED WITHIN 14 CALENDAR DAYS UNLESS ACTIVITIES ARE SCHEDULED TO AND DO RESUME WITHIN 21 CALENDAR DAYS. THE AREAS ADJACENT TO CREEKS AND DRAINAGE WAYS SHALL HAVE PRIORITY FOLLOWED BY PROTECTING STORM SEWER INLETS.
INSPECTION PROCEDURES:
1. FOR AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN PERMANENTLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, QUALIFIED PERSONNEL PROVIDED BY THE CONTRACTOR OF THE SITE AND FAMILIAR WITH THE SWPPP MUST INSPECT DISTURBED AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
2. AS AN ALTERNATIVE TO THE ABOVE DESCRIBED INSPECTION SCHEDULE, THE SWPPP MAY BE DEVELOPED TO REQUIRE THAT THESE INSPECTIONS WILL OCCUR AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS. IF THIS ALTERNATIVE SCHEDULE IS DEVELOPED, THEN THE INSPECTIONS MUST OCCUR ON A SPECIFIED DAY, REGARDLESS OF WHETHER OR NOT THERE HAS BEEN RAINFALL SINCE THE PREVIOUS INSPECTION.
3. AN INSPECTION AND MAINTENANCE REPORT SHALL BE PREPARED AND MAINTAINED ON SITE BY QUALIFIED PERSONNEL FOR EACH INSPECTION AND THE CONTROLS SHALL BE REVISED ON THE SWPPP WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING INSPECTION.
WASTE MATERIALS:
1. ALL NON-HAZARDOUS MUNICIPAL WASTE MATERIAL SUCH AS LITTER, RUBBISH, TRASH, AND GARBAGE LOCATED ON OR ORIGINATING FROM THE PROJECT SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER PROVIDED BY THE CONTRACTOR. THE DUMPSTER SHALL BE EMPTIED AS NECESSARY AND THE TRASH SHALL BE HAULED TO A PERMITTED DISPOSAL FACILITY. THE BURYING OF NON-HAZARDOUS MUNICIPAL WASTE ON THE PROJECT SHALL NOT BE PERMITTED.
2. CONSTRUCTION MATERIAL WASTE SITES, STOCK PILES, AND HAUL ROADS SHALL BE CONSTRUCTED TO MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. CONSTRUCTION MATERIAL WASTE SITES SHALL NOT BE LOCATED IN ANY WETLAND, WATER BODY, OR STREAM BED.
3. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED IN A MANNER BY THE CONTRACTOR TO MINIMIZE THE RUNOFF OF POLLUTANTS.

SANITARY WASTE:
1. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.
OFF SITE VEHICLE TRACKING:
1. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES, AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.
OTHER:
1. ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICABLE OF TEMPORARY EMBANKMENT, DEBRIS, OR OTHER OBSTRUCTIONS.
2. CONSTRUCTION AREAS SHALL BE MAINTAINED IN A MANNER THAT WILL MINIMIZE AIRBORNE DUST.

Table with 3 columns: REV. NO., REV. BY, DATE. Multiple empty rows for revision tracking.



Binkley & Barfield, Inc. consulting engineers Texas Registration Number F-257 1611 CHESTER TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78761
FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS
STORMWATER POLLUTION & PREVENTION PLAN (SWPPP)

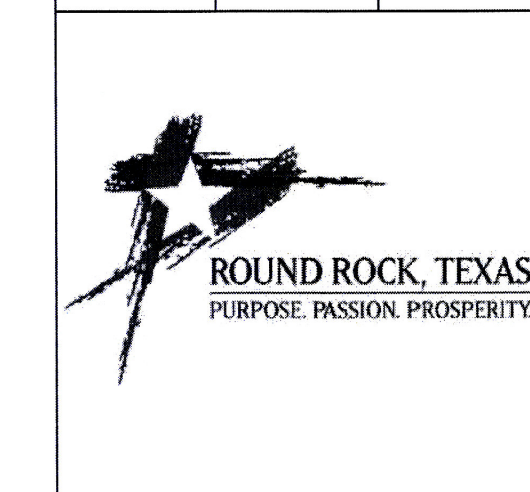
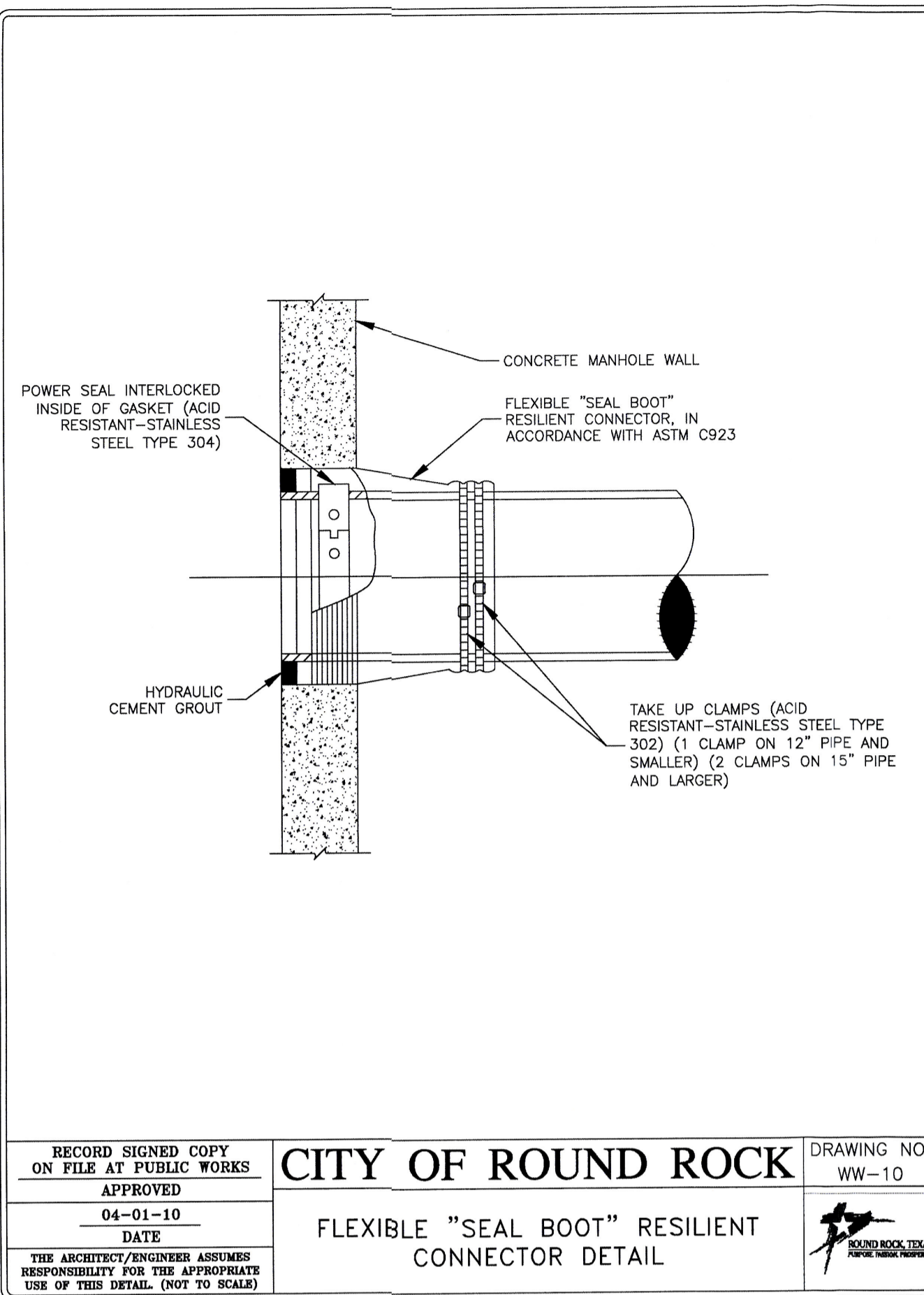
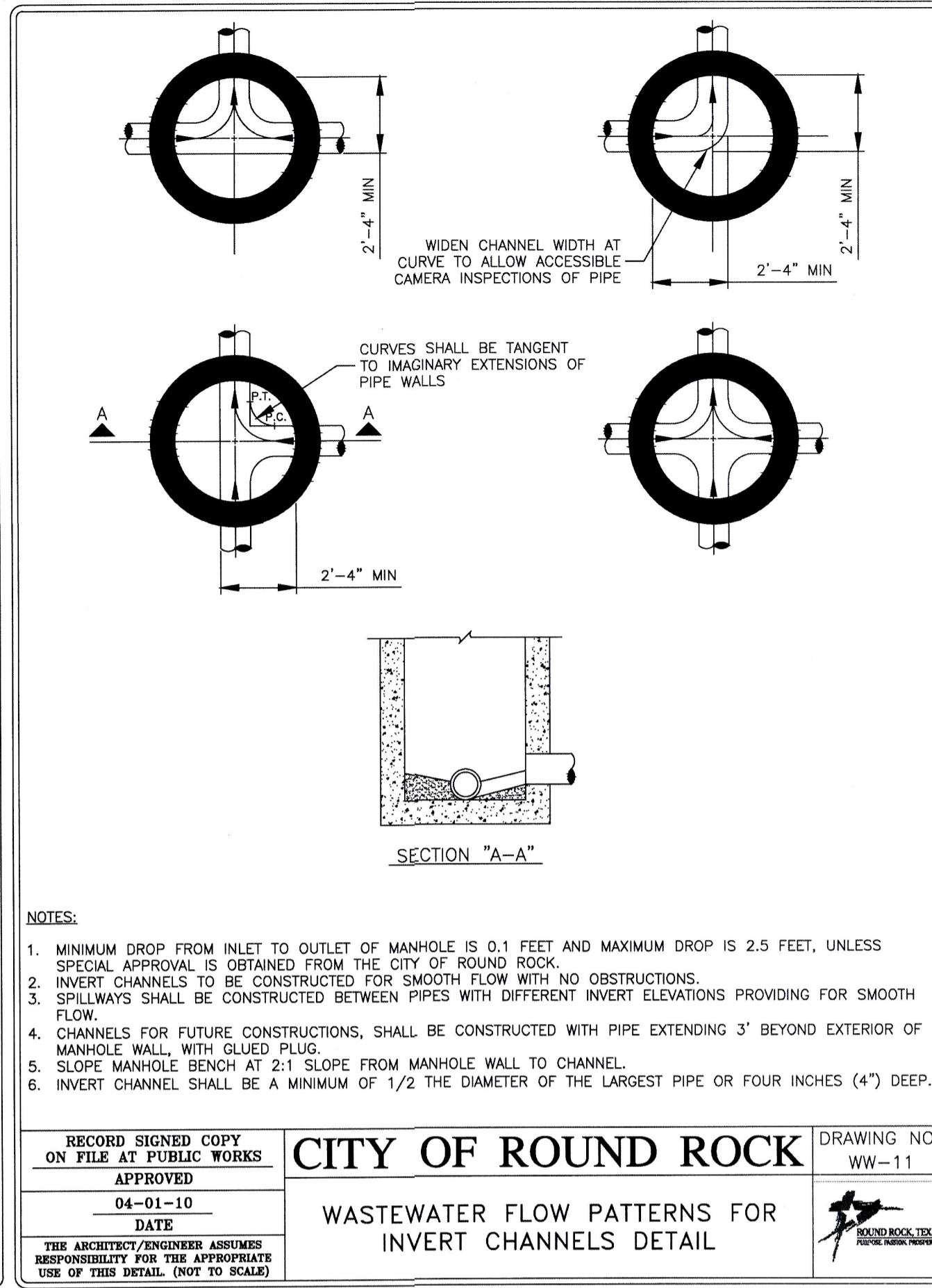


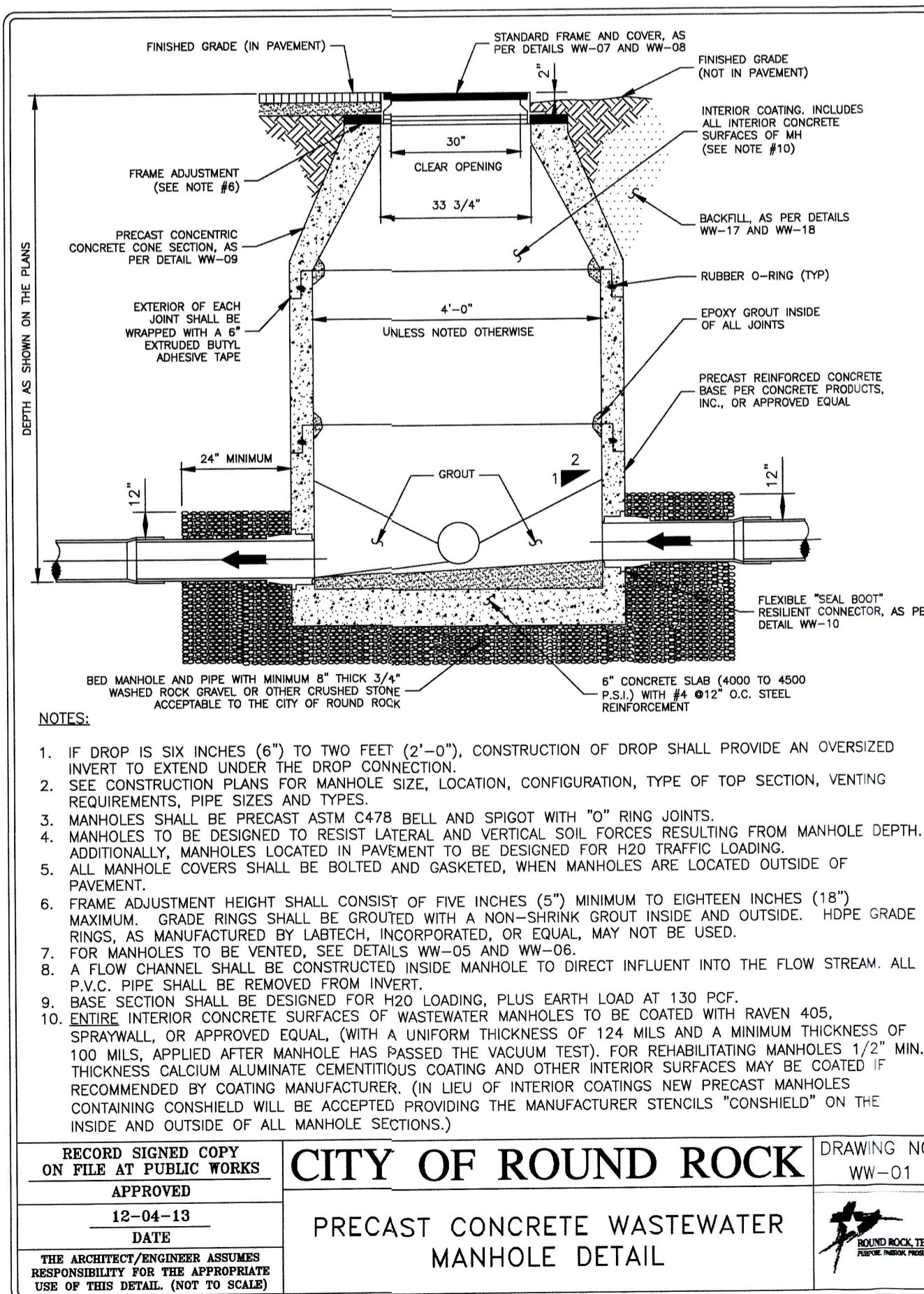
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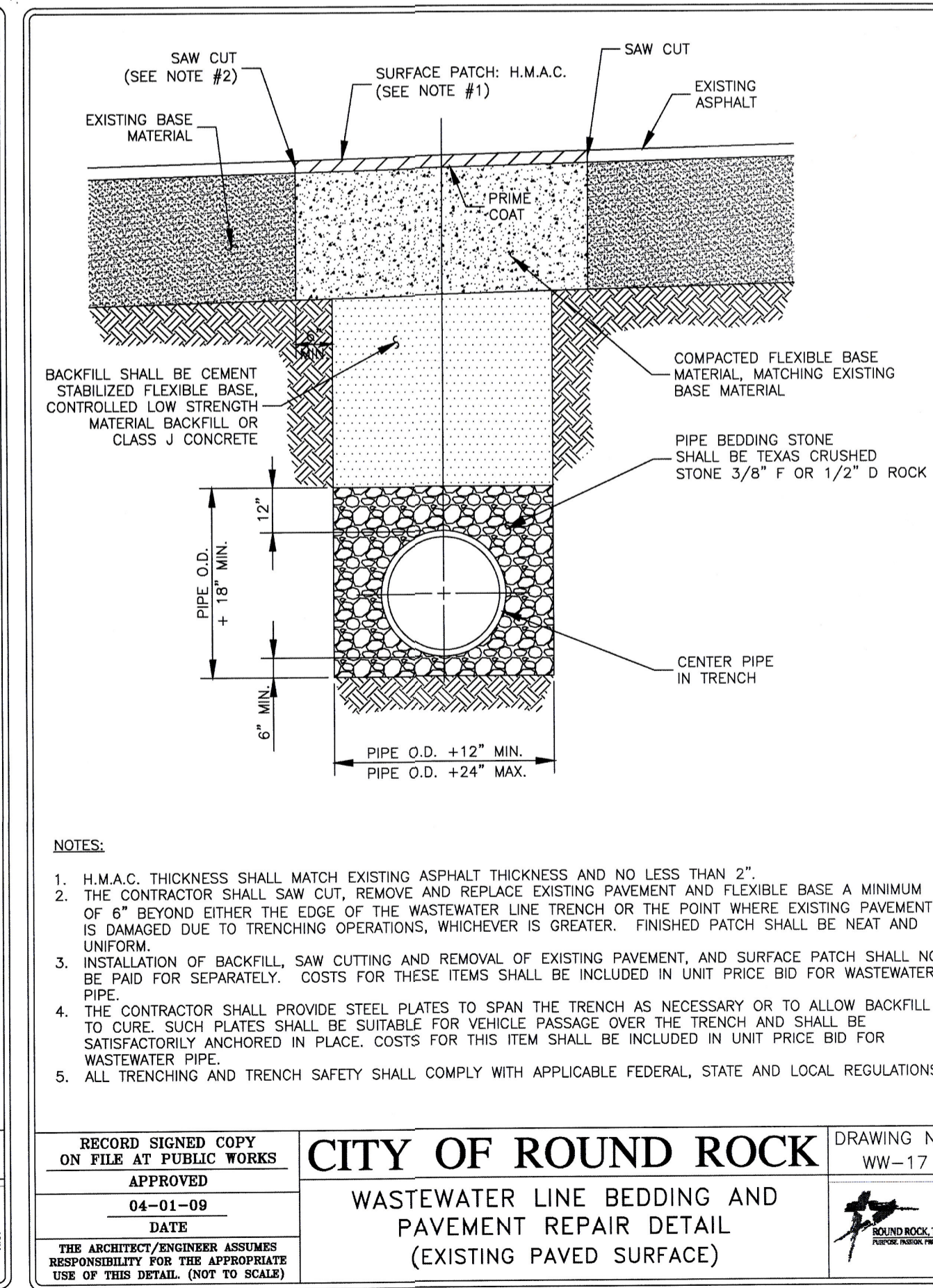
CITY OF ROUND ROCK
FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR DETAIL
 DRAWING NO: WW-10
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



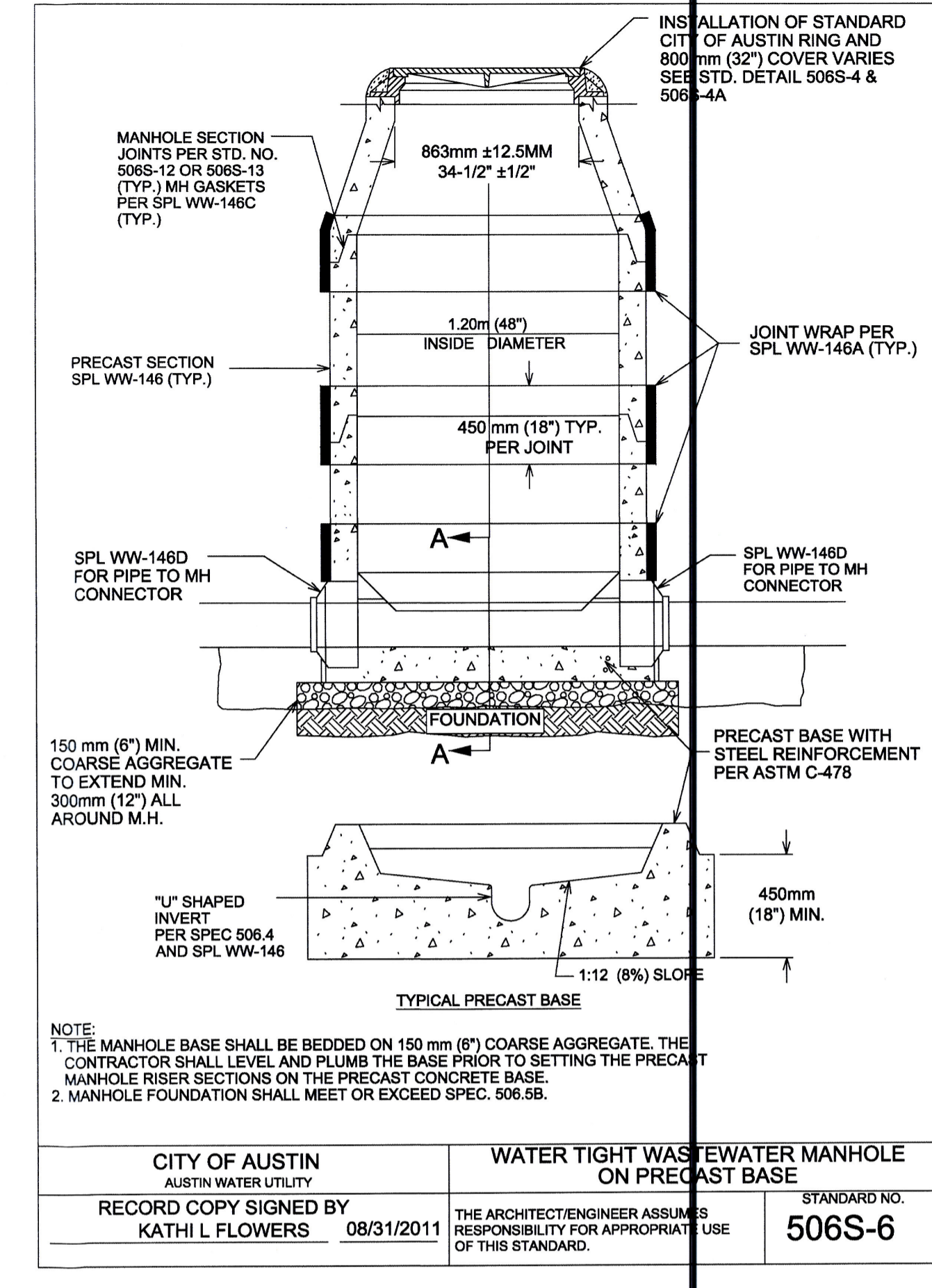
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WASTEWATER FLOW PATTERNS FOR INVERT CHANNELS DETAIL
 DRAWING NO: WW-11
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



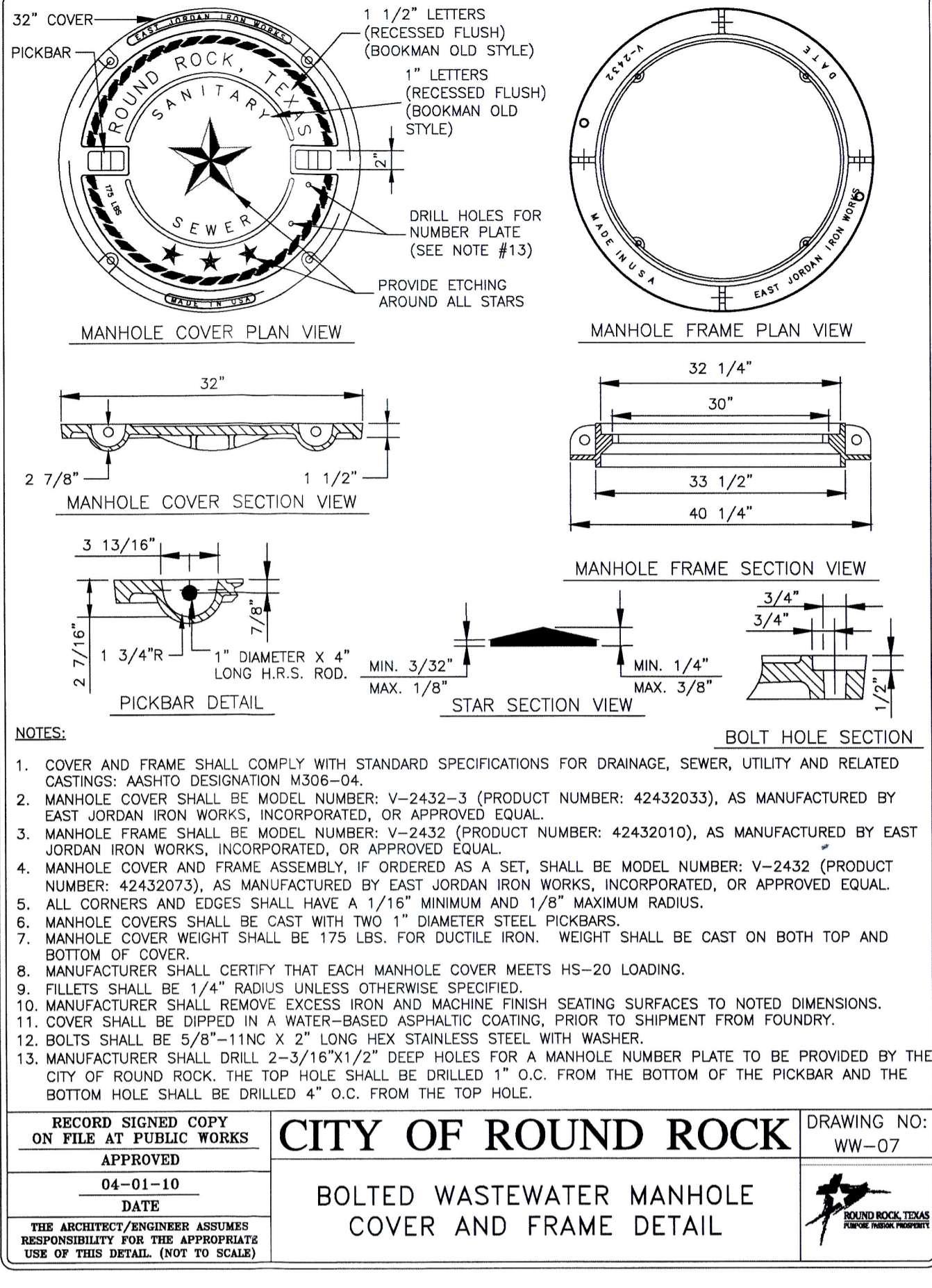
CITY OF ROUND ROCK
PRECAST CONCRETE WASTEWATER MANHOLE DETAIL
 DRAWING NO: WW-01
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 12-04-13 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



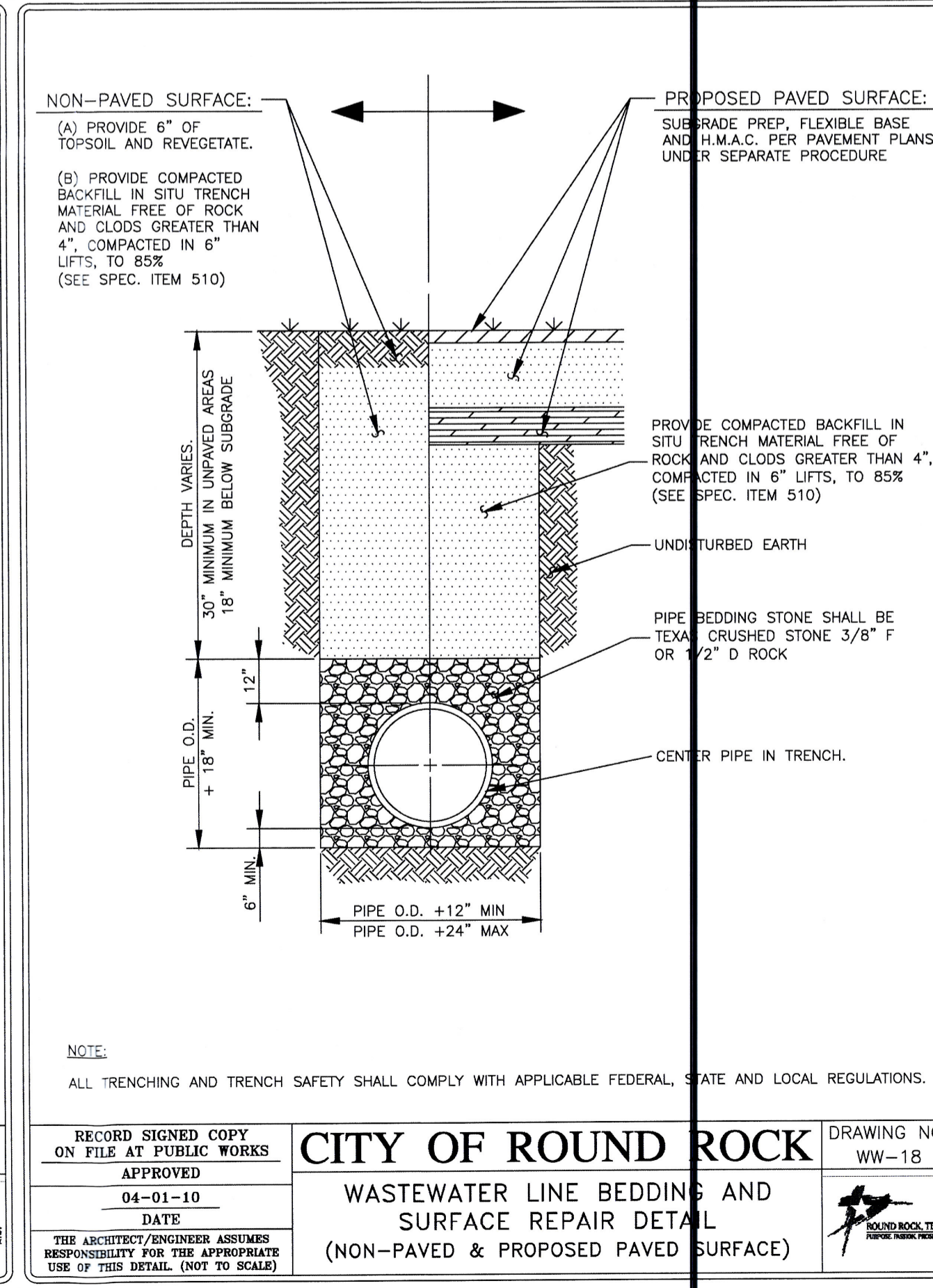
CITY OF ROUND ROCK
WASTEWATER LINE BEDDING AND PAVEMENT REPAIR DETAIL (EXISTING PAVED SURFACE)
 DRAWING NO: WW-17
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-09 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



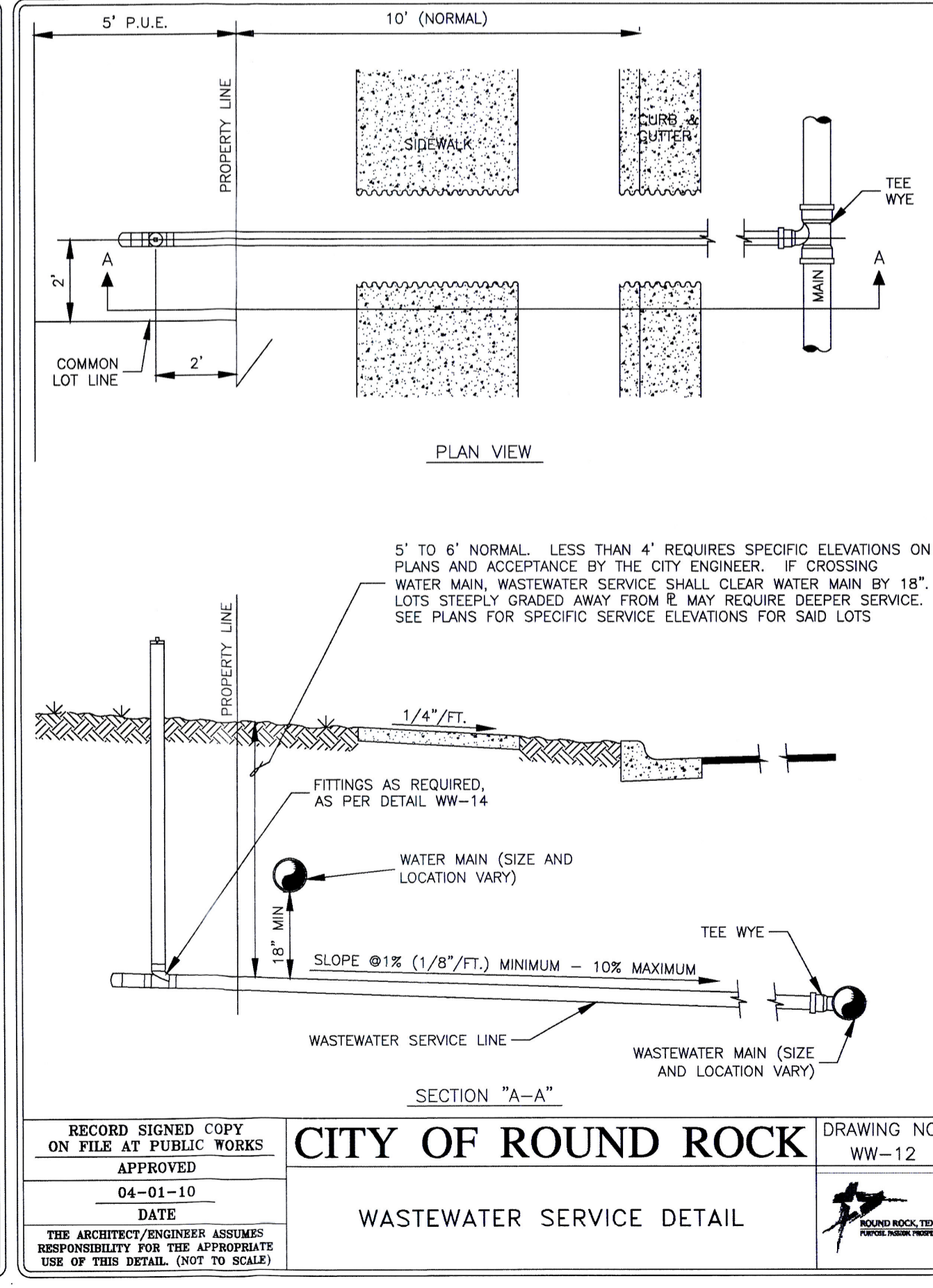
CITY OF ROUND ROCK
WATER TIGHT WASTEWATER MANHOLE ON PRECAST BASE
 STANDARD NO. 506S-6
 RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011 THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS STANDARD.



CITY OF ROUND ROCK
BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL
 DRAWING NO: WW-07
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



CITY OF ROUND ROCK
WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)
 DRAWING NO: WW-18
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)



CITY OF ROUND ROCK
WASTEWATER SERVICE DETAIL
 DRAWING NO: WW-12
 RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

REVISION DESCRIPTION	DATE	REV. BY	NO.

Binkley & Barfield, Inc.
 consulting engineers
 1611 CHISHOLM TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78781
 Texas Registration Number F-257

FM 3406/SPORTS CENTER WASTEWATER IMPROVEMENTS

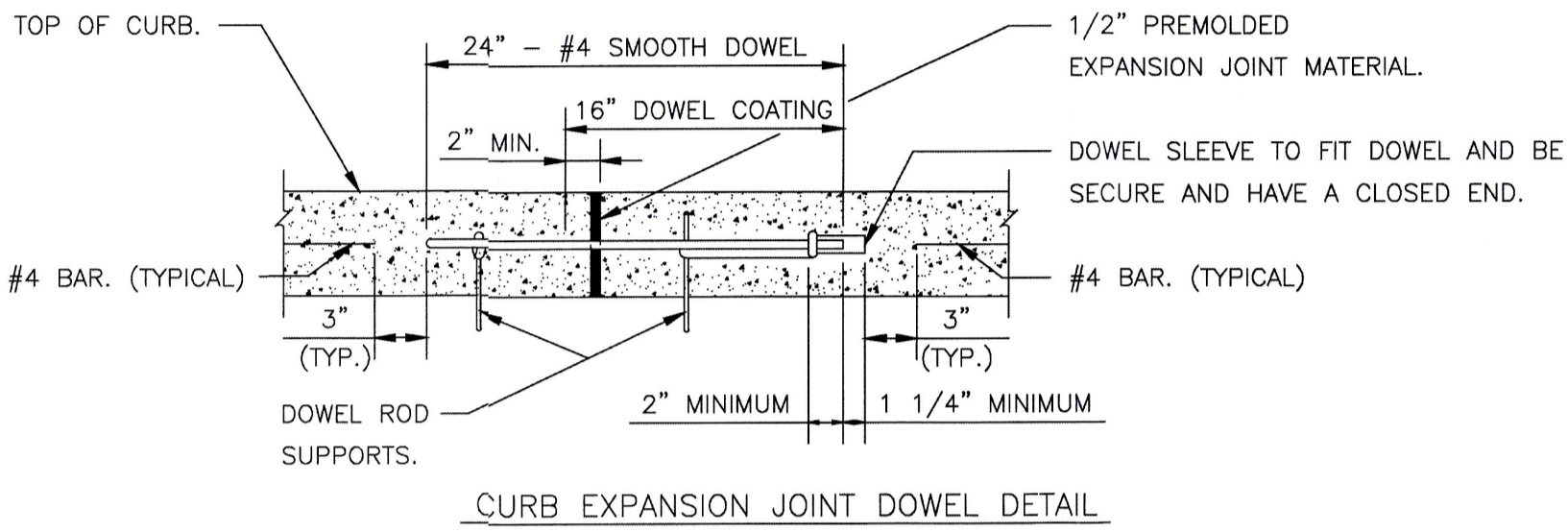
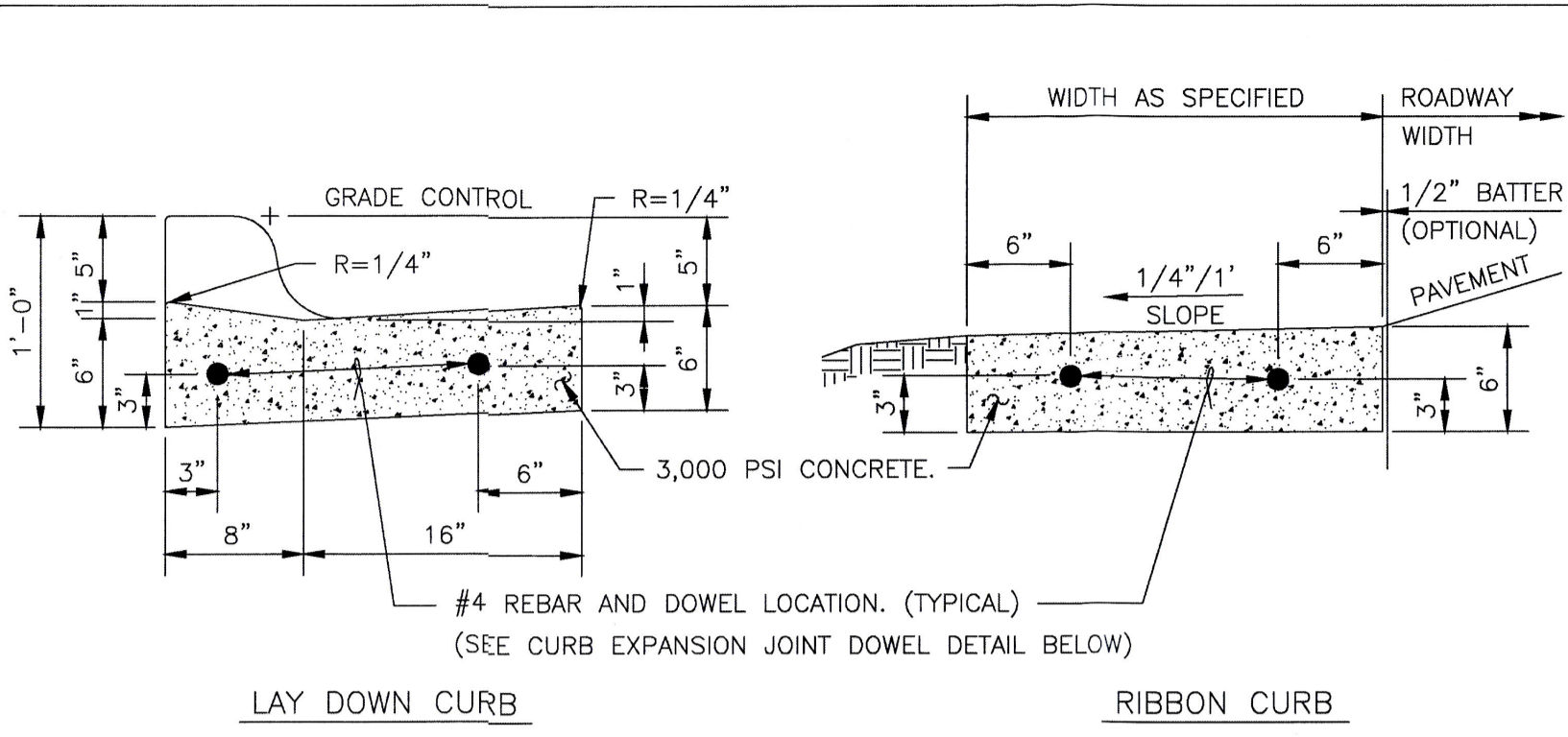
DETAILS - 1

NOTES	NAME	DATE
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DRAWN BY		
CHECKED BY		
DESIGNED BY		
REVIEWED BY		
SCALE:		
CADD REF. NO.:		
CADD DIR.:		


SHEET NUMBER **9** OF **10**

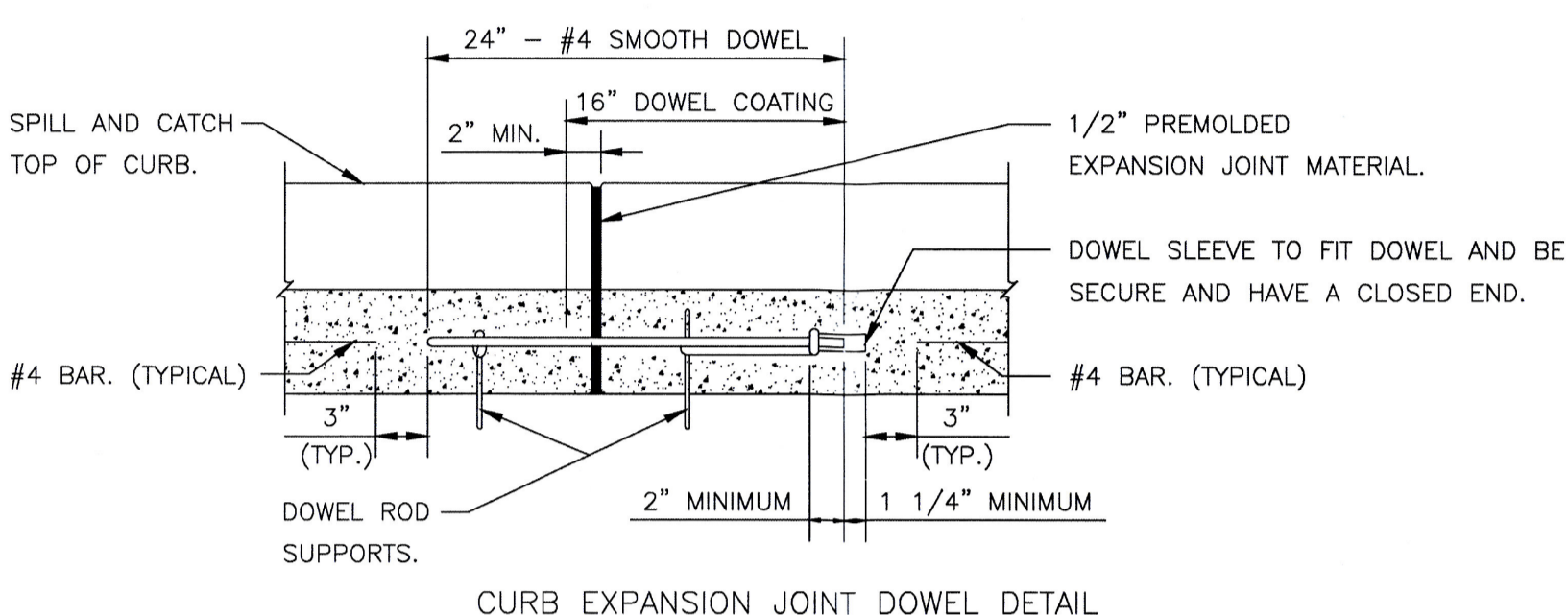
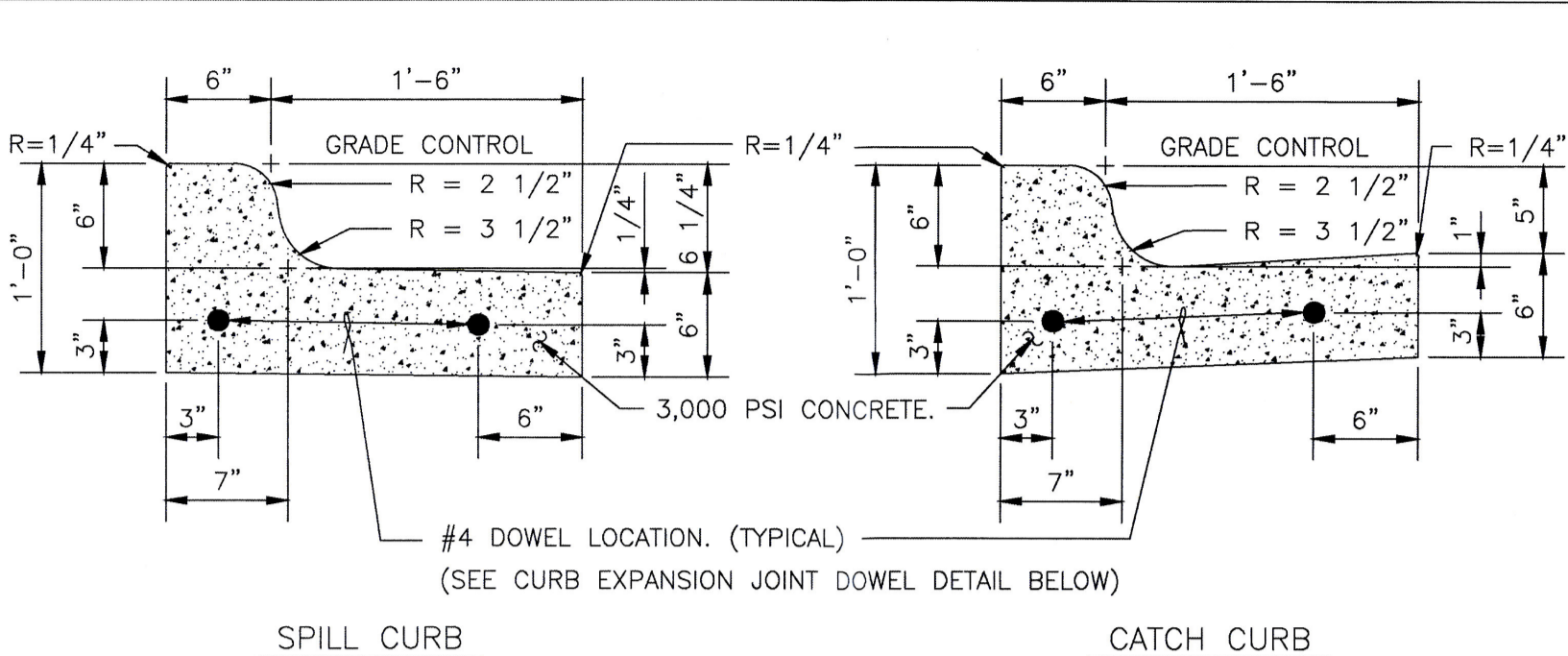
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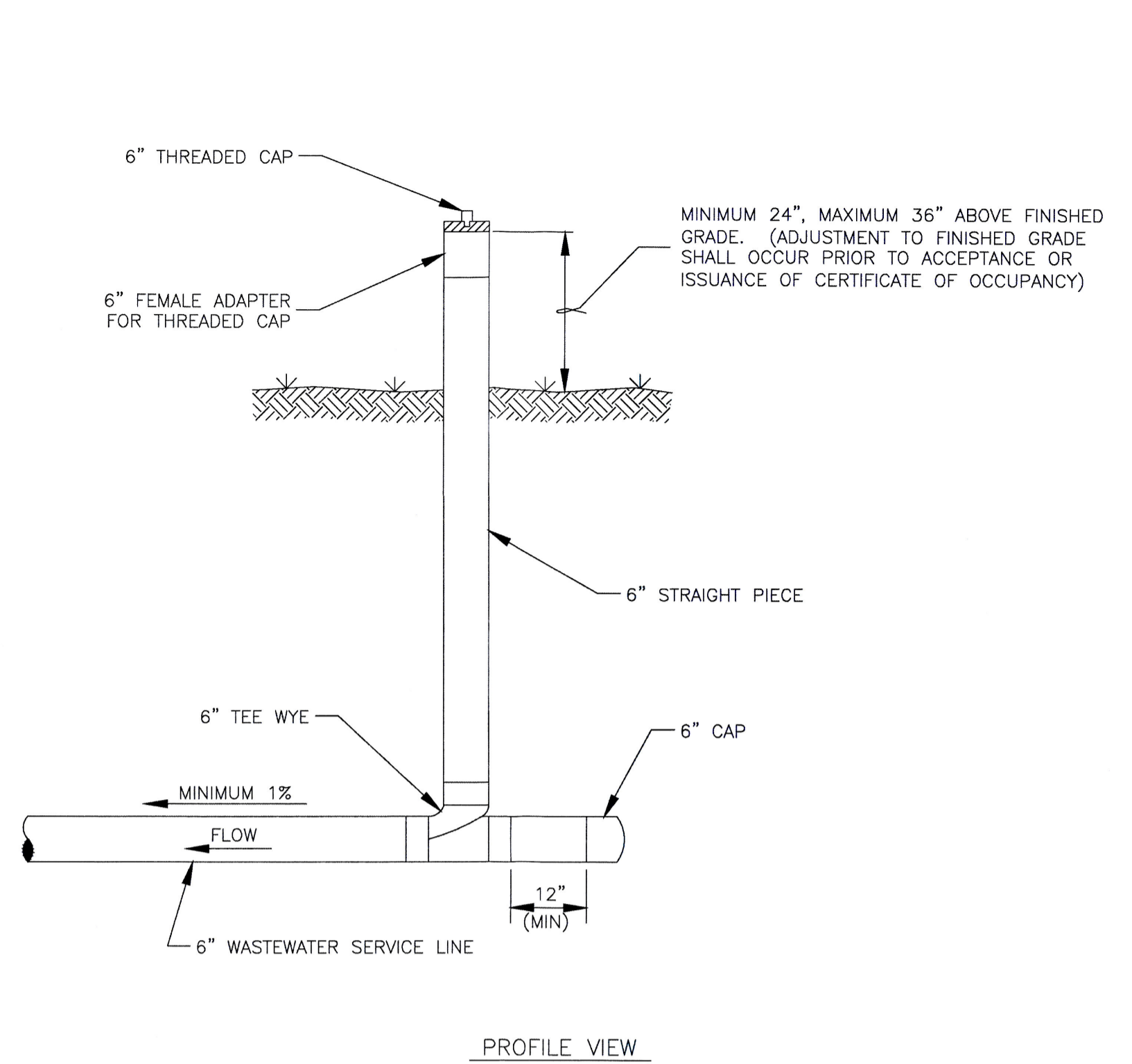
- NOTES:**
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
 2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0".
 3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
 4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
 5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
 6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 08-21-03 DATE	CITY OF ROUND ROCK LAYDOWN AND RIBBON CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)	DRAWING NO: ST-04
		




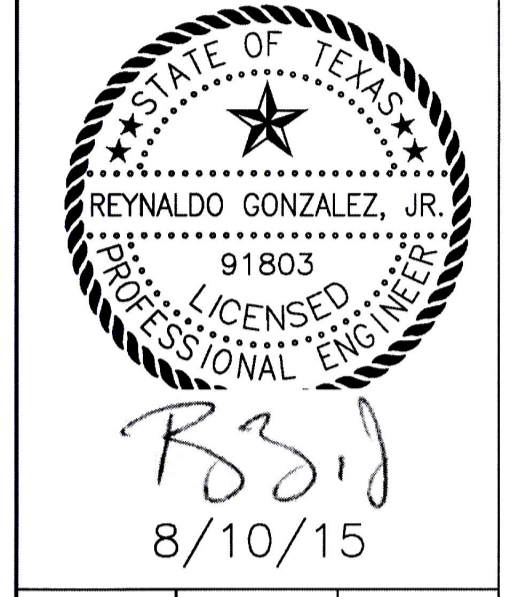
- NOTES:**
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
 2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0".
 3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
 4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
 5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
 6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 08-21-03 DATE	CITY OF ROUND ROCK SPILL AND CATCH CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)	DRAWING NO: ST-05
		



- NOTES:**
1. ALL PIPE TO BE SDR 26.
 2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 12-01-10 DATE	CITY OF ROUND ROCK WASTEWATER SERVICE CLEAN-OUT DETAIL (NON-PAVED SURFACES)	DRAWING NO: WW-14
		



Binkley & Barfield, Inc.
consulting engineers
1611 CHESTNUT TRAIL DRIVE, SUITE 250, AUSTIN, TEXAS 78761

**FM 3406/SPORTS CENTER
WASTEWATER IMPROVEMENTS**

DETAILS - 2



NOTES	NAME	DATE
SURVEY BY	-	-
DRAWN BY		
CHECKED BY		
DESIGNED BY		
REVIEWED BY		
SCALE:		
CADD REF. NO.:		
CADD DIR.:		
SHEET NUMBER	10 OF 10	

Organized Sewage Collection System Plan Application (TCEQ-0590)

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), 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.

Regulated Entity Name: Round Rock Sports Center

1. **Attachment A – SCS Engineering Design Report.** This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

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

Contact Person: Richard Will

Entity: City or Round Rock General Services Division

Mailing Address: 212 Commerce Blvd

City, State: Round Rock, Texas

Zip: 78664

Telephone: 512-341-3311

Fax: _____

Email Address: richardwill@roundrocktexas.gov

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

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

Contact Person: Nelson w. Ogren

Texas Licensed Professional Engineer's Number: 136895

Entity: 2P Consultants, LLC

Mailing Address: 203 E. Main St., Suite 204

City, State: Round Rock, Texas

Zip: 78664

Telephone: 512-344-9664

Fax: _____

Email Address: nogren@2pconsultants.com

Project Information

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

- Residential: Number of single-family lots: _____
 Multi-family: Number of residential units: _____
 Commercial
 Industrial
 Off-site system (not associated with any development)
 Other: City of Round Rock - Capital Improvement Project

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

100% Domestic 277,344 gallons/day
 _____% Industrial _____gallons/day
 _____% Commingled _____gallons/day
 Total gallons/day: 277,344

6. Existing and anticipated infiltration/inflow is 3,744 gallons/day. This will be addressed by: Watertight manholes and pipe joints.

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

- The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
 The WPAP application for this development was submitted to the TCEQ on 11/15/2023, but has not been approved.
 A WPAP application is required for an associated project, but it has not been submitted.
 There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

<i>Pipe Diameter(Inches)</i>	<i>Linear Feet (1)</i>	<i>Pipe Material (2)</i>	<i>Specifications (3)</i>
8	450	PVC SDR 26	ASTM D 2241

Total Linear Feet: 450'

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

9. The sewage collection system will convey the wastewater to the Brushy Creek Regional East Wastewater (name) Treatment Plant. The treatment facility is:

- Existing
 Proposed

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

- The City of Round Rock standard specifications.
 Other. Specifications are attached.

11. No force main(s) and/or lift station(s) are associated with this sewage collection system.
 A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.
 13. There are no deviations from straight alignment in this sewage collection system without manholes.
 Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.
 For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
WW LN A	C601 Of	4+50.51	Manhole
WW LN A	C601 Of	3+58.50	Manhole
WW LN A	C601 Of	2+95.50	Manhole
WW LN A	C601 Of	2+92.50, 42' RT	Clean-out
WW LN A	C601 Of	1+25.50	Manhole
WW LN A	C601 Of	1+22.50, 42' RT	Clean-out
WW LN A	C601 Of	0+04.50	Manhole

<i>Line</i>	<i>Shown on Sheet</i>	<i>Station</i>	<i>Manhole or Clean-out?</i>
	Of		
	Of		
	Of		

15. Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.
16. The maximum spacing between manholes on this project for each pipe diameter is no greater than:

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

- Attachment C – Justification for Variance from Maximum Manhole Spacing.** The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.
17. All manholes will be monolithic, cast-in-place concrete.
- The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 50'.
19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.
20. Lateral stub-outs:
- The location of all lateral stub-outs are shown and labeled.
- No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

- The entire water distribution system for this project is shown and labeled.
- If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
- There will be no water lines associated with this project.

22. 100-year floodplain:

- After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
- After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

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

Table 4 - 5-Year Floodplain

<i>Line</i>	<i>Sheet</i>	<i>Station</i>
	of	to
	of	to
	of	to
	of	to

24. Legal boundaries of the site are shown.

25. The ***final plans and technical specifications*** are submitted for the TCEQ’s review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

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

Table 5 - Water Line Crossings

<i>Line</i>	<i>Station or Closest Point</i>	<i>Crossing or Parallel</i>	<i>Horizontal Separation Distance</i>	<i>Vertical Separation Distance</i>
WW LN A	2+97.5, 13' RT	Crossing	0'	3.4'
WW LN A	1+23.6, 13' RT	Crossing	0'	4.0'

27. Vented Manholes:

- No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
- A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
- A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
- A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

28. Drop manholes:

- There are no drop manholes associated with this project.
- Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

<i>Line</i>	<i>Manhole</i>	<i>Station</i>	<i>Sheet</i>

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

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

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

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

31. Minimum flow velocity (From Appendix A)

- Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

- Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
- Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

<i>Line</i>	<i>Profile Sheet</i>	<i>Station to Station</i>	<i>FPS</i>	<i>% Slope</i>	<i>Erosion/Shock Protection</i>

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

- Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
- N/A

Administrative Information

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

Table 9 - Standard Details

<i>Standard Details</i>	<i>Shown on Sheet</i>
Lateral stub-out marking [Required]	C603 of
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) [Required]	C603 of
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	N/A of
Typical trench cross-sections [Required]	C603 of
Bolted manholes [Required]	C603 of
Sewer Service lateral standard details [Required]	C603 of
Clean-out at end of line [Required, if used]	N/A of
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	N/A of
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	C503 of
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	N/A of

<i>Standard Details</i>	<i>Shown on Sheet</i>
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	N/A of

36. All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
37. All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.
- Survey staking was completed on this date: _____
38. 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.
39. Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Nelson W. Ogren, P.E.

Date: 11/15/2023

Place engineer's seal here:



Signature of Licensed Professional Engineer:

11/15/2023



Appendix A-Flow Velocity Table

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

Table 10 - Slope Velocity

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

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

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

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)



Attachment 5A – SCS Engineering Design Report

This SCS Engineering Design Report has been prepared to comply with the Texas Commission on Environmental Quality's requirements of Title 30 Texas Administrative Code Chapter 217: Design Criteria for Domestic Wastewater Systems. This includes Subchapter A, Subchapter C, and Subchapter D of 30 TAC Chapter 217 when applicable. Whenever multiple regulations apply, the more stringent regulation shall be used.

Project Information

Project Description

The proposed Round Rock Sports Center Expansion is located at 2400 Chisholm Trail Rd, in Round Rock, Texas 78681. The site is comprised of a single 22.62 acre lot in Williamson County.

Legal description: 22.7 Acres situated in the David Curry Survey, Abstract No. 130.

The existing site is a 68,220 square foot indoor sports complex with established access from Chisholm Trail Rd. The existing site was initially developed as a lumber yard before being developed into a sports complex in 2012.

The proposed improvements consist of 25,961 square foot expansion to the existing building and added parking, sidewalks, drive aisles, utilities and stormwater facilities. Impervious cover increases from 423,016 square feet (9.71 ac – 43%) to 544,866 square feet (12.51 ac – 55%). No frontage improvements or offsite improvements are included with the proposed expansion.

A portion of the existing site will be demolished to make room for new improvements. Numerous utilities will be removed and rerouted out of the proposed building footprint. The area to be demolished is on the western side of the existing Sports Center building. One existing wastewater manhole and approximately 145 feet of existing 8" wastewater main will be removed. Regulated activities proposed include excavation, construction of sewer mains, manhole installation, backfill, and compaction. Approximately 5.0 acres of the site may be disturbed during construction activities.

The modified SCS will consist of installing a new manhole over the existing wastewater main and extending a new 8" main approximately 450 feet around the west side of the proposed building expansion, with four additional manholes to account for vertical and horizontal changes and the two 6" wastewater services extending to the building. The final manhole and stub will be installed for a potential future onsite building. The wastewater system shall be constructed using 6" PVC SDR-26, 160 psi pressure rated pipe that meets ASTM D2241 standards. Wastewater will be conveyed through the proposed SCS infrastructure to the Brushy Creek Regional East Wastewater Treatment Plant.

This SCS will serve the existing Sports Center and the proposed expansion. The following gross floor areas are anticipated for this development:

Existing Sports Center:	68,220 sf
Proposed Expansion:	25,961 sf
Total floor area:	94,181 sf

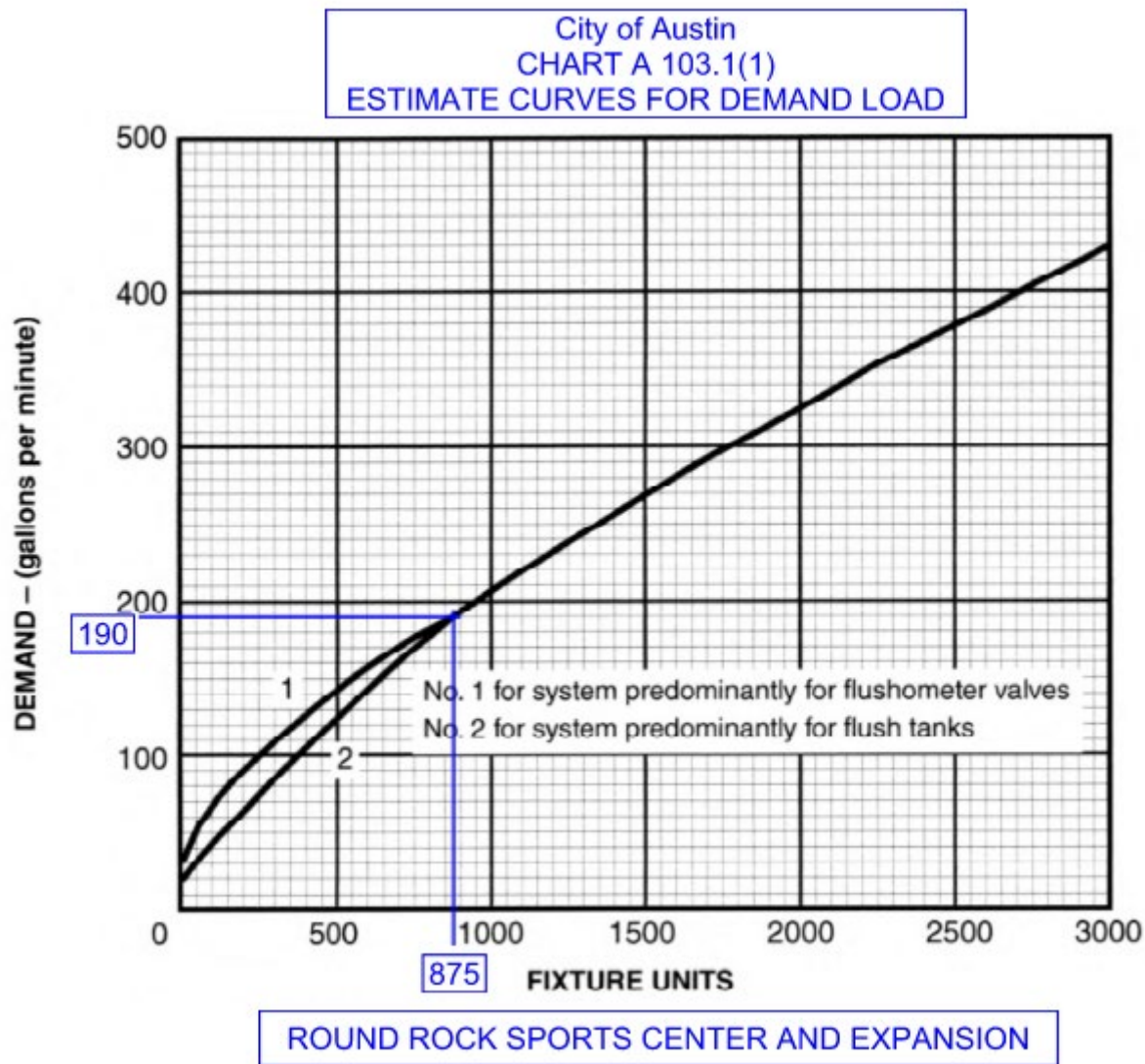
Flow Calculations

The anticipated wastewater flows were determined based on Estimated Drainage Fixture Units (DFU). A DFU is a numerical value assigned to each fixture that determines how much load that fixture is putting on the drainage system. A Fixture Unit is not a flow rate unit but a design factor based on the rate of discharge, time of operation and frequency of use of a fixture. A fixture unit is equal to one cubic foot of water drained in an 1 1/4 pipe over one minute.

The estimated supply demand for the existing RR Sports Center building and the proposed Expansion is provided in the table below:

RR Sports Center Expansion - Estimated Drainage Fixture Units						
FIXTURE	Occupancy	Minimum Trap Size	Fixture Units	Quantity		DFU's
				Existing	Expansion	
Bathroom Group	< 1.6 gpf	-	5	0	0	0
Bathroom Group (fv)	> 1.6 gpf	-	6	0	0	0
Water Closet	Private < 1.6 gpf	match fixture	3	0	0	0
Water Closet	Public < 1.6 gpf	match fixture	4	0	0	0
Water Closet	Private > 1.6 gpf	match fixture	4	0	0	0
Water Closet	Public > 1.6 gpf	match fixture	6	42	29	426
Water Closet (flushometer)	Private/Public	match fixture	4	0	0	0
Bidet	Private	1-1/4"	1	0	0	0
Urinal	> 1 gpf	match fixture	4	10	0	40
Urinal	< 1 gpf	match fixture	2	0	8	16
Urinal	Non water	match fixture	0.5	0	0	0
Shower	Private	1-1/2"	2	0	0	0
Shower	Public	2"	3	2	0	6
Bathtub	Residential	1-1/2"	2	0	0	0
Bathtub	Athletic	2"	3	0	0	0
Dishwasher	Private	1-1/2"	2	0	0	0
Drinking Fountain	Offices, ect.	1-1/4"	0.5	4	4	4
Kitchen Sink	Private	1-1/2"	2	2	0	4
3 Compartment Sink	Hotel, Restaurant	2"	4	0	0	0
Laundry Trays (1-3)	Private	1-1/2"	2	0	0	0
Lavatory	Private	1-1/4"	1	0	21	21
Lavatory	Public	1-1/4"	1.5	32	0	48
Hand Sink	Classroom	1-1/4"	1.5	0	0	0
Service Sink	Offices, ect.	2"	2	2	0	4
Mop Sink	Offices, ect.	3"	3	0	1	3
Washing Machine (8lb)	Residential	2"	2	0	0	0
Washing Machine (8lb)	Commercial	2"	3	0	0	0
Washing Machine (15lb)	Commercial	3"	4	0	0	0
Emergency Floor Drain	No calculated	2"	0	0	0	0
Floor Drain	SEE TABLE	3"	5	28	15	215
KITCHEN LOAD	SEE TABLE	-	88	1	0	88
					TOTAL	875

Converting the total DFU's to a usable flow rate, Chart A 103.1(1) from the City of Austin Plumbing Code, yields an anticipated 190 gallons per minute (0.42 cubic feet per second) to be served by the SCS.



The Peak Dry Weather Flow, Inflow/Infiltration, and Peak Wet Weather flow were calculated for this development using the formulas below:

Peak Dry Weather Flow (gpm) = F = Demand *Equation 1*

*Inflow & Infiltration = 750gpd per acre * A* *Equation 2*

Peak Wet Weather Flow = Peak Dry Weather Flow + Inflow & Infiltration *Equation 3*

Where:

F = Anticipated Flow Rate (GPM)

A = Site Area (acres)

GPD = GPM * 1440

The following table of information was calculated using the above equations:

Wastewater Usage	
F (GPM):	190
Site Area (Acres):	5.0
Peak Dry Weather Flow (GPM):	190.0
Inflow/Infiltration (GPM):	2.60
Peak Wet Weather Flow (GPM):	192.6

Converting the Peak Wet Weather Flow to gallons per day gives the proposed site a total 277,344 Peak Wet Weather Flow gallons per day.

Capacity Calculations

The characteristics of a 8" ASTM D2241, SDR 26, PVC Sewer Pipe is as follows:

Nominal Size	8"
Outer Diameter (D _o)	8.625"
Minimum Wall Thickness (t)	0.323"
Inner Diameter (D _i)	7.921"

Using Manning's Equation, one can determine the maximum flow of a pipe at a certain slope. The necessary equations are as follows:

$$V = \frac{k}{n} * Rh^{\frac{2}{3}} * S^{\frac{1}{2}}$$

Equation 4

$$Q = V * A$$

Equation 5

Where:

V = Velocity of flow (ft/s)

k = Conversion factor between SI and English Units = 1.4859 ft^{1/3}/sec

n = Manning's Coefficient (0.012 for PVC Pipe)

Rh = Hydraulic Radius (ft) = Area / Wetted Perimeter

S = Slope of the pipe (ft/ft) = 0.0060

Q = Discharge (Flow Rate) (ft³/sec)

A = Area of the pipe

Using the above equations for the proposed site gives us the following information:

Capacity Calculations:	
Area of the Pipe:	0.35 sf
Wetted Perimeter:	1.1 ft
Hydraulic Radius:	0.17 ft
Minimum Slope:	0.0060 ft/ft
Velocity of Flow:	2.37 ft/s
Flow Rate (cfs):	0.43 cfs
Flow Rate (gpm)	192.6 gpm

Section 2.9.4 of the City of Austin's Utility Criteria Manual states that the sewer main shall be designed such that the Peak Dry Weather Flow shall not exceed 65% of the capacity of the pipe flowing full and the Peak Wet Weather Flow shall not exceed 85% of the capacity of the pipe flowing full. Looking at the Peak Dry Weather Flow and Peak Wet Weather Flow previously calculated, 190.0 gpm and 192.6 gpm respectively, they are significantly less than the minimum capacity of the pipe flowing full. See the flow rate summary below for more information.

Flow Rate Summary	
Peak Dry Weather Flow (gpm):	190.0
65% of 8" PVC Pipe Flowing Full (gpm):	297.5
Peak Wet Weather Flow (gpm):	192.6
85% of 8" PVC Pipe Flowing Full (gpm):	389.2

The proposed 8" PVC pipes with a minimum slope of 0.6% have sufficient capacity to convey the projected peak flows for the sewage collection system.

Flow Velocity Calculations

The SCS consists of 450 linear feet of 8" PVC with slopes ranging from 0.6% to 0.9%. Manning's Formula, as found in Equation 4 above, can be used to determine the minimum flow velocity in the SCS.

$$V = \frac{k}{n} * Rh^{\frac{2}{3}} * S^{\frac{1}{2}}$$

Where:

V = Minimum flow velocity in the SCS (ft/s)

k = Conversion factor between SI and English Units = 1.4859 ft^{1/3}/sec

n = Manning's Coefficient = 0.012 for PVC Pipe

Rh = Hydraulic Radius (ft) = Area / Wetted Perimeter = 0.17 ft

S = Slope of the pipe (ft/ft) = 0.0060 to 0.0090

Using the above equation and values for the site provides a minimum flow velocity in the SCS of 2.94 ft/s at a slope of 0.6% and a maximum flow velocity of 3.60 ft/s at a slope of 0.9%.

At the end of its anticipated 50-year life cycle, we do not expect a change in use for this site, but as demonstrated above, there is additional capacity if there is any future increase in flows.

Odor Control

Odor control is not necessary on this project as the proposed sewage collection system is comprised solely of gravity lines, and as such there will be no conditions where sewage is standing and will become septic.

Structural Components

Pipes and Joints

A summary of the proposed pipe lengths, materials, and regulations can be found in the table below.

Nominal Pipe Diameter (in)	Linear Feet	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
8	450	PVC SDR 26	ASTM D2241	ASTM D3212

Section 217.53(j)(4) of Title 30 of the Texas Administrative Code states that "an owner must ensure that a gravity pipe is at least 6.0 inches in diameter." All proposed gravity main pipes are 8" in diameter.

Watertight, size on size resilient connectors conforming to ASTM C-923 have been specified for connecting pipe to manholes.

Where a collection system parallels a water supply pipe and a nine-foot separation distance cannot be achieved, Section 217.53(d)(3)(A)(i) requires a collection system pipe be constructed of cast iron, ductile iron, or PVC meeting ASTM specifications with at least a 150-psi rating for both the pipe and joints. Where a collection system pipe crosses a water supply line and a nine-foot separation distance cannot be achieved, Section 217.53(d)(3)(B)(i) requires the collection system pipe be constructed of cast iron, ductile iron, or PVC with a minimum pressure rating of 150 psi. The proposed project will comply with these requirements as well as that of 30 TAC 217.53(d)(3).

Project Materials – Bedding

The specified bedding will comply with ASTM D2321-11 Class I, II, or III for materials and densification. A minimum of 6 inches of bedding is required for all pipe.

Pipe Diameter	Pipe Material	Bedding Class
8"	PVC SDR-26	Class I & Class III

Initial backfill for the pipe sizes shown above will be Class I and secondary backfill will be Class III. See Table 2 of ASTM D2321-11 "Soil Classes" in Appendix A of this subsection.

Project Materials – Manholes

Section 217.55(f) prohibits the use of bricks to adjust a manhole cover to grade or construct a manhole. The proposed project will comply with this requirement.

The inside diameter of a manhole must be no less than 48 inches.

Section 217.55(m) requires watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. The proposed project complies with this requirement.

Under 30 TAC 213.5(C)(3)(A), all manholes over the Recharge Zone must be watertight, with watertight rings and covers. The proposed project complies with this requirement.

The materials specified for manhole construction is precast concrete.

Project Materials – Manhole Covers

Manhole covers must be constructed of impervious materials. If personnel entry is required, a minimum of 30-inch diameter clear opening must be provided. Inclusion of steps in a manhole is prohibited. If a manhole must be located within a 100-year floodplain then a means of preventing inflow is required. A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials Standard M-306 for load bearing.

Under 30 TAC 213.5(c)(3)(A), all manholes over the Edwards Aquifer Recharge Zone must be watertight, with watertight rings and covers. This proposed project complies with this requirement.

Minimum and Maximum Slopes

All pipes are designed with a slope that will provide a velocity of at least 2 ft/sec and less than 10 ft/sec flowing full as calculated using Manning's equation with a Manning's roughness coefficient of 0.012.

The following is a table showing the slope for the proposed gravity sewer main as well as the corresponding velocity in the pipe at this slope according to Manning’s formula, which can be found as Equation 4 above.

	Slope (ft/ft)	Velocity (ft/sec)
8" PVC Main Line	0.0060	2.94
	0.0090	3.60

Backfill

The backfill will be free of stones greater than 6 inches in diameter and free of organic or any other unstable material.

Trenching

Note: The trench width will be minimized while still allowing adequate width for proper compaction of backfill, and while still ensuring that at least 6 inches of backfill exists below and on each side of the pipe. The trench walls will be vertical to at least one foot above the pipe.

Minimum and Maximum Trench Width

According to 30 TAC 217.54(d), the width of a trench must allow a pipe to be laid and jointed properly, allow the backfill to be placed and compacted as needed, allow proper and safe placement and compaction of haunching materials in accordance with the standards of 30 TAC 217.54(a), and the space between a pipe and a trench wall must be wider than the compaction equipment used in the pipe zone. The minimum and maximum trench widths for the proposed sewage collection system can be found in the table below.

Pipe Diameter	Minimum Trench Width	Maximum Trench Width
8"	21"	46"

Corrosion Prevention

Proposed collection system components (pipes, manholes, etc) will not be susceptible to deterioration through the corrosive effects of sewage. Manholes shall be constructed of or lined with a corrosion resistant material. Where new construction ties into an existing manhole, the existing manholes must be lined, coated, or replaced with a corrosion resistant material.

Manholes

Manholes are provided at all change in grade or alignment of pipe, at the intersection of all pipes, and at the end of all lines. A clean-out with watertight plugs may be installed instead of a manhole if no extensions are anticipated. Clean-outs must pass all testing requirements outlined for gravity collection pipes. All manholes for the proposed sewage collection system are spaced at less than 500 feet apart, which complies with the maximum manhole spacing allowed by TCEQ for a 6-inch diameter pipe. There are no manholes within the 100-year floodplain in the proposed development.

The bottom of a manhole must contain a U-shaped channel which is a smooth continuation of the inlet and outlet pipes. The bench above the channel must be sloped a minimum of 0.5 inches per foot. See the City of Georgetown Details WW-01 and WW-04 on Sheet C603 of the corresponding construction plans, which complies with these requirements. A manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe’s diameter.

Reduction of Inflow

According to 30 TAC 217.55(j)(6), connection of storm water or roof drains to the sewage collection system is prohibited.

Flexible Pipe Computations

All flexible pipe computations are based on engineering principles and practices for the design of buried PVC pipe systems. Equations used can be found in "The Uni-Bell PVC Pipe Association Handbook of PVC Pipe: Design and Construction" and Buried Pipe Design, 3rd Edition by Mosier and Folkman. The equations used may be in a different format than found in the above sources.

Live Load Calculations

No influence of live loads on the performance of the sewage collection system is anticipated. The average burial depth for this line is such that the influence of live loads is negligible.

Tensile Strength

The information in the table below is from Table 2.1 in "The Uni-Bell Handbook of PVC Pipe: Design and Construction".

Pipe Material	Tensile Strength	Cell Class (PVC Only)
PVC SDR-26	7,000	12454

Installation Temperature Effects

Flexible pipe will be installed under favorable ambient conditions, per pipe manufacturer's specifications.

Wall Crushing

No portion of the proposed sewage collection system is located within the 5-year floodplain. No concrete encased flexible pipe is proposed for this project.

Pipe Stiffness

Pipe stiffness is based on manufacturer's data. Information on the pipe stiffness for 8" PVC SDR-26 can be found in the table below.

Pipe Material	Pipe Stiffness	Modulus of Elasticity
8" PVC SDR-26	115 psi	400,000 psi

Modulus of Soil Reaction

To determine the Modulus of Soil Reaction for the bedding material, the lowest Modulus of Soil Reaction of the various bedding materials was chosen. As previously discussed, the bedding materials were made up of Class I and Class III materials found in Table 2 of ASTM D2321-11 "Soil Classes." Class III soils is made up of course grained soils with fines. As seen on Table 7.3 from the "Uni-Bell Handbook of PVC Pipe," this material has a Modulus of Soil Reaction of 400 psi.

The Modulus of Soil Reaction for the in-situ soil was found using Table 7.3 from the "Uni-Bell Handbook of PVC Pipe" to look up the value for Class I Soils, or Crushed Rock, as seen in Table 2 of ASTM D2321-11 "Soil Classes." This material has a Modulus of Soil Reaction of 3,000 psi. The bedding to in-situ soil modulus of soil reaction ratio is equal to 400psi/3000psi, or 0.13.

Buckling Pressure Calculations

The following formulas are used to find the allowable buckling pressure in the proposed sewage collection system.

$$Qa = 0.4 * \sqrt{32 * Rw * B' * Eb * (E * \frac{I}{D^3})} \quad \text{Equation 6}$$

$$Rw = 1 - 0.33 * (\frac{Hw}{h}) \quad \text{Equation 7}$$

$$B' = \frac{1}{1 + 4 * e^{-0.065H}} \quad \text{Equation 8}$$

$$I = (\frac{t^3}{12}) * (\frac{\text{inches}^4}{\text{linear inch}}) \quad \text{Equation 9}$$

Where:

Qa = Allowable buckling pressure (psi)

Rw = Water buoyancy factor. If Hw = 0, Rw = 1.

B' = Empirical coefficient of elastic support

Eb = Modulus of soil reaction for bedding material (psi)

E = Modulus of elasticity of the pipe material (psi)

I = Moment of inertia of the pipe wall cross section per linear inch of pipe (inch⁴/linear inch)

D = Mean pipe diameter (in)

Hw = Height of water surface above top of pipe (in)

h = Height of soil surface about the top of pipe (in)

H = Depth of burial from ground surface to crown of pipe (ft)

t = Pipe structural wall thickness (in)

This area of the Edwards Aquifer is unsaturated, and no anticipated areas where sewer pipes will be placed are below the water table. Hw = 0 because no pipe in the sewage collection system is below the water table line in this area. The value used for H in these calculations is 15 feet as it exceeds the maximum burial depth for this line.

Using these values and values previously discussed in this report, the allowable buckling pressure can be found using Equations 6-9.

$$I = \left(\frac{0.332^3}{12}\right) * \left(\frac{\text{inches}^4}{\text{linear inch}}\right) = 0.003050 \frac{\text{inches}^4}{\text{linear inch}}$$

$$B' = \frac{1}{1 + 4 * e^{-0.065 * 15}} = 0.40$$

$$Rw = 1 - 0.33 * \left(\frac{0}{180}\right) = 1$$

$$Qa = 0.4 * \sqrt{32 * 1 * 0.40 * 400 * \left(400,000 * \frac{0.003050}{8^3}\right)} = 44.1 \text{ psi}$$

As shown, the calculated allowable buckling pressure for the 8" PVC SDR-26 pipes in this sewage collection system is 44.1 psi.

Pressure Under Installed Conditions

The following formulas are used to find the pressure applied to the pipe under installed conditions.

$$Qp = (\gamma_w * H_w) + (R_w * \left(\frac{W_c}{D}\right)) + L1 \quad \text{Equation 10}$$

$$W_c = \gamma_s * H * \frac{D+1}{144} \quad \text{Equation 11}$$

Where:

Qp = Pressure applied to pipe under installed conditions (psi)

γ_w = Specific weight of water = 0.0361 lb/cubic inch

Hw = Height of water surface above top of pipe (in)

Rw = Water buoyancy factor. If Hw = 0, Rw = 1.

Wc = Vertical soil load on the pipe per unit length (lb/in)

D = Mean pipe diameter (in)

L1 = Live load (lbs)

γ_s = Specific weight of soil (lb/cubic foot)

H = Depth of burial from ground surface to crown of pipe (ft)

A value of 143 lbs/cubic foot is assumed for the specific weight of soil for this development. 143 lbs/cubic foot is a conservative value based on a dry unit weight of 135 lbs/cubic foot and a moisture content of 6%. This value is conservative as it corresponds to saturated unit weights of commonly used backfill materials.

Using this value, and the values found in the previous section, the pressure applied to the pipe under installed conditions can be found using Equations 10-11.

$$W_c = 143 * 15 * \frac{8+1}{144} = 134.06 \text{ lb/in}$$

$$Qp = (0.0361 * 0) + \left(1 * \left(\frac{134.06}{8}\right)\right) + 0 = 16.8 \text{ psi}$$

As shown, the calculated pressure applied to the pipes in the sewage collection system under installed conditions is 16.8 psi.

Zeta Calculation

Where native soil is significantly weaker than bedding material, or where predicted deflection approaches 5%, the effect of native soil must be quantified using Leonhardt's Zeta factor. If the ratio of bedding modulus to soil modulus is not equal to 1.0, a zeta factor must be calculated by using the equations below, where zeta is a factor, which corrects for the effect of in-situ soil on pipe stability. The zeta factor will be useful in solving for the maximum allowable deflection in the installed pipes. The following formulas are used to calculate zeta in the proposed sewage collection system:

$$zeta = \frac{1.44}{f + (1.44 - f) * \left(\frac{Eb}{E'n}\right)} \quad \text{Equation 12}$$

$$f = \frac{\frac{b}{Do} - 1}{1.154 + 0.444 * \left(\frac{b}{Do} - 1\right)} \quad \text{Equation 13}$$

Where:

- zeta = Leonhardt's Zeta factor
- f = Pipe/trench width coefficient
- E_b = Modulus of soil reaction for the bedding material (psi)
- E'_n = Modulus of soil reaction for the in-situ soil (psi)
- b = Trench width (in)
- D_o = Outside pipe diameter (in)

All of the necessary values to solve for Leonhardt's Zeta factor can be found above. Using these values, Leonhardt's zeta factor can be found using Equations 12-13.

$$f = \frac{\frac{46}{8.625} - 1}{1.154 + 0.444 * \left(\frac{46}{8.625} - 1\right)} = 1.41$$

$$zeta = \frac{1.44}{1.41 + (1.44 - 1.41) * \left(\frac{400}{3,000}\right)} = 1.01$$

The Leonhardt's Zeta factor for a 8" PVC SDR-26 pipe in a 46" trench is 1.01.

Deflection

ASTM D3034 recommends that a 7.5% deflection limit provides a conservative factor of safety against structural failure. However, according to 30 TAC 217.57(b)(5), the deflection of a sewage collection system pipe must not exceed 5% as determined by the deflection analysis and verified by a mandrel test. The following formulas are used to calculate the predicted vertical deflection under load.

$$\frac{\Delta Y}{D} (\%) = \frac{K * (Lp + L1) * 100}{(0.149 * P1) + (0.061 * zeta * Eb)} \quad \text{Equation 14}$$

$$Lp = \frac{\gamma_s * H}{144} \quad \text{Equation 15}$$

Where:

- $\frac{\Delta Y}{D}$ = Predicted % vertical deflection under load
- ΔY = Change in vertical pipe diameter under load (in)
- D = Undeformed mean pipe diameter (in)
- K = Bedding angle constant
- Lp = Prism load (psi)
- L1 = Live load (lbs)
- P1 = Pipe stiffness (psi)
- zeta = Leonhardt's Zeta factor
- E_b = Modulus of soil reaction for the bedding material (psi)
- γ_s = Specific weight of soil (lb/cubic foot)
- H = Depth of burial from ground surface to crown of pipe (ft)

Per Table 7.2 from the "Uni-Bell Handbook of PVC Pipe," the Bedding Constant is 0.096 when the bedding angle is 90 degrees. The predicted vertical deflection under load can be found using this value, the values found in the previous sections, and equations 14-15.

$$Lp = \frac{143 * 15}{144} = 14.9$$

$$\frac{\Delta Y}{D} (\%) = \frac{0.096 * (14.9 + 0) * 100}{(0.149 * 115) + (0.061 * 1.01 * 400)} = 3.42\%$$

The predicted deflection in PVC pipes in the proposed sewage collection system is 3.42%, which is less than the maximum 5% per 30 TAC 217.57(b)(5).

Pipe Material	Pipe Stiffness (Ps)	Leonhardt's Zeta Factor	% Deflection
8" PVC SDR-26	115 PSI	1.01	3.42%

Strain

The conditions of the proposed sewage collection system are such that strain-related failure will not be a problem. Strain is generally not a performance-limiting factor for buried PVC pipe or a design-limiting criterion for PVC pipes according to Chapter VII of "The Uni-Bell Handbook of PVC Pipe." As pipe deflection will be below 5%, strain-related failure is not anticipated.



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203 E. Main Street, Suite 204
Round Rock, Texas 78664
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TBPE FIRM #F-19351

Attachment 5B – Justification and Calculations for Deviation in Straight Alignment without Manholes

No Deviation for changes in wastewater main alignment without manholes is being proposed for this project.

This section is not applicable to this project.



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Attachment 5C – Justification for Variance from Maximum Manhole Spacing

No Variance from the maximum manhole spacing of 500 feet for 8" wastewater main is being proposed for this project.

This section is not applicable to this project.



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Attachment 5D – Calculations for Slopes for Flows Greater than 10.0 Feet per Second

No wastewater mains generating flows greater than 10 feet per second are being proposed for this project.

This section is not applicable to this project.

Temporary Stormwater Section (TCEQ-0602)

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.

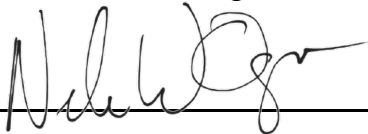
Signature

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: Nelson W. Ogren

Date: 11/15/2023

Signature of Customer/Agent:



Regulated Entity Name: Round Rock Sports Center

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: Onion Branch

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.



Attachment 6A – Spill Response Actions

No spills of hydrocarbons or hazardous substances are expected. However, in the event such an incidence does occur, the contractor should carefully follow the following TCEQ guidelines:

Cleanup:

1. Clean up leaks and spills immediately.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly.

Minor Spills:

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2. Use absorbent materials on small spills rather than hosing down or burying the spill.
3. Absorbent materials should be promptly removed and disposed of properly.
4. Follow the practice below for a minor spill:
 - a. Contain the spread of the spill.
 - b. Recover spilled materials.
 - c. Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills:

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. Spills should be cleaned up immediately:

1. Contain spread of the spill.
2. Notify the project foreman immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using “dry” methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills:

From any event, the Reportable Quantity (RQ) = for high toxic materials the RQ>25 gallons. For petroleum/hydrocarbon liquids, spills the RQ>250 gallons (on land) or that which creates “a sheen” on water. Only certified Hazmat teams will be responsible for handling the material at the site.

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor’s responsibility to have all emergency phone numbers at the construction site. Additionally, in the event of a hazardous material spill, local Williamson county and/or city of Georgetown police, fire and potentially EMS should be contacted in order to initiate the hazardous material response team.
2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
3. Notifications should first be made by telephone and followed up with a written report of which one copy is to be kept onsite in the report binder and one copy provided to the TCEQ.
4. The services of a spill contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5. Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at:

<http://www.tceq.state.tx.us/response/spills.html>



Attachment 6B – Potential Sources of Contamination

No particular activity or process during construction is anticipated to present a significant risk of being a potential source of contamination. However, during regular construction operations, several common and minor risks of contamination are anticipated. Should the unforeseeable mishap occur during construction or regular operation of the facility, the contractor shall follow the guidelines set forth in “Attachment 6A – Spill Response Actions.”

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing
- Grading and excavation
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Area – small fueling, minor equipment maintenance, sanitary facilities.
- Materials Storage Area – solvents, adhesives, paving materials, aggregates, trash, etc.
- Construction Activities – paving, concrete pouring
- Concrete Washout Area

Potential Onsite Pollutants:

- Fertilizer
- Concrete
- Glue, adhesives
- Gasoline, diesel fuel, hydraulic fluids, antifreeze
- Sanitary toilets



Attachment 6C – Sequence of Major Activities

1. Temporary erosion and sedimentation controls are to be installed as indicated on the approved site plan and in accordance with the stormwater pollution prevention plan (SWPPP) that is required to be posted on the site. Install tree protection and initiate tree mitigation measures.

The environmental project manager, and/or site supervisor, and/or designated responsible party, and the general contractor will follow the storm water pollution prevention plan (SWPPP) posted on the site. Temporary erosion and sedimentation controls will be revised, if needed, to comply with city inspectors' directives, and revised construction schedule relative to the water quality plan requirements and the erosion and sedimentation control plan.

Temporary erosion and sedimentation controls will be inspected and maintained in accordance with the stormwater pollution plan (SWPPP) posted on the site.

2. Schedule an on-site pre-construction meeting with jurisdictional agencies, site engineer, contractor, and sub-contractors.
3. Clear, grade, sawcut existing curb, and install site construction entrance.
 - a. Approximately 5.0 acres will be disturbed during this activity.
4. Site clearing, grubbing and demolition activities.
 - a. Approximately 5.0 acres will be disturbed during this activity.
5. Rough grading of detention pond.
 - a. Approximately 0.2 acres will be disturbed during this activity.
 - b. Install dewatering pipes and temporary detention pond skimmers.
6. Rough grade building pad.
 - a. Approximately 0.6 acres will be disturbed during this activity.
7. Install underground wastewater, water, stormwater, dry utilities, and Storm Trooper storm water interceptors.
8. Complete stormwater pond grading, install overflow structures, and vegetate.
9. Finish grade access aisles, parking, and truck docks.
10. Perform lime stabilization of subgrade, if necessary.
11. Place concrete paving section for access aisles, parking, and truck docks.
12. Complete construction and begin re-vegetation of the site.
13. Upon completion of the site construction and re-vegetation of a project site, the design engineer shall submit an engineer's letter of concurrence to the City of Georgetown indicating that construction, including re-vegetation, is complete and in substantial conformity with the approved plans. After receiving this letter, a final inspection will be scheduled by the appropriate city inspector.
14. After construction is complete and all disturbed areas have been re-vegetated per plan to at least 90% established, remove the temporary erosion and sedimentation controls and complete any necessary final re-vegetation resulting from removal of the controls.
15. Conduct any maintenance and rehabilitation that is needed.



Attachment 6D – Temporary Best Management Practices and Measures

Prior to the commencement of any construction activity whatsoever, the contractor shall install the silt fencing per the Erosion and Sedimentation Control Plan. The silt fencing shall be installed per TCEQ and local requirements. The proposed temporary BMP are intended to control increased TSS from construction activities in the following manner:

- A.) The proposed development receives stormwater runoff from the existing properties to the south and east. The off-site stormwater runoff is addressed in the stormwater routing calculations and is by-passed through the site. The off-site stormwater runoff is not included in the calculations for water quality.
- B.) The temporary BMPs proposed during construction activities will prevent sediment-laden runoff from pollutant sources listed in 'Attachment 6B – Potential Sources of Contamination' from leaving the proposed site. The primary method of controlling sediment-laden stormwater runoff is through silt fencing. The silt fencing will be placed per plan along the downslope edges of the project area.
- C.) With the temporary silt fences in place, no stormwater runoff will enter any surface streams or sensitive features.
- D.) The proposed project seeks to honor the natural drainage patterns that currently exist in the proposed project area. There are no known sensitive geologic features on the site. After construction is completed, the site will maintain its current drainage patterns with the stormwater runoff draining to the south and north of the site.



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 6E – Request to Temporarily Seal a Feature

No temporary sealing of naturally occurring sensitive features on the site are proposed.

This section is not applicable to this project.



Attachment 6F – Structural Practices

The following temporary BMP structural practices will be employed on the site:

1. Silt Fence – used as barrier protection around the downslope perimeter of the project. The fence retains sediment primarily by retarding flow and promoting deposition on the uphill side of the slope. Runoff is filtered as it passes through the geotextile fabric.
2. Inlet Protection – used to prevent sediment from entering the storm drain system.
3. Tree Protection – used to preserve trees and prevent any damage from general construction activities.
4. Concrete Washout Area – used to prevent or reduce the discharge of pollutants to stormwater from concrete waste. The concrete washout area is a designated area to wash out wastes into the temporary pit where the concrete can set, be broken up, and the disposed of properly.
5. Stabilized Construction Entrance – used to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. The stabilized construction entrance is a stabilized pad of crushed stone and should be located at any point traffic will be entering or leaving the construction site from a public right-of-way.
6. Contractor Staging Area – used as an area for the contractor to store and prepare equipment and materials before using them during the construction phase.



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Attachment 6G – Drainage Area Maps

See attached for the Existing and Proposed Drainage Area Maps.

Williamson County NOAA Atlas 14 Rainfall Zones - Brushy Creek						
Precipitation Depths (inches) per Recurrence Interval						
EVENT	2-YR	10-YR	25-YR	50-YR	100-YR	
24-HR	3.99"	6.44"	8.26"	9.83"	11.6"	

Precipitation Data taken from NOAA Atlas 14 website
Address: 2400 Chisholm Trail Rd, Round Rock, TX

EXISTING CONDITIONS DRAINAGE BASIN INFORMATION								
BASIN	SF	AC	SQ MI	SF	%	SCS CURVE	TIME OF CONCENTRATION (MIN)	LAG (MIN)
1	51400.80	1.18	0.0018438	45,181.00	88%	95.82	19.9	12.0
2	37461.60	0.86	0.0013438	22439	60%	90.78	8.47	5.1
3	43124.40	0.99	0.0015469	35621	83%	94.87	9.42	5.7
4	48351.60	1.11	0.0017344	16074	33%	85.98	8.81	5.3
5	175111.20	4.02	0.0062813	109989	63%	91.31	8.3	5.0
6	33976.80	0.78	0.0012188	33977	100%	98.00	5	3.0
7	56628.00	1.30	0.0020313	56612	100%	97.99	5	3.0
8	87991.20	2.02	0.0031563	87118	99%	97.82	5	3.0
9	161244.70	3.70	0.0057839	4613.4	3%	80.52	14.88	8.9
10	231233.57	5.31	0.0082944	0	0%	80.00	19.23	11.5
11	237093.86	5.44	0.0085046	35691.3	15%	82.71	23.3	14.0

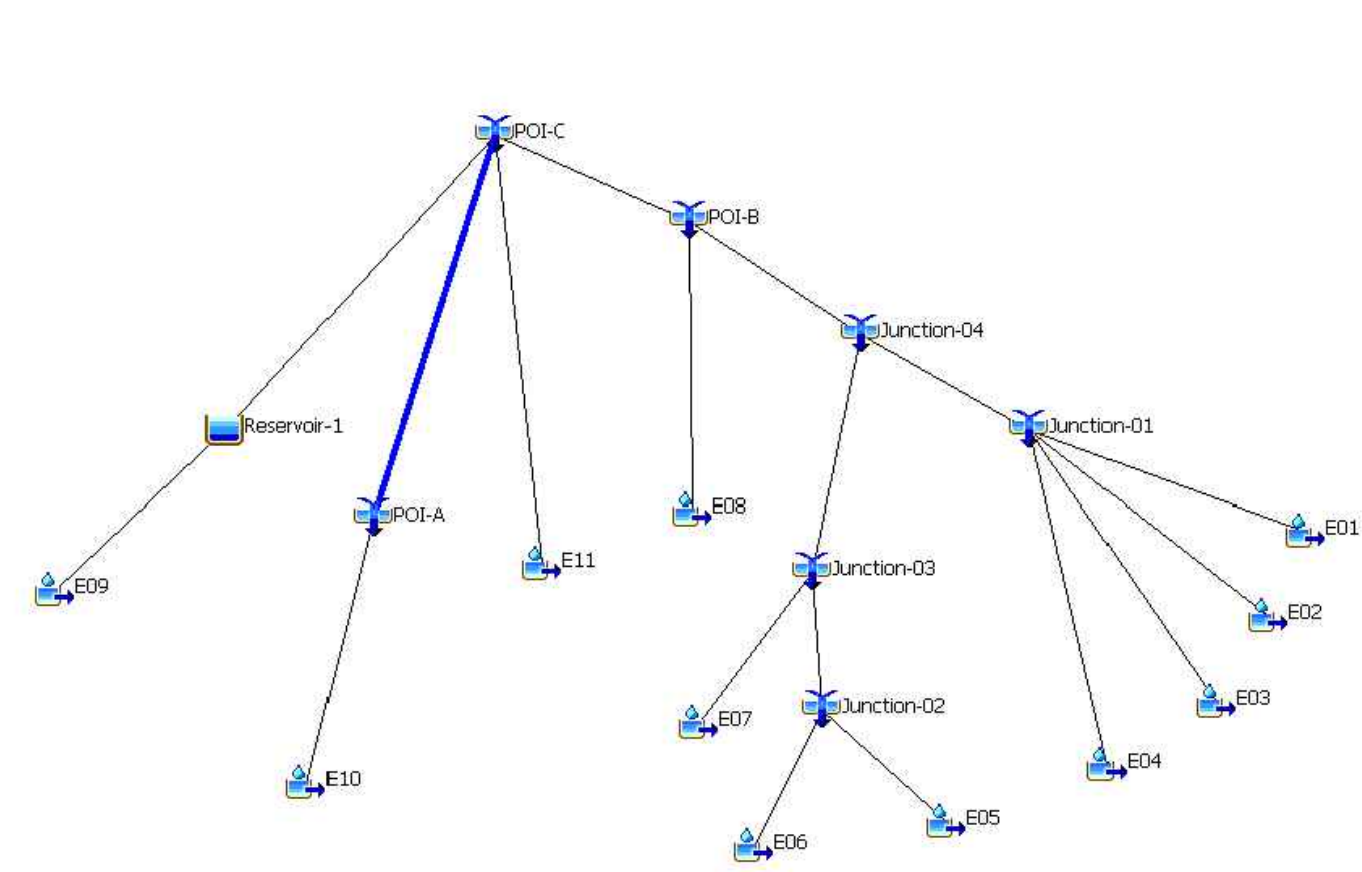
INTERNAL DRAINAGE CALCULATIONS

Area	Acres	Tc (min)	I25 (in/hr)	I100 (in/hr)	C25	C100	Q25 (cfs)	Q100 (cfs)
1	1.18	19.92	6.71	8.45	0.80	0.89	6.3	8.9
2	0.86	8.47	9.97	12.56	0.67	0.75	5.7	8.1
3	0.99	9.42	9.56	12.05	0.78	0.86	7.4	10.3
4	1.11	8.81	9.82	12.37	0.55	0.62	6.0	8.5
5	4.02	8.3	10.05	12.66	0.69	0.77	27.9	39.2
6	0.78	5	11.89	15.01	0.86	0.95	8.0	11.1
7	1.30	5	11.89	15.01	0.86	0.95	13.3	18.5
8	2.02	5	11.89	15.01	0.86	0.95	20.7	28.8
9	6.26	14.81	7.81	9.84	0.45	0.52	22.0	32.0
10	6.42	23.6	6.11	7.70	0.39	0.46	15.3	22.7
11	1.73	23.3	6.15	7.76	0.39	0.46	4.1	6.2

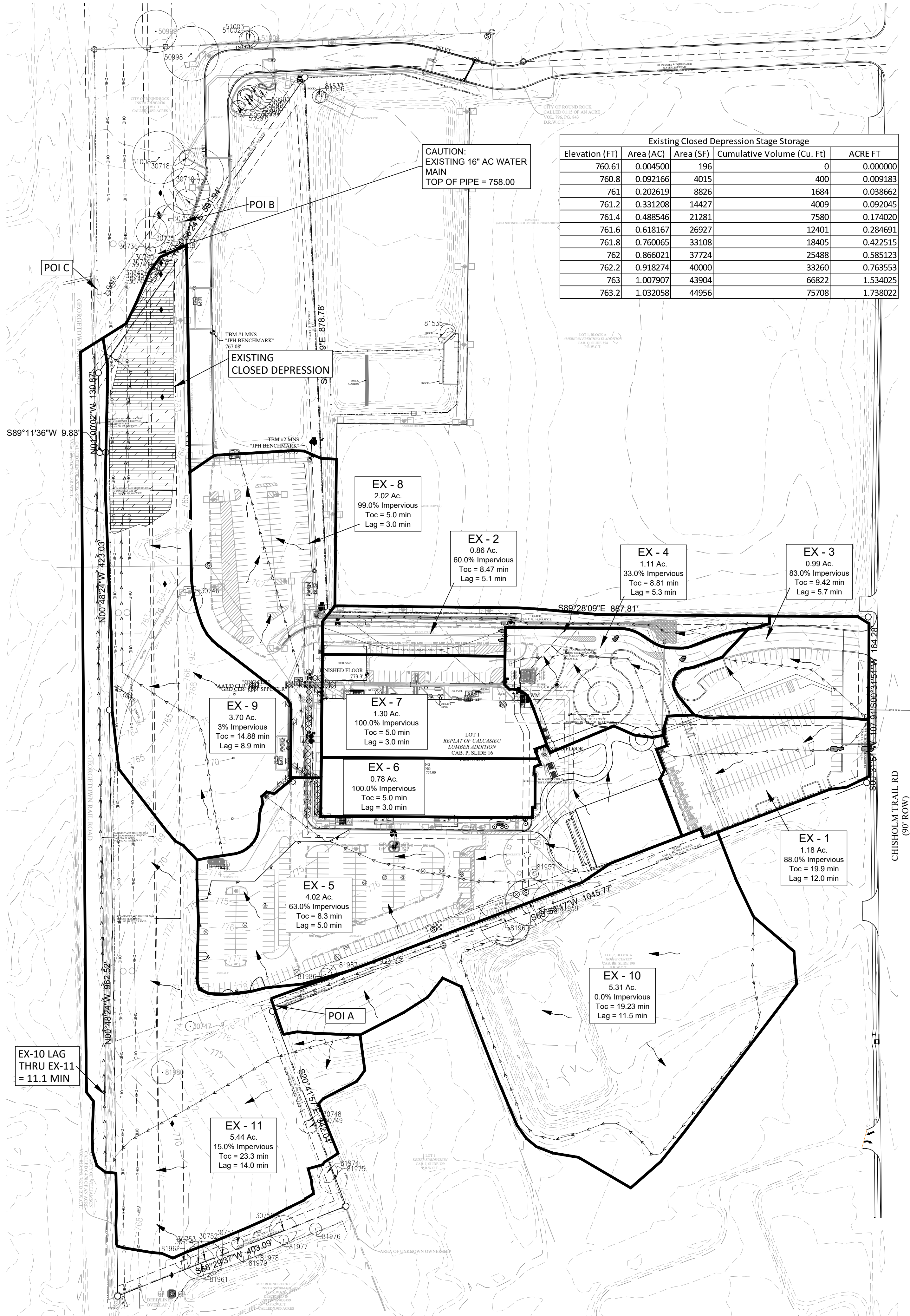
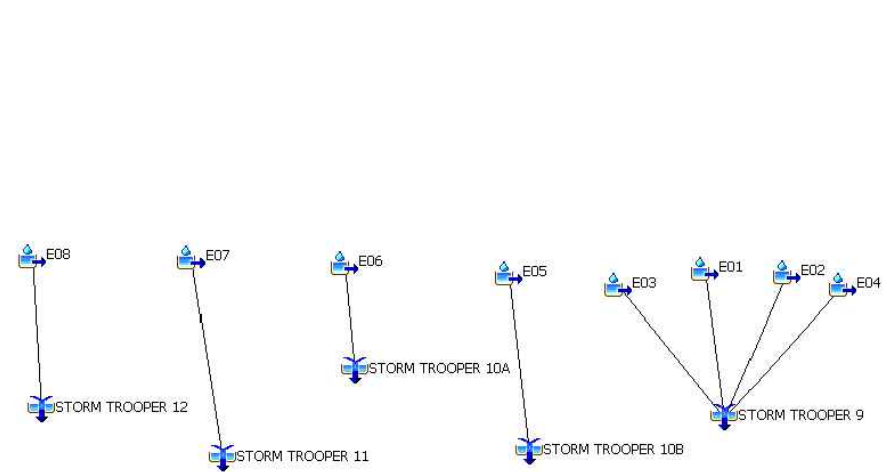
EXISTING CONDITIONS DRAINAGE CALCULATIONS (CFS)

BASIN	2-YR	10-YR	25-YR	100-YR
E01	1.9	2.9	3.6	4.8
E02	1.5	2.4	3	4.1
E03	1.9	2.9	3.6	4.9
E04	1.6	2.8	3.7	5.1
E05	7	11.2	14.2	19.3
E06	1.6	2.4	3	3.9
E07	2.7	4	4.9	6.5
E08	4.2	6.2	7.7	10.1
E09	4.1	7.9	10.6	15.3
E10	5.3	10.2	13.7	19.7
E11	5.6	10.2	13.5	19.3
Junction-01	6.9	11	13.9	18.9
Junction-02	8.6	13.6	17.1	23.2
Junction-03	11.3	17.7	22.1	29.7
Junction-04	18.2	28.7	36	48.6
POI-A	5.3	10.2	13.7	19.7
POI-B	22.4	34.9	43.7	58.7
POI-C	33.9	56.6	72.6	100.2

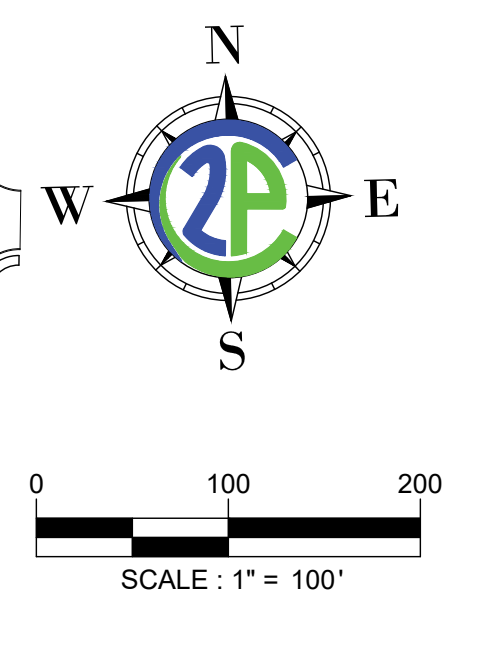
EXISTING HEC-HMS SCHEMATIC



EXISTING STORM TROOPER SCHEMATIC



Existing Closed Depression Stage Storage				
Elevation (FT)	Area (AC)	Area (SF)	Cumulative Volume (Cu. Ft)	ACRE FT
760.61	0.004500	196	0	0.000000
760.8	0.092166	4015	400	0.009183
761	0.202619	8826	1684	0.038662
761.2	0.331208	14427	4009	0.092045
761.4	0.488546	21281	7580	0.174020
761.6	0.618167	26927	12401	0.284691
761.8	0.760065	33108	18405	0.422515
762	0.866021	37724	25488	0.585123
762.2	0.918274	40000	33260	0.763553
763	1.007907	43904	66822	1.534025
763.2	1.032058	44956	75708	1.738022



- GENERAL LEGEND**
- SYMBOLS**
 - WATER METER
 - WATER VALVE
 - FIRE HYDRANT
 - BACKFLOW PREVENTER
 - UTILITY POLE
 - LIGHT POLE
 - WASTEWATER MANHOLE
 - CLEAN OUT
 - KEYNOTES
 - PARKING COUNT
 - WW SERVICE
 - WATER SERVICE
 - STORMSEWER MANHOLE
 - SKIN
 - CURB INLET
 - GRATE INLET
 - TABLE TOP AREA INLET
 - TREE TO BE SAVED
 - TREE TO BE REMOVED
- LINETYPES**
 - PROPERTY BOUNDARY
 - LIMITS OF CONSTRUCTION
 - FENCES (CHAINLINK)
 - (IRON) (WOOD)
 - (BARB WIRE)
 - DITCH (CREEK) LINE
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - CURB & GUTTER
 - UNDERGROUND ELEC.
 - OVERHEAD UTILITY
 - UNDERGROUND TELE.
 - UNDERGROUND GAS LINE
 - WATER LINE
 - WASTEWATER LINE
 - ACCESSIBLE ROUTE
- DRAINAGE STUDY LEGEND**
 - DRAINAGE BOUNDARY LINE
 - DRAINAGE BOUNDARY LABEL
 - DRAINAGE AREA (ACRES)
 - INLET NUMBER
 - FLOW ARROW
 - TIME OF CONCENTRATION LINE
 - EXISTING 100-YR FLOOD PLAIN LINE
 - PROPOSED 100-YR FLOOD PLAIN LINE
 - LOW POINT (LP)
 - HIGH POINT (HP)



Know what's below. Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

Marmon Mok ARCHITECTURE
San Antonio, TX • 1020 NE Loop 410, Suite 201, 78209
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ENGINEERING CONSULTING

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GO ROUND ROCK SPORTS CAPITAL OF TEXAS

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Drawn DELFINO
Checked CHECKED BY
Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
EXISTING CONDITIONS DRAINAGE AREA MAP

SHEET NO.
C301

SDP-23-00041

11/15/2023 2:44:14 PM
8:49:22 AM
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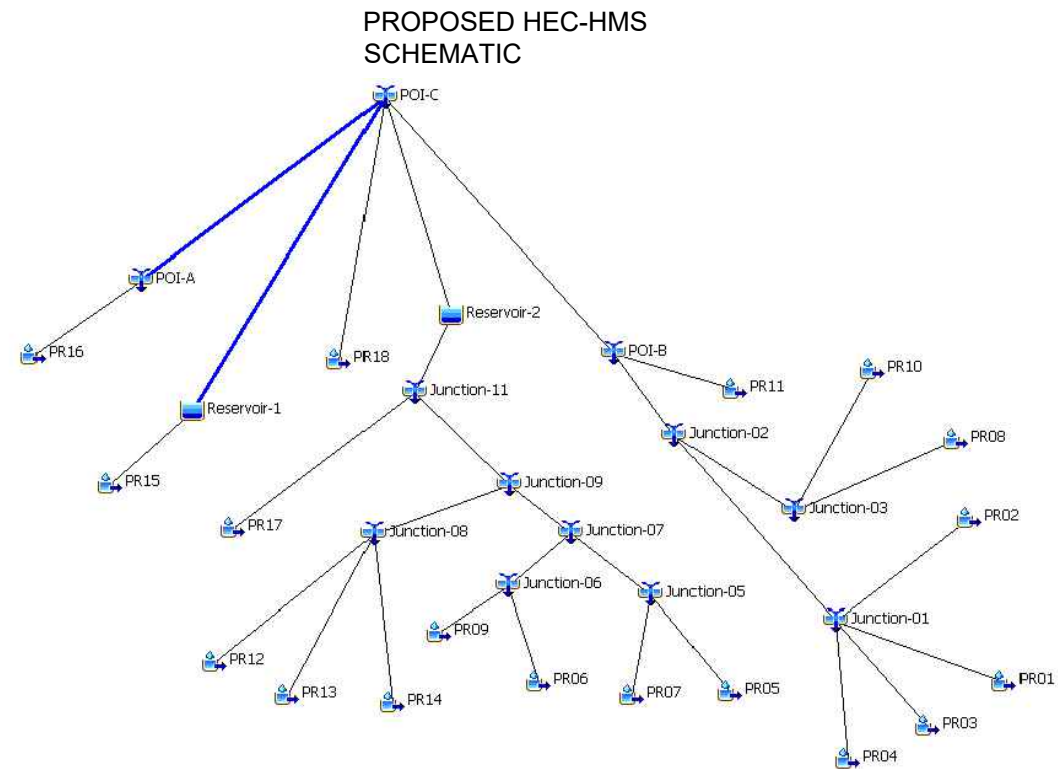
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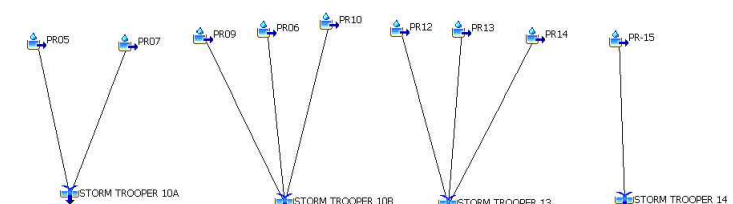
DEVELOPED CONDITIONS DRAINAGE BASIN INFORMATION							
BASIN	SF	AREA	SQMI	IMPERVIOUS COVER	SCS CURVE	TIME OF CONCENTRATION (MIN)	LAG (MIN)
1	51,400.80	1.18	0.0018438	45,181.00	88%	95.82	19.9
2	37461.6	0.86	0.0013438	22439	60%	90.78	8.47
3	43124.4	0.99	0.0015469	35621	83%	94.87	9.42
4	48351.6	1.11	0.0017344	16074	33%	85.98	8.81
5	138520.8	3.18	0.0049688	101120	73%	93.14	6.78
6	30927.6	0.71	0.0011094	28453	92%	96.56	5
7	41382	0.95	0.0014844	41382	100%	98.00	5
8	63162	1.45	0.0022656	63162	100%	98.00	5
9	8712	0.20	0.0003125	8700	100%	97.98	5
10	6534	0.15	0.0002344	6534	100%	98.00	5
11	81457.2	1.87	0.0029219	69110	85%	95.27	5
12	10454.4	0.24	0.0003750	7645	73%	93.16	5
13	6534	0.15	0.0002344	4772	73%	93.15	5
14	7405.2	0.17	0.0002656	5410	73%	93.15	5
15	88812.56	2.04	0.0031857	69969.5	79%	94.18	6.71
16	232595.4	5.34	0.0083432	0	0%	80.00	23.92
17	119242.5	2.74	0.0042772	3428.07	3%	80.52	15.27
18	152857.81	3.51	0.0054830	37128.15	24%	84.37	24.28

INTERNAL DRAINAGE CALCULATIONS								
Area	Acres	Tc (min)	I25 (in/hr)	I100 (in/hr)	C25	C100	Q25 (cfs)	Q100 (cfs)
1	1.18	19.92	6.71	8.45	0.80	0.89	6.3	8.9
2	0.86	8.47	9.97	12.56	0.67	0.75	5.7	8.1
3	0.99	9.42	9.56	12.05	0.78	0.86	7.4	10.3
4	1.11	8.81	9.82	12.37	0.55	0.62	6.0	8.5
5	3.18	6.78	10.81	13.63	0.73	0.82	25.1	35.5
6	0.71	5	11.89	15.01	0.82	0.91	6.9	9.7
7	0.95	5	11.89	15.01	0.86	0.95	9.7	13.5
8	1.45	5	11.89	15.01	0.86	0.95	14.8	20.7
9	0.20	5	11.89	15.01	0.86	0.95	2.0	2.9
10	0.15	5	11.89	15.01	0.86	0.95	1.5	2.1
11	1.87	5	11.89	15.01	0.79	0.88	17.6	24.7
12	0.24	5	11.89	15.01	0.73	0.82	2.1	3.0
13	0.15	5	11.89	15.01	0.73	0.82	1.3	1.8
14	0.17	5	11.89	15.01	0.73	0.82	1.5	2.1
15	2.04	6.71	10.85	13.68	0.77	0.86	17.0	24.0
16	6.35	23.92	6.06	7.64	0.39	0.46	15.0	22.3
17	5.14	15.27	7.70	9.69	0.46	0.54	18.2	26.9

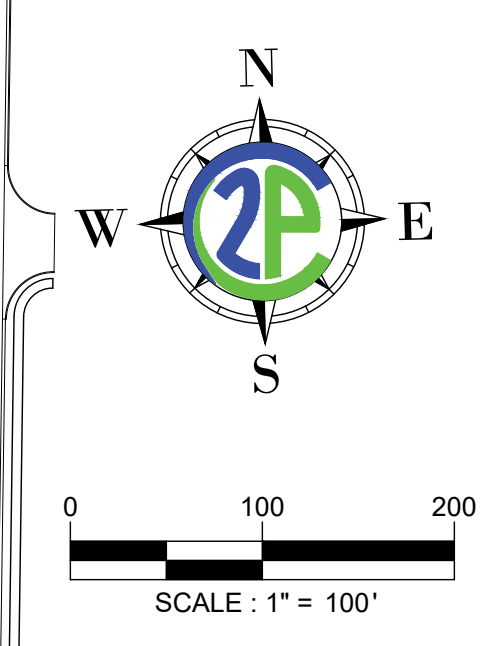
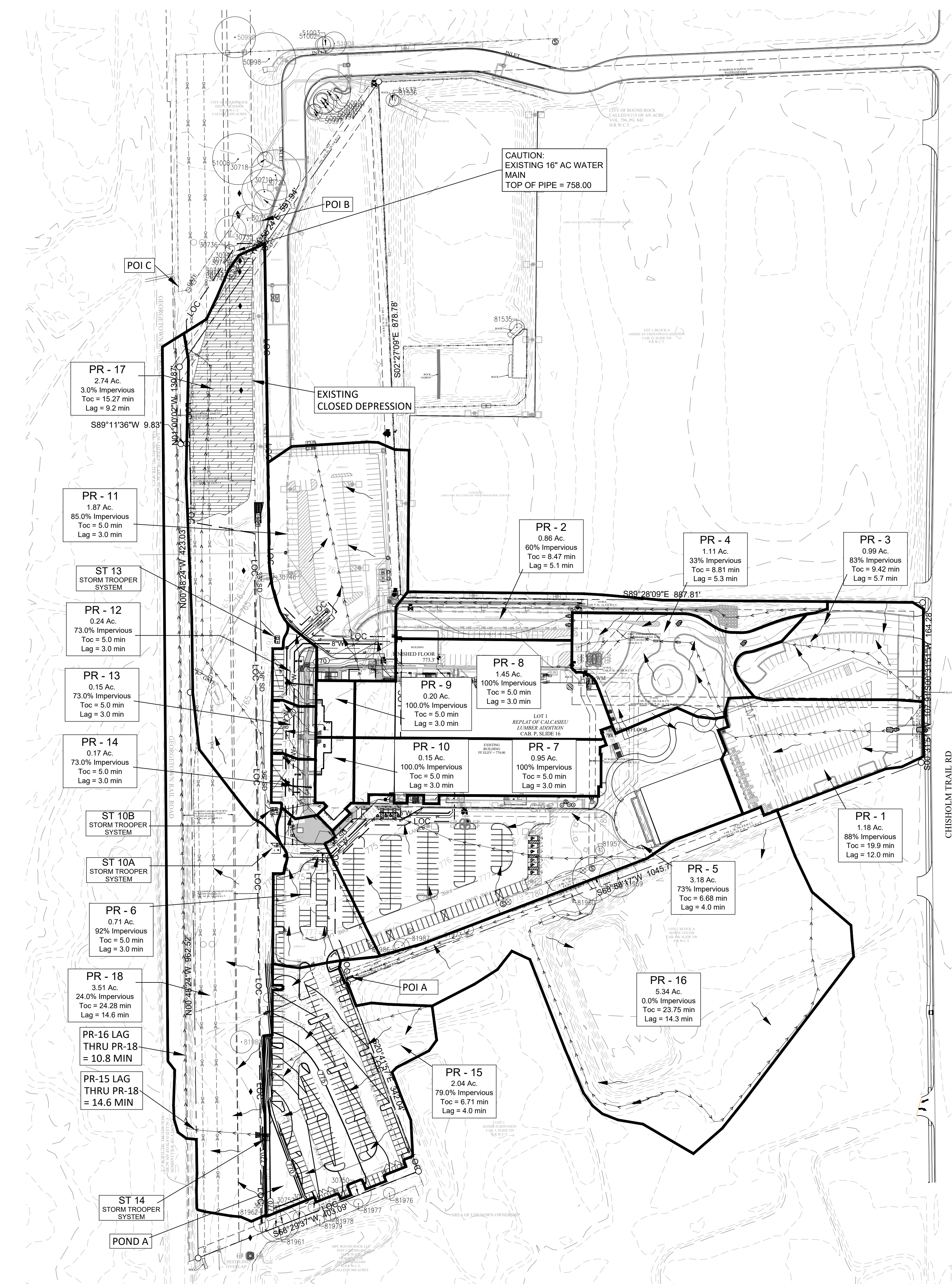
PROPOSED CONDITIONS DRAINAGE CALCULATIONS (CFS)				
BASIN	2-YR	10-YR	25-YR	100-YR
Junction-01	6.9	11	13.9	18.9
Junction-02	10.2	16	20	26.9
Junction-03	3.3	5	6.1	8
Junction-05	7.8	12.1	15.1	20.2
Junction-06	1.8	2.8	3.4	4.5
Junction-07	9.7	14.8	18.5	24.7
Junction-08	1	1.6	2	2.7
Junction-09	10.7	16.5	20.5	27.5
Junction-11	13.7	22.2	28.2	38.6
PR01	1.9	2.9	3.6	4.8
PR02	1.5	2.4	3	4.1
PR03	1.9	2.9	3.6	4.9
PR04	1.6	2.8	3.7	5.1
PR05	5.8	9.1	11.5	15.4
PR06	1.4	2.2	2.7	3.5
PR07	2	2.9	3.6	4.8
PR08	3	4.5	5.5	7.3
PR09	0.4	0.6	0.8	1
PR10	0.3	0.5	0.6	0.8
PR11	3.6	5.6	6.9	9.2
PR12	0.4	0.7	0.9	1.2
PR13	0.3	0.4	0.5	0.7
PR14	0.3	0.5	0.6	0.8
PR15	3.9	6	7.4	10
PR16	4.9	9.4	12.7	18.3
PR17	3	5.7	7.7	11.1
PR18	3.7	6.7	8.8	12.4
POI-A	4.9	9.4	12.7	18.3
POI-B	13.9	21.5	26.9	36.1
POI-C	29	47.6	60.9	92.7



PROPOSED STORM TROOPER SCHEMATIC



11/15/2023 2:44:27 PM
9:10:22 AM
File Path: N:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CADD\Sheets\Site Development Plans\Proposed Conditions Drainage Area Map.dwg



GENERAL LEGEND	
SYMBOLS	
WATER METER	WATER SERVICE
WATER VALVE	WATER SERVICE
FIRE HYDRANT	STORMSEWER MANHOLE
BACKFLOW PREVENTER	SIGN
UTILITY POLE	CURB INLET
LIGHT POLE	GRATE INLET
WASTEWATER MANHOLE	TABLE TOP AREA INLET
CLEAN OUT	TREE TO BE SAVED
KEYNOTES	TREE TO BE REMOVED
PARKING COUNT	

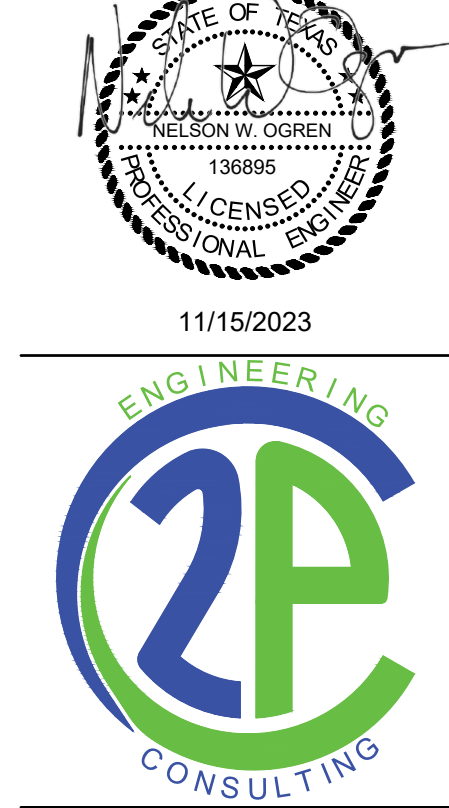
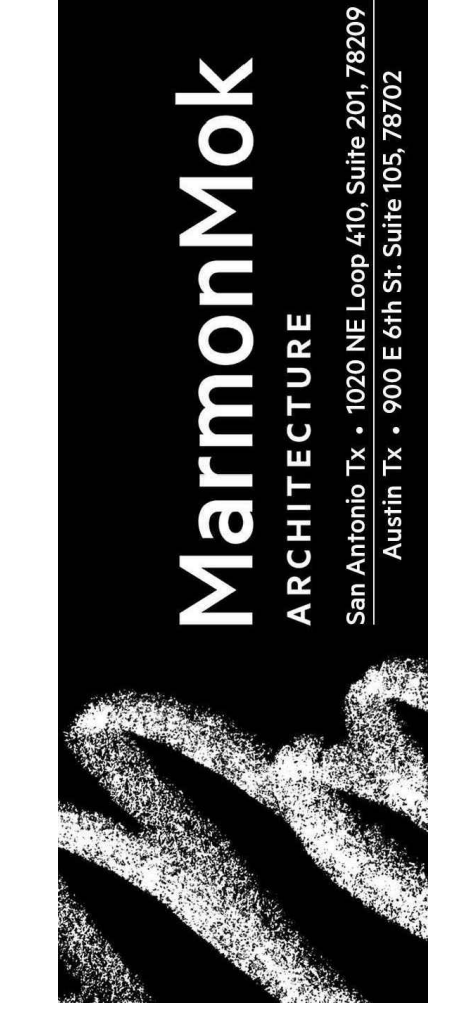
DRAINAGE STUDY LEGEND	
---	DRAINAGE BOUNDARY LINE
---	DRAINAGE BOUNDARY LABEL DRAINAGE AREA (ACRES)
NO	INLET NUMBER
→	FLOW ARROW
---	TIME OF CONCENTRATION LINE
---	EXISTING 100-YR FLOOD PLAIN LINE
---	PROPOSED 100-YR FLOOD PLAIN LINE
LP	LOW POINT
HP	HIGH POINT

DEVELOPED VS EXISTING CONDITIONS DRAINAGE CALCULATIONS (CFS)				
	2-YR	10-YR	25-YR	100-YR
POI A	-0.4	-0.8	-1	-1.4
POI B	-8.5	-13.4	-16.8	-22.6
POI C	-4.9	-9	-11.7	-7.5



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



ROUND ROCK SPORTS CENTER EXPANSION
2400 CHISHOLM TRAIL RD, ROUND ROCK, TX 78681



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Drawn DELFINO
Checked CHECKED BY
Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
PROPOSED CONDITIONS DRAINAGE AREA MAP

SHEET NO.
C302

SDP-23-00041



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 6H – Temporary Sediment Pond(s) Plan and Calculations

No temporary sediment pond is being proposed for this project.

This section is not applicable to this project.



Attachment 6I – Inspection and Maintenance for BMPs

The inspection and maintenance of temporary BMP's will be made according to TCEQ RG-348, Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices.

Inspection Personnel:

Inspections shall be conducted by qualified representatives of the contractor acting on behalf of the owner or a designated party if hired separately by the owner. Each operator must delegate authority to the specifically described position or person performing inspections, as provided by 30 TAC 305.128, as an authorized person for signing reports and performing certain activities requested by the director or required by the TPDES general permit. This delegation of authority must be provided to the director of TCEQ in writing and a copy shall be kept along with the signed effective copy of the SWP3.

Inspection Schedule and Procedures - Inspections must comply with the following:

- A.) An inspection shall occur weekly and after any rain event. This inspection should include an inspection of the temporary concrete washout area.
- B.) The authorized party shall inspect all disturbed areas of the site, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site.
- C.) Disturbed areas and areas used for storage of materials that are exposed to precipitation or within limits of the 1% annual chance (100 year) floodplain must be inspected for evidence of, or the potential for, pollutants entering the runoff from the site. Erosion and sediment control measures identified in the plan must be observed to ensure that they are operating correctly. Observations can be made during wet or dry weather conditions. Where discharge locations or points are accessible, they must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. This can be done by inspecting receiving waters to see whether any signs or erosion or sediment are associated with the discharge location. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
- D.) Based on the results of the inspection, the site description and the pollution prevention measures identified in the plan must be revised as soon as possible after an inspection that reveals inadequacies. The inspection and plan review process must provide for timely implementation of any changes to the plan with 7 calendar days following the inspection.
- E.) An inspection report that summarizes the scope of the inspection, name(s) and qualifications of personnel conducting the inspection, the dates of the inspection, major observations relating to the implementation of the SWP3. Major observations shall include as a minimum location of discharges of sediment or other pollutants from the site, location of BMPs that need to be maintained, location of BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where BMPs are needed. Actions taken as a result of the inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and the TPDES general permit. The report must be signed by the authorized representative delegated by the operators in accordance with TAC 305.128.

Maintenance and Corrective Actions - Maintenance of erosion control facilities shall consist of the minimum requirements as follows:

- A.) In ongoing construction areas inspect erosion control improvements to confirm facilities are in place and operable. Where facilities have been temporarily set aside or damaged due to construction activity, place facilities in service before leaving job site.
- B.) If weather forecast predicts possibility of rain, check entire facilities throughout site to assure facilities are in place and operable. If job site weather conditions indicate high probability of rain, make special inspection of erosion control facilities.
- C.) After rainfall events review erosion control facilities as soon as site is accessible. Clean rock berms, berm/swales and other structural facilities. Determine where additional facilities or alternative techniques are needed to control sediment leaving site.
- D.) After portions of site have been seeded, review these areas on regular basis in accordance with project specifications to assure proper watering until grass is established. Reseed areas where grass is not well established.
- E.) Spills are to be handled as specified by the manufacturer of the product in a timely safe manner by personnel. The site superintendent will be responsible for coordinating spill prevention and cleanup operations.
- F.) Concrete trucks will discharge extra concrete or wash out drum only at an approved location on site. Residual product shall be properly disposed of.
- G.) Inspect vehicle entrance and exits for evidence of off-site tracking and correct as needed.
- H.) If sediment escapes the site, the contractor where feasible and where access is available shall collect and remove sedimentation material by appropriate non-damaging methods. Additionally, the contractor shall correct the condition causing discharges.
- I.) If inspections or other information sources reveal a control has been used incorrectly, or that a control is performing inadequately, the contractor must replace, correct or modify the control as soon as practical after discovery of the deficiency.

Silt Fence – Inspection and maintenance guidelines for silt fences are as follows:

- A.) Inspect all fencing weekly, and after any rainfall.
- B.) Remove sediment when buildup reaches 6 inches.
- C.) Replace any torn fabric or install a second line of fencing parallel to the torn section.
- D.) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
- E.) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Inlet Protection – Inspection and maintenance guidelines for inlet protection are as follows:

- A.) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
- B.) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
- C.) Check placement of device to prevent gaps between device and curb.
- D.) Inspect filter fabric and patch or replace if torn or missing.
- E.) Structures should be removed, and the area stabilized only after the remaining drainage area has been properly stabilized.

Stabilized Construction Entrance – Inspection and maintenance guidelines for the stabilized construction entrance are as follows:

- A.) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- B.) All sediments spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- C.) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public rights-of-way.
- D.) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- E.) All sediment should be prevented from entering any storm drain, ditch, or water course by using approved methods.

Concrete Washout Area – Inspection and maintenance guidelines for the concrete washout area are as follows:

- A.) Concrete washout areas should be located at least 50 feet from sensitive features, storm drains, open ditches, or water bodies.
- B.) Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- C.) Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
- D.) When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions, or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.



Attachment 6J – Schedule of Interim and Permanent Soil Stabilization Practices

Prior to Disturbance – Install all temporary erosion and sedimentation control features.

During Construction – Inspect and maintain all temporary erosion and sedimentation control structures per TCEQ regulations. 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.

All disturbed areas to be revegetated are required to place a minimum of six (6) inches of topsoil. Do not add topsoil within the critical root zone of existing trees. The topsoil shall be comprised of 4 parts of soil mixed with 1 part compost by volume. The compost shall meet the definition of “compost” as defined by TxDOT Specification Item 161.

The soil shall be locally available native soil that meets the following specification:

- Shall be free of trash, weeds, deleterious materials, rocks and debris,
- 100% shall pass through a 1.5 inch (38mm) screen,
- Shall be a loamy material meeting the following textural criteria:
 - Clay (5 – 50%)
 - Silt (10 – 50%)
 - Sand (15 – 67%)
- An owner/engineer may propose use of onsite salvaged topsoil which does not meet the soil texture criteria above by providing a soil analysis and a written statement from a qualified professional in soils, landscape architecture or agronomy indicating the onsite topsoil will provide an equivalent growth media and specifying what, if any, soil amendments are required.
- Soil amendments shall be worked into the existing onsite topsoil with a disc or tiller to create a well-blended material.

Temporary Vegetation Stabilization

- From September 15 to March 1, seeding shall be with cool season cover crops (wheat at 0.5 lbs/1,000sf, oats at 0.5 lbs/1,000sf, cereal rye grain at 0.5 lbs/1,000sf). Cool season cover crops are not permanent erosion control.
- From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1.0 lbs/1,000sf.
 - Fertilizer shall be applied only if warranted by a soil test. Fertilization should not occur when rainfall is expected or during slow plant growth or dormancy.
 - Temporary erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95% total coverage so that all areas of a site that rely on vegetation for temporary stabilization are uniformly vegetated and provided there are no bare spots larger than 10 square feet.
 - Hydromulch shall comply with the table below:

Material	Description	Longevity	Typical Application	Application Rate
100% or any blend of wood, cellulose, straw, and/or cotton plant material (except no mulch shall exceed 30% paper)	70% or greater Wood/Straw 30% or less Paper or Natural Fibers	0 – 3 months	Moderate slopes; from flat to 3:1	1,500 to 2,000 lbs per acre

Permanent Vegetation Stabilization

- From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetative stabilization is desired, the grasses shall be mowed to a height of less than one-half (½) inch and the area shall be re-seeded. Alternatively, the cool season cover crop can be mixed with Bermudagrass or native seed and installed together, understanding that germination of warm season seed typically requires soil temperatures of 60 to 70 degrees.
- From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 45 pounds per acre with a purity of 95% and a minimum pure live seed (PLS) of 0.83. Bermuda grass is a warm season grass and is considered permanent erosion control.
 - Fertilizer shall be applied only if warranted by a soil test. Fertilization should not occur when rainfall is expected or during slow plant growth or dormancy.
 - Water the seeded areas immediately after installation to achieve germination and a healthy stand of plants that can ultimately survive without supplemental water. Apply the water uniformly to the planted areas without causing displacement or erosion of the materials or soil. Maintain the seedbed in a moist condition favorable for plant growth.
 - Permanent erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95 percent for the non-native mix, and 95 percent coverage for the native mix so that all areas of a site that rely on vegetation for stability must be uniformly vegetated and provided there are no bare spots larger than 10 square feet.
 - Hydromulch shall comply with the table below:

Material	Description	Longevity	Typical Application	Application Rate
Bonded Fiber Matrix (BFM)	80% Organic defibrated fibers, 10% Tackifier	6 months	On slopes up to 2:1 and erosive soil conditions	2,500 to 4,000 lbs per acre (see manufacturers recommendations)
Fiber Reinforced Matrix (FRM)	65% Organic defibrated fibers 25% Reinforcing Fibers or less 10% Tackifier	Up to 12 months	On slopes up to 1:1 and erosive soil conditions	3,000 to 4,500 lbs per acre (see manufacturers recommendations)

After Completion of Permanent Erosion and Sediment Controls – Stabilize and restore all areas disturbed during construction. Permanent seeding will be applied immediately after the final design grades are achieved on portions of the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off-site for disposal. Construction debris, trash and temporary BMPs including silt fences, material storage areas, sanitary toilets, etc.) will also be removed and any areas disturbed during removal will be seeded immediately.

Permanent Stormwater Section (TCEQ-0600)

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)(li), (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.

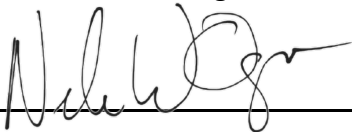
Signature

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: Nelson W. Ogren

Date: 11/15/2023

Signature of Customer/Agent



Regulated Entity Name: Round Rock Sports Center

Permanent Best Management Practices (BMPs)

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

- Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- 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



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 7A – 20% or Less Impervious Cover Waiver

The site does not have less than 20% impervious cover.

This section is not applicable to this project.



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Attachment 7B – BMPs for Upgradient Stormwater

Based on GIS topographic information, approximately 5.34 acres southeast of the property flows into a shallow channel along the southern edge of the existing sports center. This area features an existing water quality pond and an existing hotel. This area flows towards the southwestern edge of the property and will flow through a new 18" storm pipe located under the proposed parking lot at the south side of the property. This drainage area flows toward point of interest A (as defined in the attached Developed Conditions Drainage Area Map). The runoff from the existing impervious cover in this area is being treated using the existing water quality pond.

See attached Stormwater Permit plans for drainage channel designs and details.



Attachment 7C – BMPs for On-Site Stormwater

Developed conditions basin analysis is provided in Attachment 5B – Volume and Character of Stormwater of the TCEQ WPAP -MOD for the Round Rock Sports Center. The stormwater BMPs designed for this development to prevent pollution of surface water and groundwater are as follows:

Proposed grading and improvements divide the total drainage basin into 18 separate subbasins, with surface discharge from the site at the same three Points of Interest. The proposed improvements bring the total impervious cover of the property to 544,866 square feet (12.5 acres), or 55% of the entire property. The proposed additional impervious cover is 2.8 acres, or 12%.

Developed basins 1-4 are the same as existing basins 1-4 since no work is being done in these basins. Developed basin 5 and basin 6 enclose the parking area directly south of the existing sports center. Developed basin 6 encloses the parking area of the sports complex that will be demolished and renovated. Developed basins 7 and 8 are the roof basins for the existing sports complex and a portion of the new roof basins for the sports center expansions. Developed basins 9 and 10 feature the other portions of the roof basins for the sports center expansions. Developed basin 11 features the existing parking lot just north of the sports center. Developed basins 12-14 feature the new parking areas associated with the sports center expansion located just west of it. Developed basin 15 encloses the new parking lot located at the southern part of the property and a portion of the offsite area that will run off onto the proposed parking lot. Developed basin 16 features the offsite area that will now flow towards the west side of the property under the proposed parking lot at the southern part of the property. Developed basin 16 will now flow through an 18" pipe located under the parking lot. Developed basin 17 features the pervious area on the west side of the property flowing north into the existing depression. Developed basin 18 features the pervious area on the west side of the property that flows north through the shallow channel along the railroad tracks.

The runoff from developed basin 16 combines at point of interest A. The runoff from developed basins 5-7, 9, and 12-14 combines at point of interest B. The runoff from developed basins 1-4, 8, 10, 11, 15, 16, 17, and 18 combines at point of interest C.

Runoff from developed basins 1-4 will flow into an existing storm sewer system and will be treated by existing Storm Trooper-09. Runoff from developed basins 5 and 7 will flow into a proposed storm sewer system and will be treated by proposed Storm Trooper-10A. Developed basin 7 features the roof basin of the existing sports center and a portion of the roof basin for the new expansion. Developed basins 5 and 7 will flow off the roof into down spouts and then into the storm sewer system. Developed basins 6 & 10 will flow into a proposed storm sewer system and will be treated by proposed Storm Trooper-10B. Developed basin 6 features the renovated parking lot just south of the expansion. Developed basin 10 features a portion of the roof basin for the expansion. The runoff from developed basin 10 will flow off the roof into downspouts and then into the proposed storm sewer system. Developed basin 8 will flow into an existing storm sewer system and will be treated by existing Storm Trooper-11. Developed basin 8 features the roof basin of the existing sports center and the roof basin of the existing covered parking. A portion of the roof basin from the proposed expansions will also be included in developed basin 8. The runoff from developed basin 8 will flow off the roof into downspouts and then into the storm sewer system. The runoff from developed

basins 12-14 and 9 will be treated by proposed Storm Trooper-13. Developed basins 12-14 will flow into a proposed storm sewer system through area inlets. Developed basin 9 is a portion of the roof basin from the building expansion and will flow into a proposed storm sewer system through downspouts. Developed basin 11 features the existing parking just north of the expansion and will be treated using existing Storm Trooper-12. Runoff from developed basin 11 will flow into an existing storm sewer system through an area inlet. Developed basin 15 encloses the new parking lot located at the southern part of the property and a portion of the offsite area that will run off onto the proposed parking lot. Developed basin 15 will be treated using proposed Storm Trooper-14 placed in the detention pond. Runoff from developed basin 15 will flow into the pond through curb inlets. The weir of the pond is placed at an elevation so that the pond has enough volume will go through Storm Trooper-14. Storm Trooper 10A and 10B are existing and will be carefully excavated/reused. Storm Trooper 13 and 14 are both proposed. Storm Trooper 13 and 14 were sized in general accordance with TCEQ RG-348 Section 3.4.20. Storm Trooper 10A and 10B and their proposed drainage basins are also sized in general accordance with TCEQ RG-348 Section 3.4.20. The runoff from basins 16, 17 and 18 will not be treated because there is no proposed impervious cover in these areas.

A summary of the Storm Trooper Model numbers is given below.

Storm Trooper Name	Model Number
ST-09	SWAQ-110
ST-10A	SWAQ-110
ST-10B	SWAQ-25
ST-11	SWAQ-25
ST-12	SWAQ-40
ST-13	SWAQ-40
ST-14	SWAQ-110

See construction plans for exact locations of Storm Troopers.

The proposed detention pond is located at the southern area of the property boundary. This pond will be modified with a Storm Trooper storm water interceptor to provide 80% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.2.17. Beyond the treatment capacity of the pond, stormwater will generally flow over the outflow weir towards point of interest C. The weir is used to control the 2, 10, 25, 50 and 100 year storm events. The outflow weir is 2 feet long and placed at an elevation of 771.3. A 12" storm pipe is also used as an outfall structure. This pipe is connected to Storm Trooper 14 and then discharges towards point of interest C.

Staged Pond Volume tables for the pond and peak elevations for each storm event can be found below.

Pond 1 Stage Storage			
Elevation (FT)	Area (AC)	Area (SF)	Cumulative Volume (Cu. Ft)
770	0.10357736	4511.83	0
771	0.15688705	6834.00	5672.915
772	0.20066575	8741	13460.415

PEAK POND ELEVATION - Detention Pond 1					
Event	2-YR	10-YR	25-YR	50-YR	100-YR
DISCHARGE	2.5	4.4	5.8	7.0	8.4
ELEV	771.2	771.5	771.7	771.8	771.9

Outlet Assumptions:

Outlet 1 -		In Elev =	770.00
	12" PIPE	Slope =	0.0050
		Ent. Coef. =	0.7
		Exit Coef. =	1.0
		Mannings N =	0.012
Spillway 1 -	Weir	Elev =	771.3
		Length =	2
		Coef. =	3.00

Based on the attached TCEQ calculations, the proposed Storm Troopers and detention pond are sized for adequate stormwater treatment. Beyond the treatment capacity of the detention pond, stormwater will overflow the weir.



Attachment 7D – BMPs for Surface Streams

No BMPs are proposed to specifically address surface streams.

The function of the proposed onsite temporary (used during construction) and permanent BMPs is to remove TSS from stormwater runoff while retaining natural flow patterns downstream of the site. Therefore, the BMPs proposed for reducing pollutant loads in surface stream are the onsite BMPs, and are described in the previous section: “Attachment 7C – BMPs for On-site Stormwater”.



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Attachment 7E – Request to Seal Features

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 for any features on this site.

This section is not applicable to this project.



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Attachment 7F – Construction Plans

See attached Stormwater Permit plan set.

ROUND ROCK SPORTS CENTER EXPANSION SITE DEVELOPMENT IMPROVEMENTS

2400 CHISHOLM TRAIL ROAD
ROUND ROCK, TEXAS 78681
NOVEMBER 15, 2023
SDP-23-00041

PROJECT TITLE : ROUND ROCK SPORTS CENTER EXPANSION SITE DEVELOPMENT IMPROVEMENTS

PROJECT LEGAL DESCRIPTION: A 22.7-ACRE TRACT OF LAND SITUATED IN THE DAVID CURRY SURVEY, ABSTRACT NO. 130, IN WILLIAMSON COUNTY TEXAS.

PROJECT STREET ADDRESS: 2400 CHISHOLM TRAIL ROAD ROUND ROCK, TEXAS 78681

PROPERTY OWNER: CITY OF ROUND ROCK
221 EAST MAIN STREET
ROUND ROCK, TX 78664
512-218-5400

ARCHITECT: MARMON MOK
1020 NE INTERSTATE 410 LOOP
SUITE 201
SAN ANTONIO, TX 78209
210-223-9492

ENGINEER: 2P CONSULTANTS, LLC
203 E. MAIN STREET
SUITE 204
ROUND ROCK, TX 78664
512-344-9664

LANDSCAPE ARCHITECT: COLEMAN & ASSOCIATES
9890 SILVER MOUNTAIN DRIVE
AUSTIN, TX 78737
512-476-2090

SITE CALCULATIONS:

EXISTING SITE IMPERVIOUS COVER	
BOUNDARY	985,463 SQ. FT. 22.62 AC
BUILDINGS, SW, PAVEMENT	423,016 SQ. FT. 9.71 AC
EXISTING IMPERVIOUS COVER	43%
PROPOSED SITE IMPERVIOUS COVER	
PROPOSED BUILDINGS, SW, PAVMT	121,870 SQ. FT. 2.80 AC
PROPOSED TOTAL SITE IC	544,866 SQ. FT. 12.51 AC
PROPOSED IMPERVIOUS COVER	55%
AREA OF DISTURBANCE	4.50 AC

FLOODPLAIN NOTE: NO PORTION OF THIS PROJECT IS LOCATED WITHIN THE 100-YEAR FLOODPLAIN AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FIRM MAPS: 48491C0487F EFFECTIVE DATE DECEMBER 20, 2019.

AQUIFER NOTE: THIS PROJECT IS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE.

WATERSHED NOTE: THIS SITE IS LOCATED IN THE LAKE CREEK WATERSHED, THERE ARE NO KNOWN CRITICAL ENVIRONMENTAL FEATURES EVIDENT ON THIS SITE.

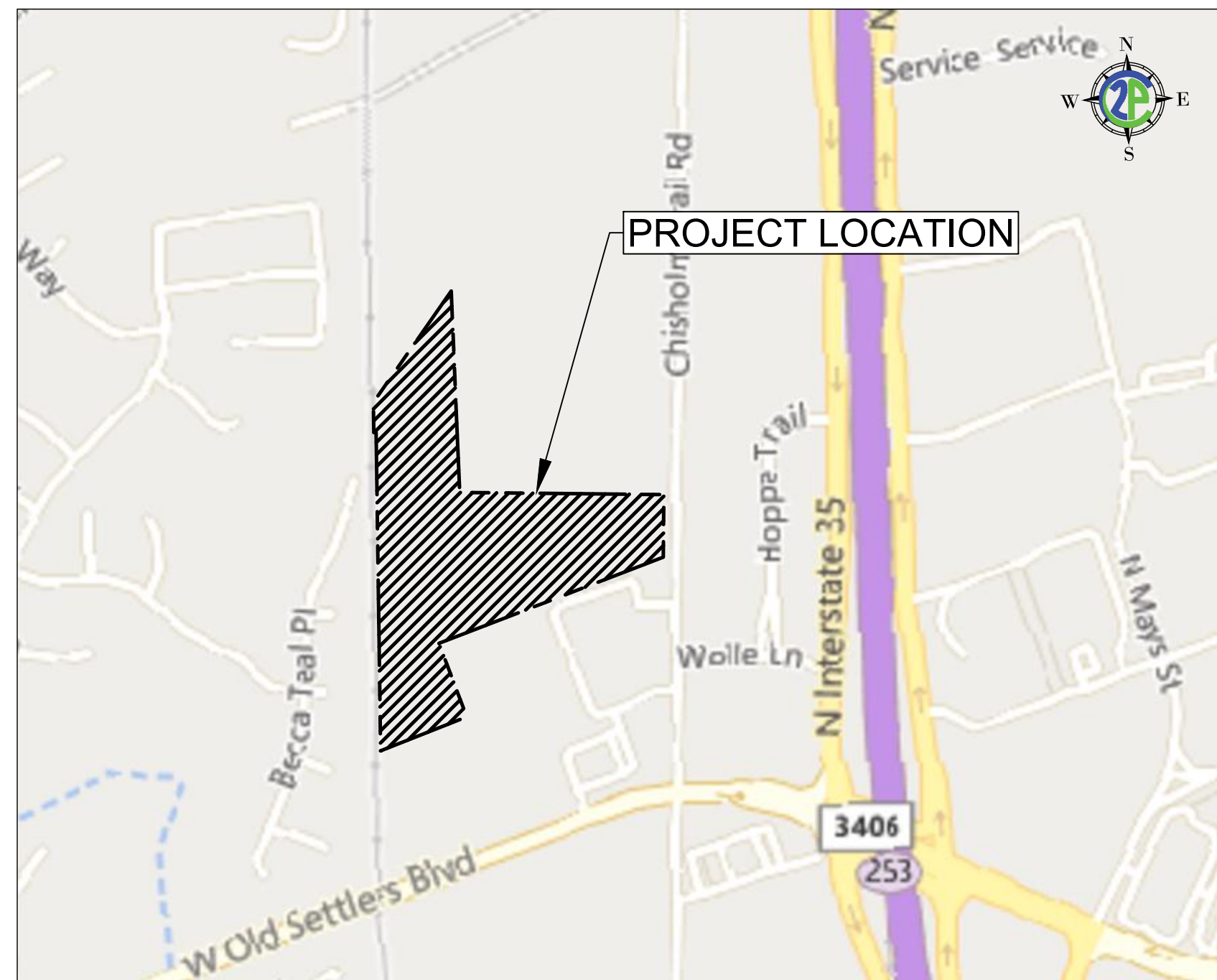
WATER QUALITY: THIS PROJECT IS LOCATED WITHIN THE EDWARDS AQUIFER RECHARGE ZONE AND HAS AN APPROVED WPAP AND SCS UNDER EDWARDS AQUIFER PROTECTION PROGRAM.

DETENTION NOTE: THIS PROJECT IS PROVIDING ONSITE STORMWATER DETENTION.

BENCHMARKS:
TOP OF 3" IRON ROD SET IN CONCRETE ON THE EAST-SOUTHEAST CORNER OF LOT 1
EL: 789.67 M.S.L.

UTILITY CONTACTS:

WATER:	CITY OF ROUND ROCK UTILITY	512-218-5460
WASTEWATER:	CITY OF ROUND ROCK UTILITY	512-218-5460
ELECTRIC:	ONCOR ELECTRIC COMPANY	1-866-797-4839
CABLE/TELEPHONE:	TIME WARNER CABLE	888-376-1561
NATURAL GAS:	ATOMS ENERGY	1-800-460-3030



VICINITY MAP
1" = 600'

REVISIONS / CORRECTIONS

NO.	DESCRIPTION	APPROVAL SIGNATURE	DATE

RECORDED FINAL PLAT DOC. NO 9743125

WPAP CASE # _____
SWPPP _____
METER SERIAL NO _____
UTILITY BILLING ACCT. NO. _____

IMPORTANT NOTES TO CONTRACTOR

- THESE PLANS ARE NOT TO BE CONSIDERED FINAL FOR CONSTRUCTION UNTIL ACCEPTED BY THE CITY AND/OR THE COUNTY. CHANGES MAY BE REQUIRED PRIOR TO APPROVAL.
- THE LOCATIONS OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER, DESIGN ENGINEER OR THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, AND SHALL REPAIR OR REPLACE TO NEW QUALITY.
- CAUTION: DO NOT USE THESE DRAWINGS FOR STAKING BUILDINGS ON THIS PROJECT. THE SIZE AND CONFIGURATION OF THESE BUILDINGS SHOWN HEREON ARE BASED ON THE LATEST ARCHITECTURAL INFORMATION AVAILABLE TO 2P CONSULTANTS, LLC. AT THE TIME OF COMPLETION OF THESE PLANS. THE FUTURE SIZE AND CONFIGURATION OF EACH BUILDING IS SUBJECT TO CHANGE. THE LATEST APPROVED, SIGNED AND SEALED ARCHITECTURAL PLANS SHOULD BE CONSULTED FOR THE ACTUAL SIZE, CONFIGURATION AND LOCATION OF EACH BUILDING.
- CONTRACTOR SHALL REFER TO CITY OF ROUND ROCK CONSTRUCTION STANDARDS MANUAL AND SPECIFICATIONS, OR ANY REQUIRED LOCAL CODE WHICHEVER IS MOST STRINGENT.
- THIS SITE IS SUBJECT TO TPDES REGULATIONS. TXR15000.

Sheet List Table

Sheet Number	Sheet Title
C001	COVER SHEET
C002	GENERAL NOTES
C003	FINAL PLAT (1 OF 2)
C004	FINAL PLAT (2 OF 2)
C101	EXISTING CONDITIONS (1 OF 2)
C102	EXISTING CONDITIONS (2 OF 2)
C103	EROSION CONTROL PLAN
C104	EROSION CONTROL DETAILS
C105	DEMOLITION PLAN
C201	SITE PLAN (1 OF 2)
C202	SITE PLAN (2 OF 2)
C203	DIMENSION PLAN
C204	SITE DETAILS
C205	GRADING PLAN (1 OF 3)
C206	GRADING PLAN (2 OF 3)
C207	GRADING PLAN (3 OF 3)
C301	EXISTING CONDITIONS DRAINAGE AREA MAP
C302	PROPOSED CONDITIONS DRAINAGE AREA MAP
C401	OVERALL UTILITY PLAN
C501	WATER PLAN
C502	WATER PROFILES
C503	WATER DETAILS
C601	WASTEWATER PLAN
C602	WASTEWATER PROFILES
C603	WASTEWATER DETAILS
C701	STORM PLAN
C702	STORM PROFILES
C703	DETENTION POND PLAN AND PROFILE
C704	STORM DETAILS

ACCEPTED FOR CONSTRUCTION: _____ DATE _____

CITY OF ROUND ROCK, TEXAS
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

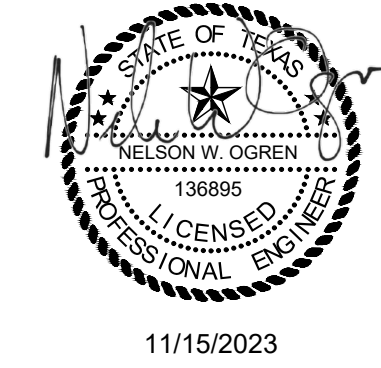
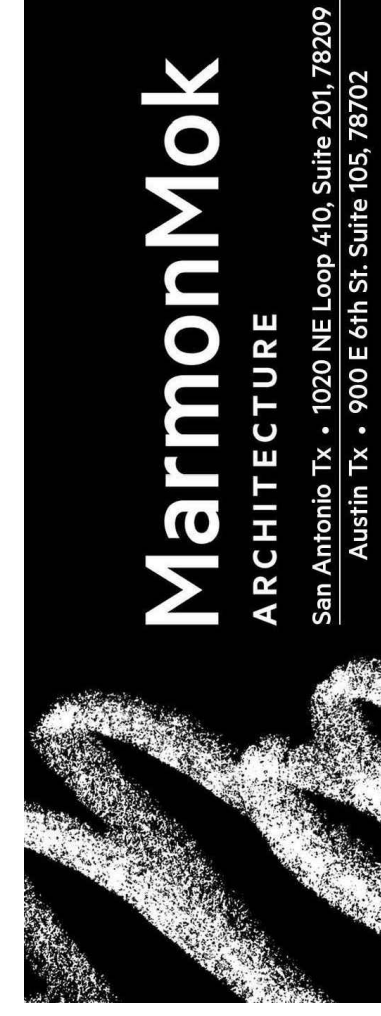
ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN ACCEPTING THESE PLANS, THE CITY OF ROUND ROCK MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
STATE OF TEXAS

COUNTY OF WILLIAMSON

I, NELSON W. OGDEN P.E., do hereby confirm that the Public Works and Drainage Improvements described herein have been designed in compliance with the subdivision and building regulation ordinances and stormwater drainage policy adopted by the City of Round Rock, Texas.



2P CONSULTANTS, LLC
203 E. MAIN STREET,
SUITE 204
ROUND ROCK, TEXAS
78664
512-344-9664
TBPE FIRM #F-19351



ROUND ROCK SPORTS CENTER
EXPANSION
2400 CHISHOLM TRAIL RD, ROUND ROCK,
TX 78681



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Drawn DELFINO
Checked CHECKED BY
Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
COVER SHEET

SHEET NO.

C001

GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL.
- 2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DESTRUCTION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- 3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS ARE APPROPRIATE.
- 4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
- 5. THE CONTRACTOR SHALL GIVE THE CITY OF ROUND ROCK 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. 512-218-5428 (PLANNING AND DEVELOPMENT SERVICES).
- 6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
- 7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF ROUND ROCK, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
- 8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF ROUND ROCK ACCURATE "AS-BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
- 9. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER.
- 10. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
- 11. AVAILABLE BENCHMARKS (CITY OF ROUND ROCK DATUM) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:
 - REFERENCE BENCHMARK (BM1)
TOP OF 3/4" IRON ROD SET IN CONCRETE
ON THE EAST-SOUTHEAST CORNER OF LOT 1
EL: 799.67 M.S.L. (GEOID18)

EROSION AND SEDIMENTATION CONTROL NOTES:

- 1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- 2. ALL SLOPES SHALL BE SODDED OR SEEDDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
- 3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
- 4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
- 5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

TRENCH SAFETY NOTES:

- 1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.
- 2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
- 3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF ROUND ROCK.

STREET AND DRAINAGE NOTES:

- 1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNER'S EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING. TELEPHONE CIVIL INSPECTOR.
- 2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
- 3. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
- 4. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF ROUND ROCK ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT.
- 5. BARRICADES BUILT TO CITY OF ROUND ROCK STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
- 6. ALL R.C.P. SHALL BE MINIMUM CLASS III.
- 7. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.
- 8. WHERE PIS ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE CITY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT.
- 9. GENERAL FILL SOILS SHALL BE FREE OF ORGANICS AND OTHER DELETERIOUS MATERIALS WITH A MAXIMUM PLASTICITY INDEX (PI) OF 20 AND A MAXIMUM PARTICLE SIZE OF 2-INCHES. GENERAL FILL SOILS SHALL BE PLACED IN NO GREATER THAN 8-INCH LOOSE LIFTS AND SHALL BE COMPACTED TO THE EXTENT NECESSARY TO PROVIDE THE DENSITY AS DETERMINED BY THE "XDOT TEST METHOD TEX-114-E, AS SHOWN IN THE FOLLOWING TABLE:

COMPACTION RECOMMENDATIONS		
DESCRIPTION	DENSITY (%)	MOISTURE CONTENT
ASTM D 698	94% TO 98%	0 TO +4%
ASTM D 698	>= 95%	0 TO +4%
ASTM D 1557	>= 95%	±3%
TEX-113-E	>= 100%	±2%

- 10. ALL NEW CONDUIT SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES BUT IS NOT LIMITED TO WATERLINES, WASTEWATER LINES, AND STORM SEWER, WITH A MINIMUM OUTSIDE-TO-OUTSIDE CLEARANCE OF 18". TRAVERSING ABOVE CITY INFRASTRUCTURE MAY BE ALLOWED, SUBJECT TO THE APPROVAL OF GENERAL SERVICES
- 11. ALL NEW CONDUIT UNDER ROADWAYS SHALL BE SCHEDULE 80.

WATER AND WASTEWATER NOTES:

- 1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 200), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200 PSI, DR 9).
- 2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150 OR SDR-26) OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26), DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
- 3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUBGRADE.
- 4. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).
- 5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.
- 6. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
- 7. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
- 8. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
- 9. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE CIVIL INSPECTOR.
- 10. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF ROUND ROCK TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF ROUND ROCK.
- 11. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF ROUND ROCK NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF ROUND ROCK, TO COVER THE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF ROUND ROCK FEE AMOUNTS MAY BE OBTAINED BY CALLING THE PLANNING AND DEVELOPMENT SERVICES OFFICE AT 512-218-5428.
- 12. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL.
- 13. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
- 14. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF ROUND ROCK.
- 15. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
- 16. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON FACE OF CURB

TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF ROUND ROCK.

17. CONTACT CITY OF ROUND ROCK DEVELOPMENT SERVICES OFFICE AT 512-218-5428 FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.

18. THE CITY OF ROUND ROCK FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.

19. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	% RETAINED BY WEIGHT
1 / 2"	0
3 / 8"	0-2
#4	40-85
#10	95-100

- 20. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND NECESSARILY BETWEEN 12 A.M. AND 6 A.M.
- 21. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 OR 217, AS APPLICABLE. WHENEVER TCEQ AND CITY OF ROUND ROCK SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

TRAFFIC MARKING NOTES:

- 1. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION.
- 2. ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.

GENERAL CONSTRUCTION SEQUENCING:

THE SEQUENCE BELOW IS THE ENGINEER'S GENERAL GUIDELINES AND NOT MEANT TO DIRECT CONTRACTOR IN ANY MEANS OR METHODS OF CONSTRUCTION ACTIVITIES. THE PHASES OF GENERAL CONSTRUCTION ARE AS FOLLOWS:

- A. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION PRIOR TO ANY CLEARING AND GRUBBING.
- B. ROUGH CUT ALL REQUIRED OR NECESSARY SEDIMENT PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO THE DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING. THE OUTLET SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION OR UNTIL FINAL RESTORATION IS ACHIEVED.
- C. ROUGH GRADE DRIVES, PARKING AND SITE BUILDING PADS.
- D. INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PAVEMENT.
- E. ADJUST GRADES IN PAVED AREAS TO SUBGRADE.
- F. INSURE ALL UNDERGROUND UTILITY CROSSINGS ARE COMPLETED, AND LAY FIRST COURSE OF BASE MATERIAL.
- G. INSTALL CURB AND GUTTER AND CONCRETE HARDSTANDS.
- H. LAY FINAL BASE COURSE.
- I. CONSTRUCT CONCRETE DRIVE AISLES AND PARKING AREAS.
- J. COMPLETE VERTICAL CONSTRUCTION.
- K. COMPLETE FINAL GRADING AND INSTALL FLATWORK.
- L. RESTORE AND FINAL GRADE PERMANENT WATER QUALITY FEATURES.
- M. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE.
- N. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS
- O. COMPLETE FINAL DRESS UP OF AREAS DISTURBED BY ITEM N.

AMERICANS WITH DISABILITIES ACT NOTES:

- 1. THE CITY OF ROUND ROCK HAS REVIEWED THIS PLAN FOR COMPLIANCE WITH CITY DEVELOPMENT REGULATIONS ONLY. THE APPLICANT, PROPERTY OWNER, AND OCCUPANT OF THE PREMISES ARE RESPONSIBLE FOR DETERMINING WHETHER THE PLAN COMPLIES WITH ALL OTHER LAWS, REGULATIONS, AND RESTRICTIONS WHICH MAY BE APPLICABLE TO THE PROPERTY AND ITS USE.
- 2. CITY OF ROUND ROCK NOTES SHALL SUPERCEDE OTHER IN EVENT OF CONFLICT.

CONSTRUCTION SUMMARY TABLES - PUBLIC UTILITIES

PIPE SIZE	WATER		
	TYPE	LENGTH (LF)	VOL. (GAL)
6"	(DI)	20	29.4
8"	(PVC) C900	741	1,935
8"	(DI)	52	135.8
PIPE SIZE	WASTEWATER		
	TYPE	LENGTH (LF)	VOL. (GAL)
6"	(PCV) SDR 26	84	123.4
8"	(PCV) SDR 26	450	1175
PIPE SIZE	STORM		
	TYPE	LENGTH (LF)	VOL. (GAL)
2"	(PCV) SDR 26	23	3.8
8"	(PCV) SDR 26	81	211.5
12"	RCP	200	1175
18"	RCP	503	6649
24"	RCP	20	470
36"	RCP	771	40768

VALVES		
SIZE	TOTAL	BRAND
6" GATE VALVES	1	XXXX
8" GATE VALVES	1	XXXX

AREA INLETS	
TOTAL	BRAND
8	xxxx

NEW FIRE HYDRANTS	
TOTAL	BRAND
1	xxxx

WASTEWATER MANHOLES	
SIZE	TOTAL
48"	4

Flexible Pavement (Automobile Parking Areas)			
Pavement Constituent	Light Duty	Medium Duty	Heavy Duty
HMAC Type D	1-1/2"	2"	3"
Crushed Limestone Base Material	9"	11"	12"
Compacted Subgrade	8"	8"	8"

Rigid Pavement			
Pavement Constituent	Light Duty	Medium Duty	Heavy Duty
Reinforced Concrete	6"	7"	8"
Compacted Subgrade	8"	8"	8"

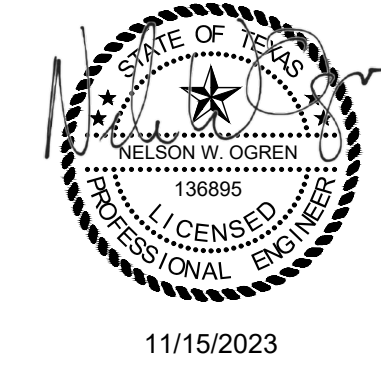
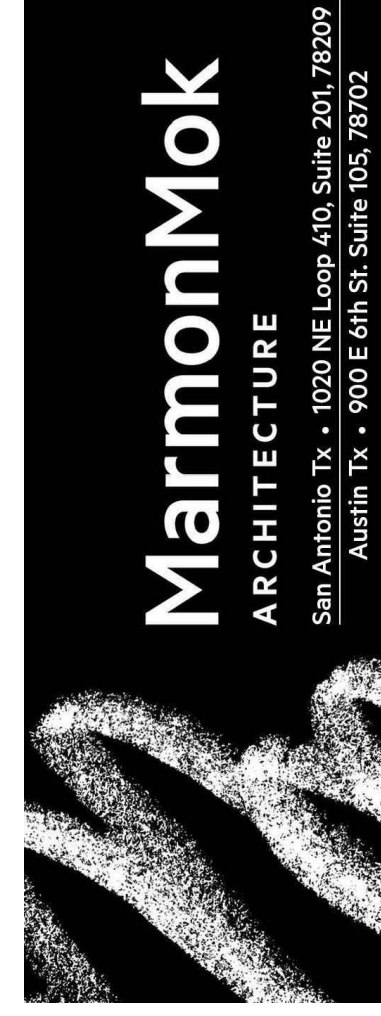
Based on Geotechnical Engineering Evaluation Report
Round Rock Sports Complex Expansion
Rock Engineering and Testing, July 19, 2023
[Design herein reflects Flexible Pavement - Medium Duty]



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



ROUND ROCK SPORTS CENTER
EXPANSION
2400 CHISHOLM TRAIL RD, ROUND ROCK,
TX 78681



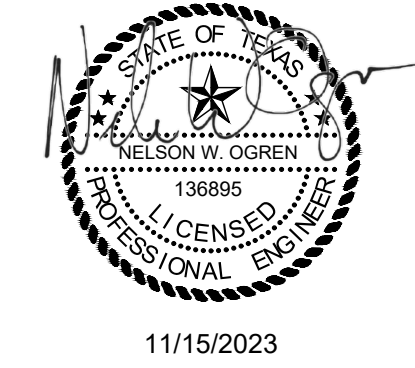
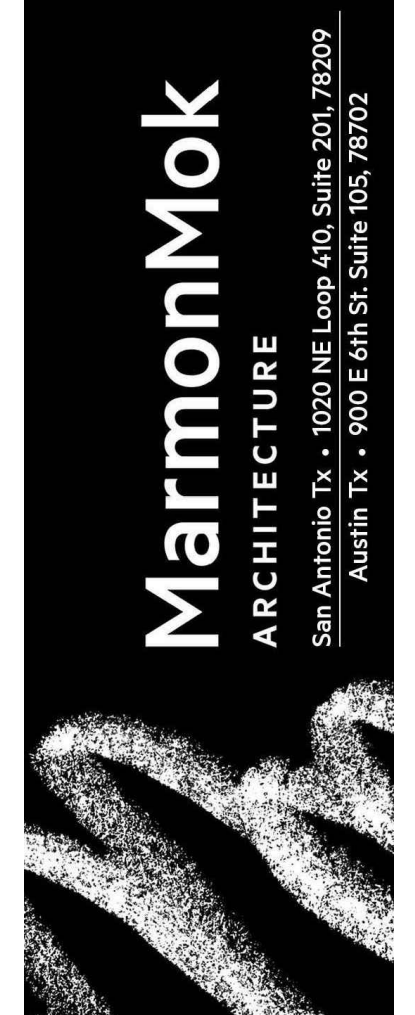
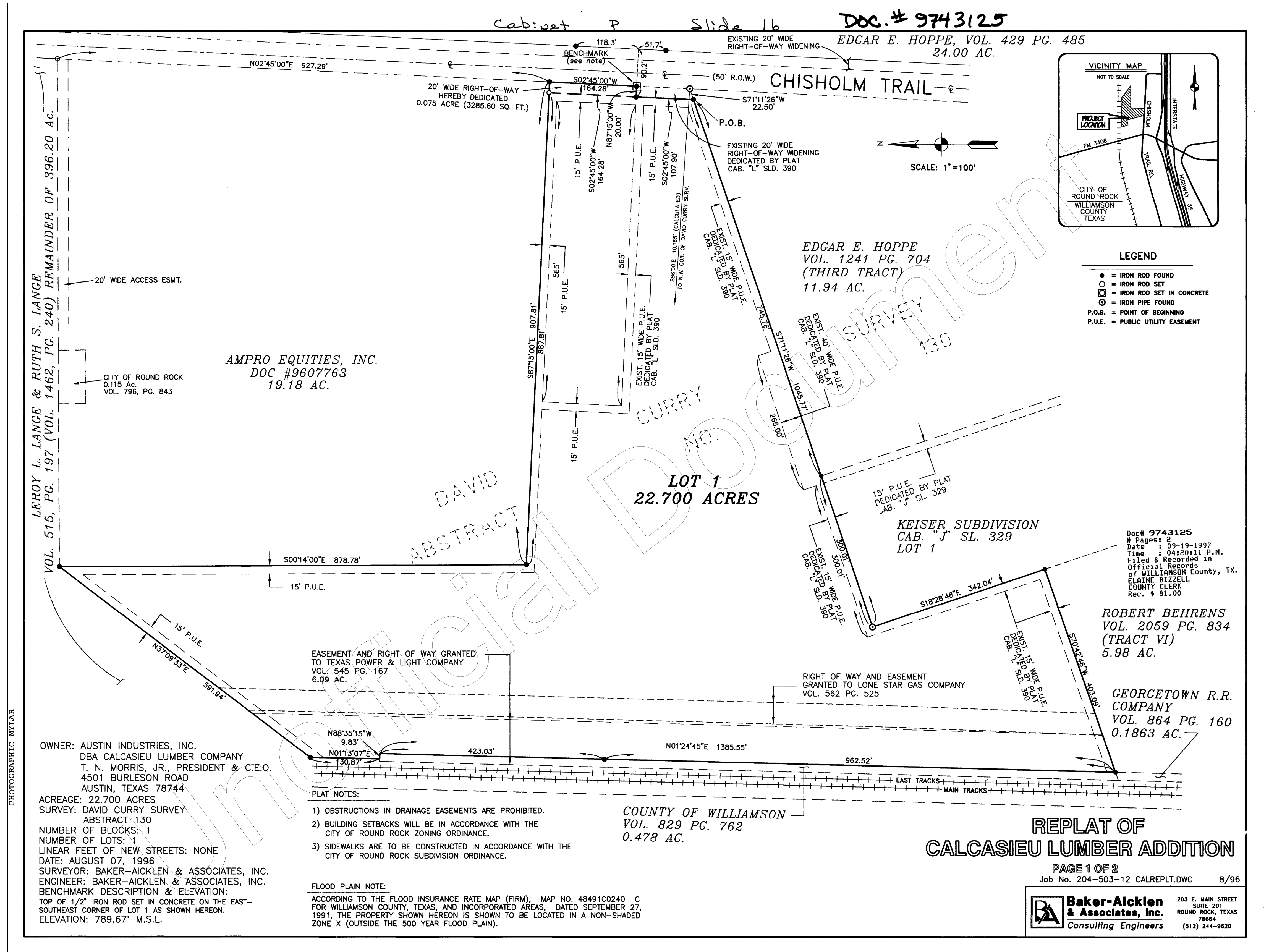
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Checked CHECKED BY
Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
GENERAL NOTES

SHEET NO.

C002

11/15/2023 2:42:30 PM
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**ROUND ROCK SPORTS CENTER
EXPANSION**

2400 CHISHOLM TRAIL RD, ROUND ROCK,
TX 78681



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SHEET TITLE
FINAL PLAT (1 OF 2)

SHEET NO.
C003

SDP-23-00041

Cabinet P Slide 17

DESCRIPTION

FOR A 22,700-ACRE TRACT OF LAND SITUATED IN THE DAVID CURRY SURVEY, ABSTRACT NO. 130, IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A 42.36-ACRE TRACT OF LAND AS CONVEYED TO AUSTIN INDUSTRIES, INC. BY INSTRUMENT RECORDED IN VOLUME 748, PAGE 470 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, SAID 22,700-ACRE TRACT BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUND AS FOLLOWS:

BEGINNING on an iron rod found on a point in the west right-of-way line of Chisholm Trail, and from which the northeast corner of a tract of land designated "THIRD TRACT" and conveyed to Edgar E. Hoppe by instrument recorded in Volume 1241, Page 704 of the Official Records of said County, also being the southeast corner of the aforementioned 42.36-acre tract, bears S71°11'26"W at a distance of 22.50 feet from said point also being the southeast corner and POINT OF BEGINNING hereof;

THENCE, departing the aforementioned right-of-way line with the southerly boundary line of said 42.36-acre tract, same being in part the northerly boundary line of said "THIRD TRACT", same being in part the northerly boundary line of "Keiser Subdivision", a subdivision according to the plat thereof recorded in Cabinet J, Slide 329 of the Plat Records of said County, S71°11'26"W, at a distance of 745.76 feet, pass an iron rod found on a point being the northeast corner of said "Keiser Subdivision", and continuing on said course for a total distance of 1045.77 feet to an iron pipe found on a point being the northwest corner of said "Keiser Subdivision", same being an interior ell corner of said 42.36-acre tract, same also being an interior ell corner hereof;

THENCE, with the southerly boundary line of said 42.36-acre tract, same being the westerly boundary line of said "Keiser Subdivision", S18°28'48"E, for a distance of 342.04 feet to an iron rod found on a point being in the westerly boundary line of said "Keiser Subdivision", same being the northeast corner of a tract of land designated "Tract VI" and conveyed to Robert H. Behrens by instrument recorded in Volume 2059, Page 834 of said Official Records, same being an angle point in the southerly boundary line of said 42.36-acre tract, same also being an angle point in the southerly boundary line hereof;

THENCE, departing the westerly boundary line of said "Keiser Subdivision", with the southerly boundary line of said 42.36-acre tract, same being the northerly boundary line of said "Tract VI", S70°42'46"W, for a distance of 403.09 feet to an iron rod found on a point being the northwest corner of said "Tract VI", same being the northeast corner of a 0.1863-acre tract of land conveyed to Georgetown Railroad Company by instrument recorded in Volume 864, Page 160 of said Deed Records, same being the southeast corner of a 0.478-acre tract of land conveyed to County of Williamson by instrument recorded in Volume 829, Page 782 of said Deed Records, same being the southwest corner of said 42.36-acre tract, said point being the southwest corner hereof;

THENCE, with the westerly boundary line of said 42.36-acre tract, same being the easterly boundary line of said 0.478-acre tract, N01°24'45"E, at a distance of 962.52 feet, pass an iron rod found, and continuing for a total distance of 1385.55 feet to a point being the northeast corner of said 0.478-acre tract and a point for corner hereof;

THENCE, with the north line of said 0.478-acre tract, N88°35'15"W, for a distance of 9.83 feet to a point in the east right-of-way line of the Georgetown Railroad Co., same being the northwest corner of the said 0.478-acre tract and a point for corner hereof;

THENCE, with the east right-of-way line of the Georgetown Railroad Co., N01°13'07"E, for a distance of 130.87 feet to an iron rod found, being the northwest corner hereof;

THENCE, departing the said east right-of-way line and with the south line of a tract of land conveyed to Leroy and Ruth Lange by instrument recorded in Volume 1462, Page 240 of the Deed Records of Williamson County, Texas, N37°09'33"E, for a distance of 591.94 feet to an iron rod found, being the northwest corner of a 19.180-acre tract of land conveyed to Ampro Equities, Inc., and recorded in Doc. # 9607763, of the Deed Records of Williamson County, Texas, and the most north-northeast corner hereof;

THENCE, with the west line of said 19.180-acre tract, S00°14'00"E, for a distance of 878.78 feet to a capped iron rod found being the southwest corner of said 19.180-acre tract and a point for corner hereof;

THENCE, with the south line of said 19.180-acre tract, S87°15'00"E, for a distance of 907.81 feet to a capped iron rod found in the west right-of-way line of Chisholm Trail (C.R. 173), same being the southeast corner of said 19.180-acre tract and the northeast corner hereof;

THENCE, with the west line of Chisholm Trail, S02°45'00"W, for a distance of 164.28 feet to an iron rod found set in concrete being in the west right-of-way of Chisholm Trail (C.R. 173) same being the northeast corner of Lot 1, of the Calcasieu Lumber Addition, a subdivision recorded in Cab. L., Slide 390-391, of the Plat Records of Williamson County, Texas, and a point for corner hereof;

THENCE, with the said right-of-way of Chisholm Trail and being the south line hereof, N87°15'00"W, for a distance of 20.00 feet to an iron rod found for a point for corner hereof;

THENCE, with the said west right-of-way of Chisholm Trail, S02°45'00"W, for a distance of 107.90 feet to the POINT OF BEGINNING and containing 22,700 acres of land.

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

THAT Austin Industries, Inc., owner of that certain tract of land recorded in Volume 748 Page 470 of the Deed Records of Williamson County, Texas acting herein by and through its agent, T.N. Morris Jr., President and C.E.O. of Calcasieu Lumber Company, do hereby subdivide a 22,700-acre portion of said land and dedicate to the public use forever the streets, alleys, easements and all other lands intended for public dedication as shown hereon.

T. N. Morris, Jr. President and C.E.O. For:
Calcasieu Lumber Co.
4501 Burleson Road
Austin, Texas 78744

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

This instrument was acknowledged before me on the 8 day of August, 1996, A.D., by T.N. Morris Jr. on behalf of said Corporation.

Notary Public, State of Texas

Printed name: DEWANDA LOONEY
My Commission expires: March 1, 1999

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

THAT The Frost National Bank, the Loin Holder of the certain tract of land recorded in Volume 748 Page 470 of the Deed Records of Williamson County, Texas, by virtue of Deed of Trust recorded in Volume 2659 Page 67 of the Official Records of said County do hereby consent to the subdivision of the 22,700-acres of land shown hereon and do further hereby join, approve, and consent to the dedication to the public use forever the streets, alleys, easements and all other lands intended for public dedication as shown hereon.

Jonathan D. Levy, Senior Vice President For:
The Frost National Bank
816 Congress
Austin, Texas 78701

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

This instrument was acknowledged before me on the 14 day of August, 1996, A.D., by Jonathan D. Levy VP on behalf of said Bank.

Notary Public, State of Texas

Printed name: DEWANDA LOONEY
My Commission expires: March 1, 1999

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

That I, M. Stephen Truesdale, do hereby certify that I prepared this plat from an actual and accurate on-the-ground survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with the Subdivision Regulations of the City of Round Rock, Texas.

M. Stephen Truesdale 7 Aug 96
M. Stephen Truesdale, Registered Professional Land Surveyor No.4933 Date

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

I, A. William Waeltz, Jr., do hereby certify that the information contained on this plat complies with the subdivision ordinances and the stormwater drainage policy adopted by the City of Round Rock, Texas.

A. William Waeltz, Jr. 8-7-96
A. William Waeltz, Jr., Registered Professional Engineer No.68220 Date

Approved this 4th day of September, 1996, A.D., by the City Planning and Zoning Commission of the City of Round Rock, Texas, and authorized to be filed for record by the County Clerk of Williamson County, Texas.

AL KOSIK, Chairman
Robert R. Belanger, Secretary

PASSED AND APPROVED, on the 15 day of September, 1997, A.D.

Charles Culpepper, Mayor
City of Round Rock, Texas

ATTEST:
Janne Land, City Secretary
City of Round Rock, Texas

THE STATE OF TEXAS }
COUNTY OF WILLIAMSON }

I, Elaine Bizzell, Clerk of the County Court of said County, do hereby certify that the foregoing instrument in writing, with its certification of authentication, was filed for record in my office on the 19 day of September, 1997, A.D., at 2 o'clock P.M. and duly recorded on the 19 day of September, 1997, A.D., at 4:10 o'clock P.M. in the Plat Records of said County, in Cabinet P, Slide(s) 16-17.

WITNESS MY HAND AND SEAL of the County Court of said County, at office in Georgetown, Texas, the date last above written.

ELAINE BIZZELL, Clerk, County Court
Williamson County, Texas

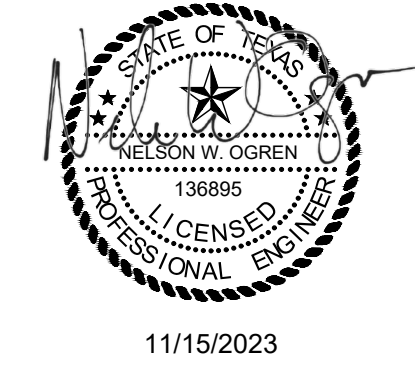
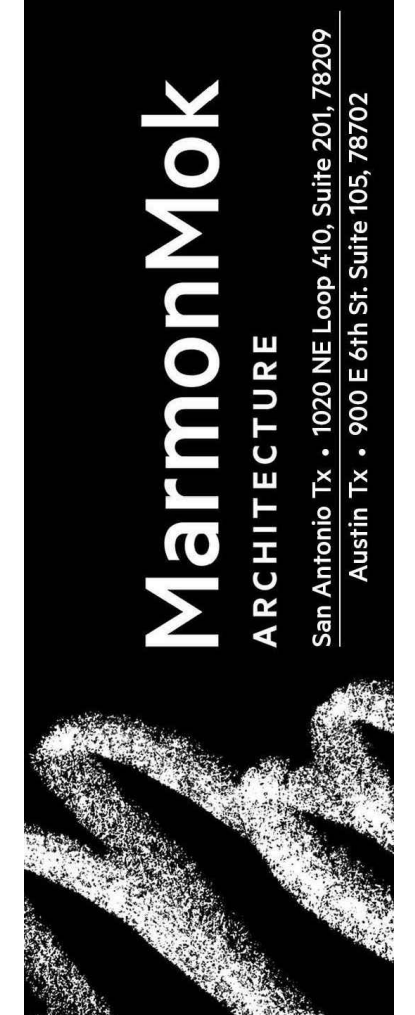
By: Licia Harguel
Deputy

REPLAT OF
CALCASIEU LUMBER ADDITION
PAGE 2 OF 2
Job No. 204-503-12 CALREPLT.DWG 8/96

Baker-Aicklen & Associates, Inc.
Consulting Engineers
203 E. MAIN STREET
SUITE 201
ROUND ROCK, TEXAS
78664
(512) 244-9820

11/15/2023 2:42:32 PM
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ROUND ROCK SPORTS CENTER
EXPANSION
2400 CHISHOLM TRAIL RD, ROUND ROCK,
TX 78681



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Date 10/16/2023
Project No. 22027
Revisions

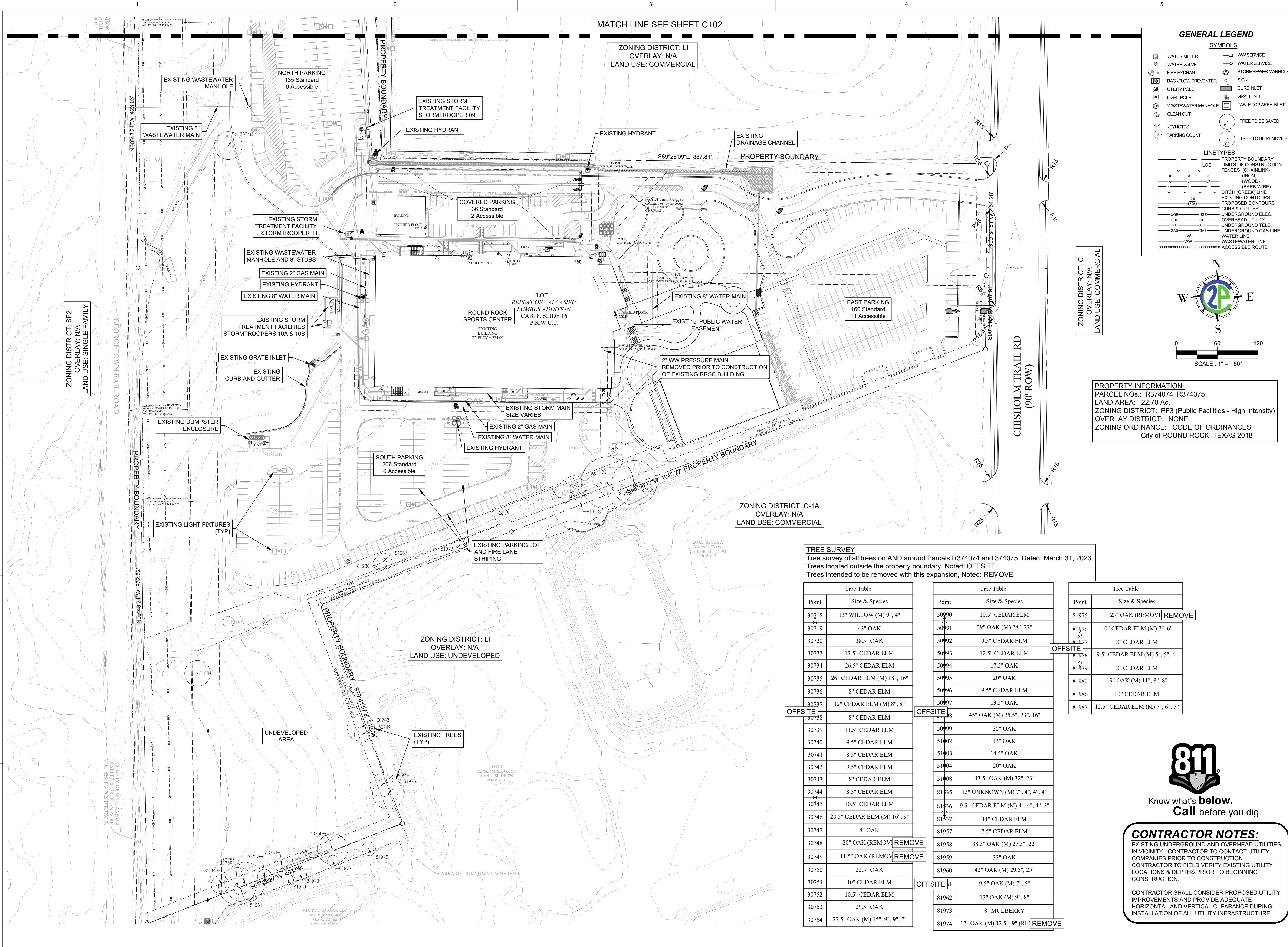
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FINAL PLAT (2 OF 2)

SHEET NO.

C004

SDP-23-00041

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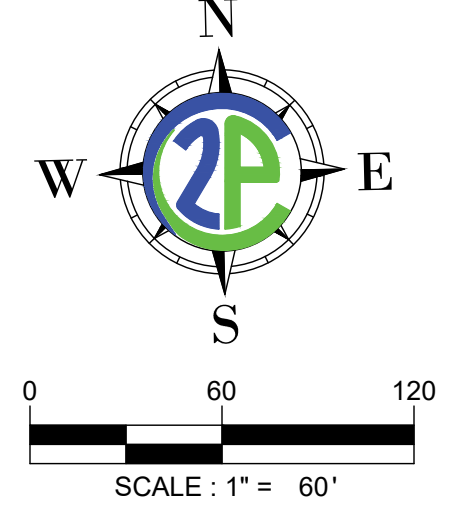
GENERAL LEGEND

SYMBOLS

- Water Meter
- Water Valve
- Fire Hydrant
- Backflow Preventer
- Utility Pole
- Light Pole
- Wastewater Manhole
- Clean Out
- Keynotes
- Parking Count
- WW Service
- Water Service
- Storm Sewer Manhole
- Sign
- Curb Inlet
- Grate Inlet
- Table Top Area Inlet
- Tree to be Saved
- Tree to be Removed

LINE TYPES

- Property Boundary
- Limits of Construction
- Fences (Chainlink)
- (Iron)
- (Wood)
- (Barb Wire)
- Ditch (Creek) Line
- Existing Contours
- Proposed Contours
- Curb & Gutter
- Underground Elec.
- Overhead Utility
- Underground Tele.
- Underground Gas Line
- Water Line
- Wastewater Line
- Accessible Route



PROPERTY INFORMATION:
 PARCEL NOS.: R374074, R374075
 LAND AREA: 22.70 Ac.
 ZONING DISTRICT: PF3 (Public Facilities - High Intensity)
 OVERLAY DISTRICT: NONE
 ZONING ORDINANCE: CODE OF ORDINANCES
 City of ROUND ROCK, TEXAS 2018

TREE SURVEY
 Tree survey of all trees on AND around Parcels R374074 and 374075, Dated: March 31, 2023.
 Trees located outside the property boundary, Noted: OFFSITE
 Trees intended to be removed with this expansion, Noted: REMOVE

Point	Tree Table	Point	Tree Table	Point	Tree Table
	Size & Species		Size & Species		Size & Species
30718	13" WILLOW (M) 9", 4"	50990	10.5" CEDAR ELM	81975	23" OAK (REMOVE) REMOVE
30719	43" OAK	50991	39" OAK (M) 28", 22"	81976	10" CEDAR ELM (M) 7", 6"
30720	38.5" OAK	50992	9.5" CEDAR ELM	81977	8" CEDAR ELM
30733	17.5" CEDAR ELM	50993	12.5" CEDAR ELM	81978	9.5" CEDAR ELM (M) 5", 5", 4"
30734	26.5" CEDAR ELM	50994	17.5" OAK	81979	8" CEDAR ELM
30735	26" CEDAR ELM (M) 18", 16"	50995	20" OAK	81980	19" OAK (M) 11", 8", 8"
30736	8" CEDAR ELM	50996	9.5" CEDAR ELM	81986	10" CEDAR ELM
30737	12" CEDAR ELM (M) 8", 8"	50997	13.5" OAK	81987	12.5" CEDAR ELM (M) 7", 6", 5"
OFFSITE 30738	8" CEDAR ELM	OFFSITE 50998	45" OAK (M) 25.5", 23", 16"		
30739	11.5" CEDAR ELM	50999	35" OAK		
30740	9.5" CEDAR ELM	51002	13" OAK		
30741	8.5" CEDAR ELM	51003	14.5" OAK		
30742	9.5" CEDAR ELM	51004	20" OAK		
30743	8" CEDAR ELM	51008	43.5" OAK (M) 32", 23"		
30744	8.5" CEDAR ELM	81535	13" UNKNOWN (M) 7", 4", 4", 4"		
30745	10.5" CEDAR ELM	81536	9.5" CEDAR ELM (M) 4", 4", 4", 3"		
30746	20.5" CEDAR ELM (M) 16", 9"	81537	11" CEDAR ELM		
30747	8" OAK	81957	7.5" CEDAR ELM		
30748	20" OAK (REMOVE) REMOVE	81958	38.5" OAK (M) 27.5", 22"		
30749	11.5" OAK (REMOVE) REMOVE	81959	33" OAK		
30750	22.5" OAK	81960	42" OAK (M) 29.5", 25"		
30751	10" CEDAR ELM	OFFSITE 81961	9.5" OAK (M) 7", 5"		
30752	10.5" CEDAR ELM	81962	13" OAK (M) 9", 8"		
30753	29.5" OAK	81973	8" MULBERRY		
30754	27.5" OAK (M) 15", 9", 9", 7"	81974	17" OAK (M) 12.5", 9" (REMOVE) REMOVE		



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Marmom Mok ARCHITECTURE
 San Antonio, TX • 1020 NE Loop 410, Suite 201, 78209
 Austin, TX • 900 E 4th St, Suite 105, 78702

11/15/2023

ENGINEERING CONSULTING

ROUND ROCK SPORTS CENTER EXPANSION
 2400 CHISHOLM TRAIL RD, ROUND ROCK, TX 78681

GO ROUND ROCK SPORTS CAPITAL OF TEXAS

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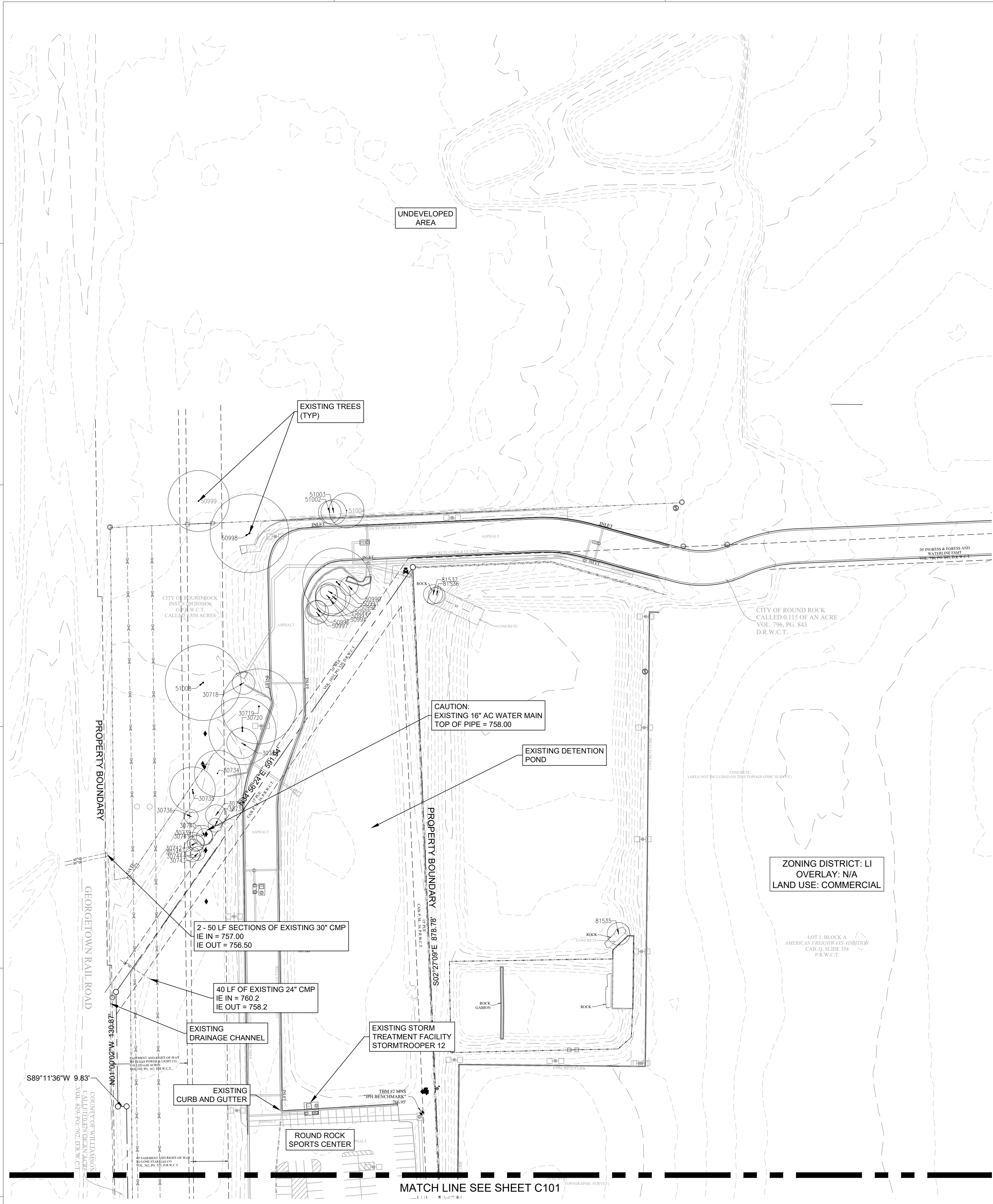
Drawn: DELFINO
 Checked: CHECKED BY
 Date: 10/16/2023
 Project No: 22027
 Revisions:

SHEET TITLE
EXISTING CONDITIONS (1 OF 2)

SHEET NO.
C101

SDP-23-00041

11/15/2023 2:42:46 PM
4:01:47 PM
File Path: \\P:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CADD\Sheets\Site Development Plans\Existing Conditions and Demolition Plan.dwg



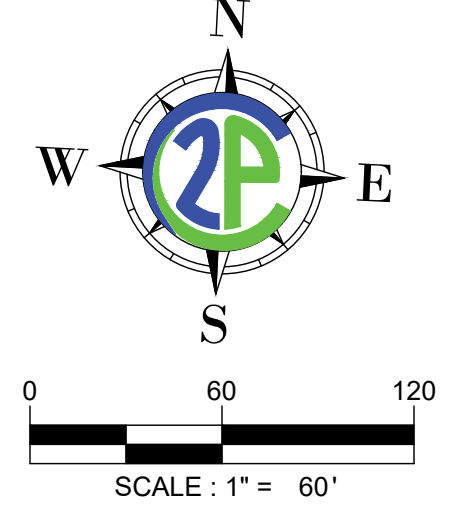
GENERAL LEGEND

SYMBOLS

⊠	WATER METER	—○—	WW SERVICE
⊙	WATER VALVE	—○—	WATER SERVICE
⊠	FIRE HYDRANT	⊙	STORMSEWER MANHOLE
⊠	BACKFLOW PREVENTER	⊙	SIGN
⊠	UTILITY POLE	⊠	CURB INLET
⊠	LIGHT POLE	⊠	GRATE INLET
⊙	WASTEWATER MANHOLE	⊠	TABLE TOP AREA INLET
⊙	CLEAN OUT	⊙	TREE TO BE SAVED
⊙	KEYNOTES	⊙	TREE TO BE REMOVED
⊙	PARKING COUNT		

LINETYPES

---	PROPERTY BOUNDARY
---	LOC - LIMITS OF CONSTRUCTION
---	FENCES (CHAINLINK)
---	(IRON)
---	(WOOD)
---	(BARB WIRE)
---	DITCH (CREEK) LINE
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	CURB & GUTTER
---	UG- UNDERGROUND ELEC.
---	OH- OVERHEAD UTILITY
---	TEL- UNDERGROUND TELE.
---	GAS- UNDERGROUND GAS LINE
---	W- WATER LINE
---	WW- WASTEWATER LINE
---	ACCESSIBLE ROUTE



PROPERTY INFORMATION:
 PARCEL NOS.: R374074, R374075
 LAND AREA: 22.70 Ac.
 ZONING DISTRICT: PF3 (Public Facilities - High Intensity)
 OVERLAY DISTRICT: NONE
 ZONING ORDINANCE: CODE OF ORDINANCES
 City of ROUND ROCK, TEXAS 2018

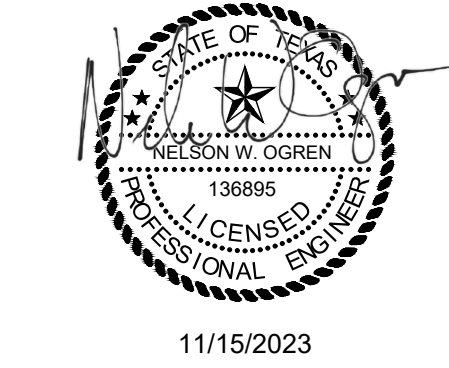
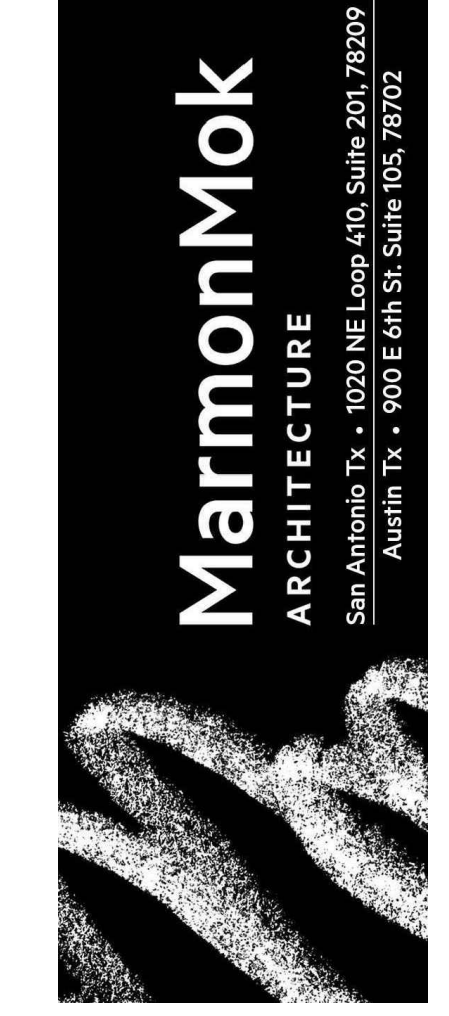
TREE SURVEY
 Tree survey of all trees on AND around Parcels R374074 and 374075, Dated: March 31, 2023.
 Trees located outside the property boundary, Noted: OFFSITE
 Trees intended to be removed with this expansion, Noted: REMOVE

Point	Tree Table	Point	Tree Table	Point	Tree Table
	Size & Species		Size & Species		Size & Species
30718	13" WILLOW (M) 9", 4"	50990	10.5" CEDAR ELM	81975	23" OAK (REMOVE) REMOVE
30719	43" OAK	50991	39" OAK (M) 28", 22"	81976	10" CEDAR ELM (M) 7", 6"
30720	38.5" OAK	50992	9.5" CEDAR ELM	81977	8" CEDAR ELM
30733	17.5" CEDAR ELM	50993	12.5" CEDAR ELM	81978	9.5" CEDAR ELM (M) 5", 5", 4"
30734	26.5" CEDAR ELM	50994	17.5" OAK	81979	8" CEDAR ELM
30735	26" CEDAR ELM (M) 18", 16"	50995	20" OAK	81980	19" OAK (M) 11", 8", 8"
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30754	27.5" OAK (M) 15", 9", 9", 7"	81974	17" OAK (M) 12.5", 9" (REMOVE) REMOVE		



Know what's below.
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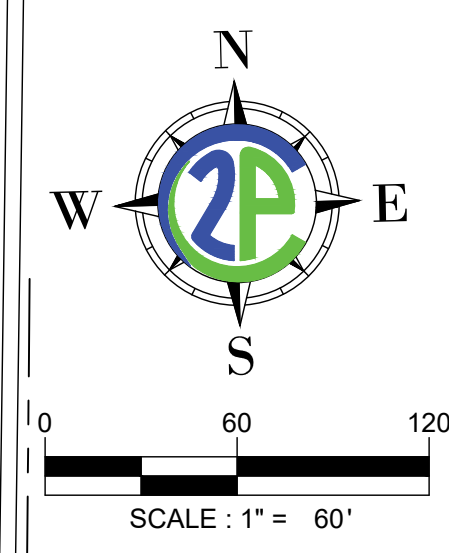
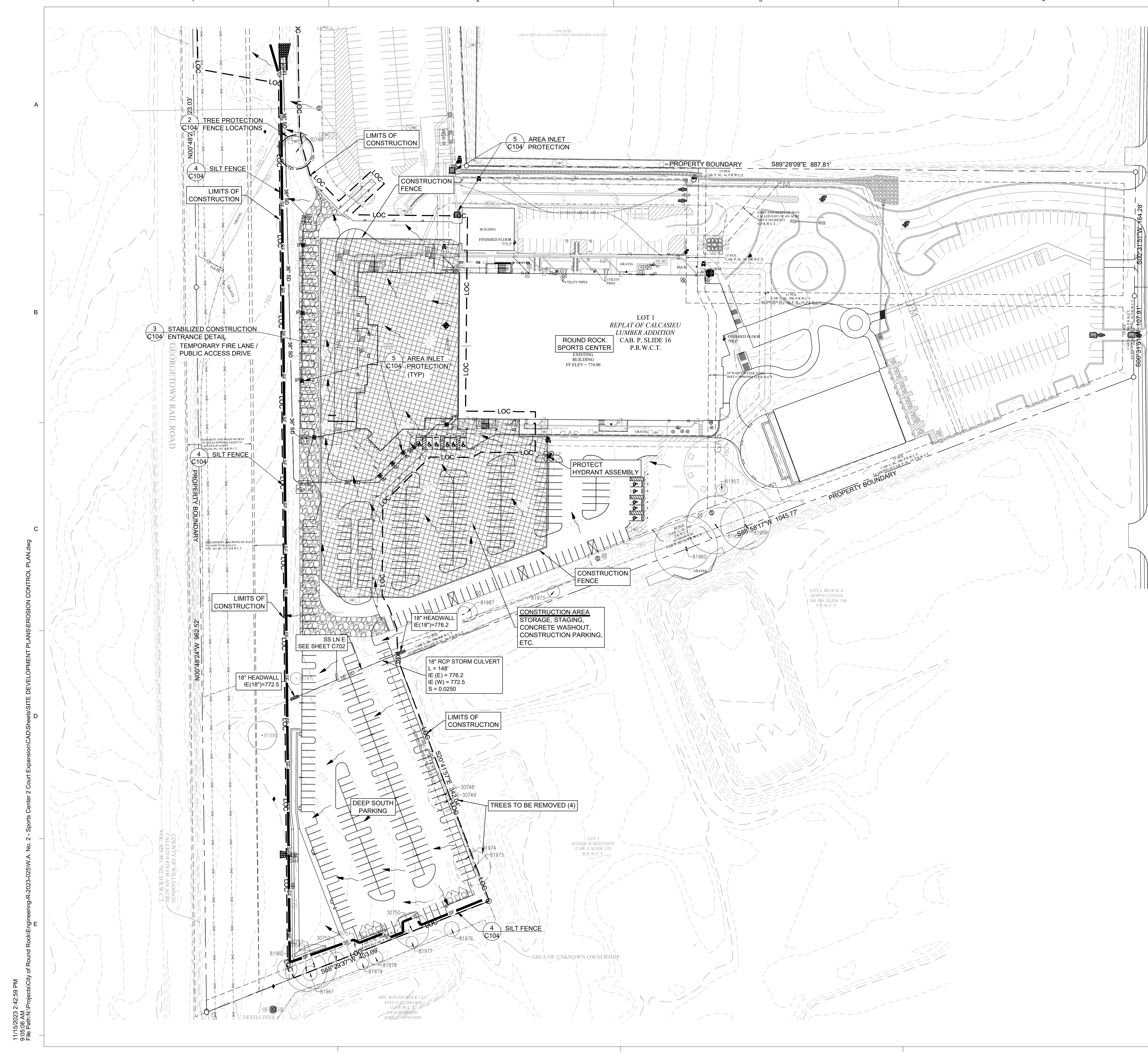
**ROUND ROCK SPORTS CENTER
 EXPANSION**
 2400 CHISHOLM TRAIL RD, ROUND ROCK,
 TX 78681



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 Date: 10/16/2023
 Project No: 22027
 Revisions:

SHEET TITLE
**EXISTING
 CONDITIONS (2
 OF 2)**

SHEET NO.
C102



GENERAL LEGEND	
SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SIGN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED

LINETYPES	
	PROPERTY BOUNDARY
	LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	(IRON)
	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
	OVERHEAD UTILITY
	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE

EROSION & SEDIMENT CONTROL, TREE PROTECTION LEGEND	
	LIMITS OF CONSTRUCTION
	TREE PROTECTION
	ROCK BERM
	SILT FENCE
	ORANGE MESH SAFETY FENCE
	INLET PROTECTION
	LOW POINT
	HIGH POINT
	STABILIZED CONSTRUCTION ENTRANCE
	TEMPORARY SPOILS SITE
	CONSTRUCTION STAGING AREA
	EROSION CONTROL BLANKET
	REVEGETATION AREA

NOTES:

- CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER CITY CODE, OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
- SILT FENCE TYPE AND INSTALLATION SHALL COMPLY WITH DETAIL
- ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE GRASSES (REFER TO NOTE SHEET FOR SPECS). ALL DISTURBED AREAS WITH SLOPES 5:1 OR STEEPER, WHICH ARE NOT ARMORED OTHERWISE, SHALL HAVE A SOIL RETENTION BLANKET (EXCELSIOR II OR APPROVED EQUAL) INSTALLED TO ASSIST WITH REVEGETATION.

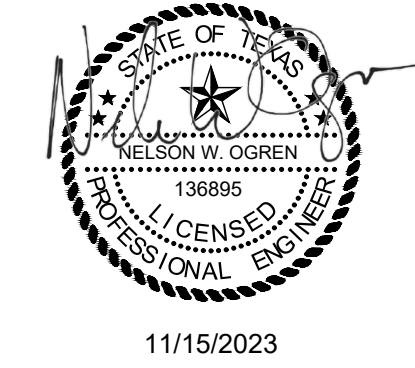
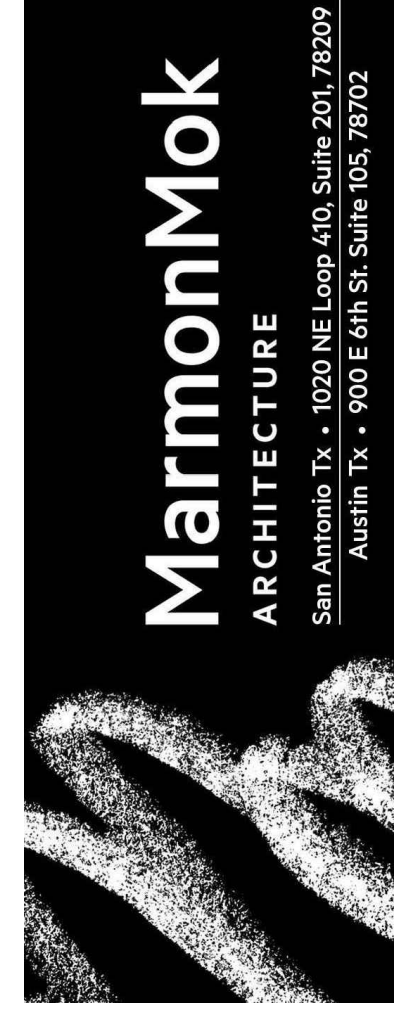
DETAIL NUMBER	WHERE DETAIL IS LOCATED	DETAIL NAME	DETAIL REFERENCE CALLOUT
#	#	#	#

- EROSION AND SEDIMENTATION CONTROL NOTES:**
- EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.
 - ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
 - SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
 - ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
 - ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.
 - CONTRACTOR TO COMPLETE DEEP SOUTH PARKING LOT AS EARLY AS POSSIBLE.
 - REFER TO SHEET I101 FOR DETAILED SITE/CONSTRUCTION PHASING.



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**ROUND ROCK SPORTS CENTER
EXPANSION**
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TX 78681



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Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
**EROSION CONTROL
PLAN**

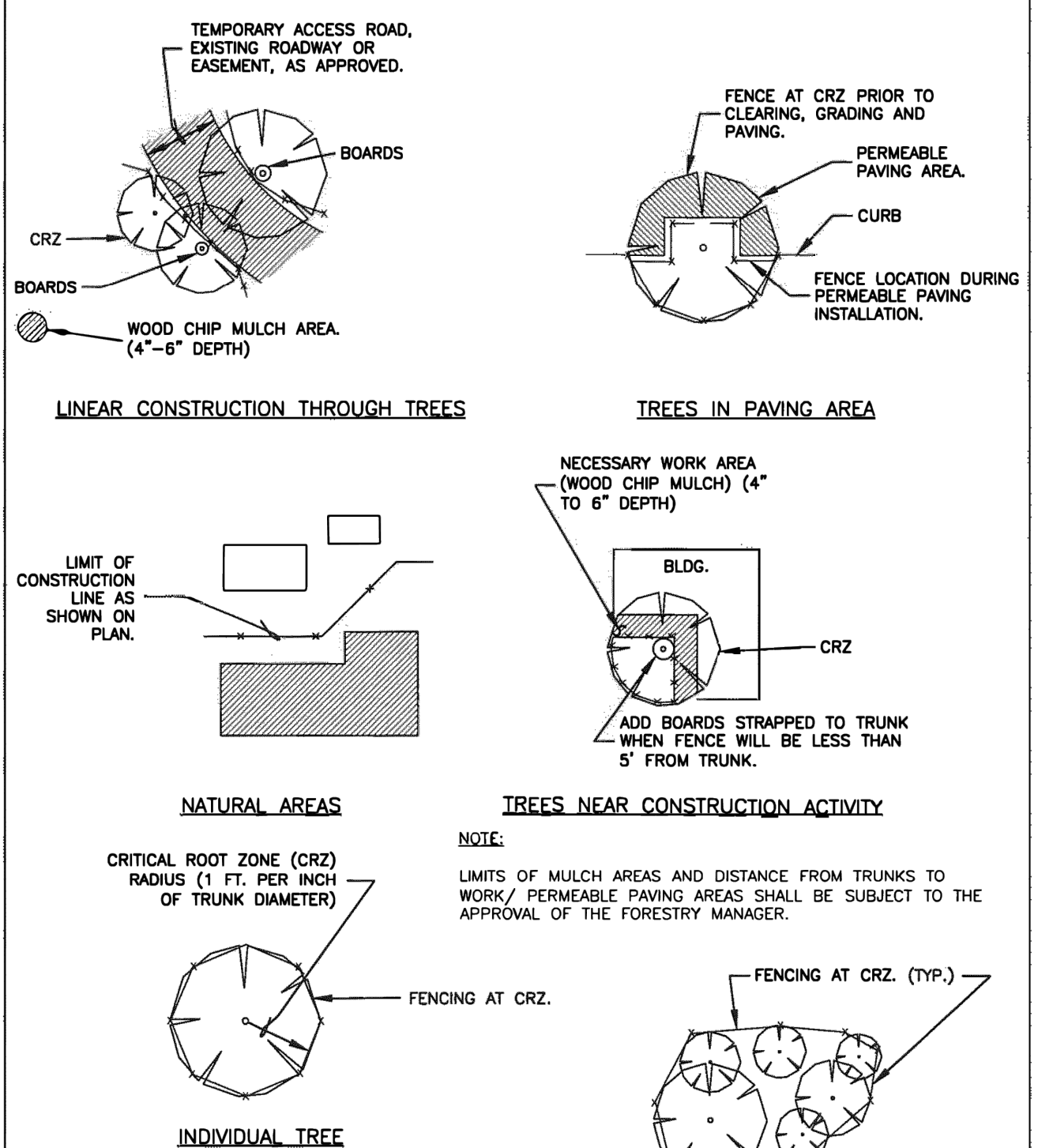
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C103

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SDP-23-00041

- ALL TREES NOT LOCATED WITHIN THE LIMITS OF CONSTRUCTION AND OUTSIDE OF DISTURBED AREAS SHALL BE PRESERVED. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL TREES TO BE PRESERVED FROM HIS ACTIVITIES.
- ALL TREES SHOWN TO BE RETAINED ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING. SEE: TREE PROTECTION TREE WELLS (EC-02), TREE PROTECTION TREE LOCATION (EC-03) AND TREE PROTECTION FENCE-CHAIN LINK (EC-04).
- TREE PROTECTION FENCES SHALL BE ERECTED ACCORDING TO CITY STANDARDS FOR TREE PROTECTION, INCLUDING TYPES OF FENCING AND SIGNAGE.
- TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
- EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIPLINES.
- FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIFLINE) OR CRITICAL ROOT ZONE (CRZ), WHICHEVER IS GREATER; AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
 - SOIL COMPACTION IN CRZ AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIAL.
 - CRZ DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL) OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE FORESTRY MANAGER.
 - WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT.
 - OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.
- EXCEPTIONS TO INSTALLING TREE FENCES AT THE TREE DRIFLINES OR CRZ, WHICHEVER IS GREATER, MAY BE PERMITTED IN THE FOLLOWING CASES:
 - WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, OR TREE WELL;
 - WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA;
 - WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING;
 - WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE FORESTRY MANAGER TO DISCUSS ALTERNATIVES.
- WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
- WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIFLINE OR CRZ, WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.
- ALL GRADING WITHIN CRZ AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
- ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.
- PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIFLINES, A CLEAN CUT SHALL BE MADE BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
- TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.
- WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, A PLASTIC VAPOR BARRIER SHALL BE PLACED BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE CRZ.
- ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
- NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIFLINE OR CRZ OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.
- PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND CONSTRUCTION EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS. ALL PRUNING MUST BE DONE ACCORDING TO CITY STANDARDS AND AS OUTLINED IN LITERATURE PROVIDED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA PRUNING TECHNIQUES).
- ALL OAK TREE CUTS, INTENTIONAL OR UNINTENTIONAL, SHALL BE SEALED WITH AN APPROVED PRUNING SEALER IMMEDIATELY (WITHIN 10 MINUTES). PRUNING SEAL OR TREE PAINT MUST BE KEPT ON SITE AT ALL TIMES.
- THE FORESTRY MANAGER HAS THE AUTHORITY TO REQUIRE ADDITIONAL TREE PROTECTION BEFORE OR DURING CONSTRUCTION.
- TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED. REFER TO THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL FOR APPROPRIATE REMOVAL METHODS.
- PRIOR TO CONSTRUCTION, ALL LOWER TREE LIMBS OVER ROADWAYS MUST BE PRUNED TO A HEIGHT OF 14 FEET USING THE TECHNIQUES DESCRIBED IN THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL.
- DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS NON COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

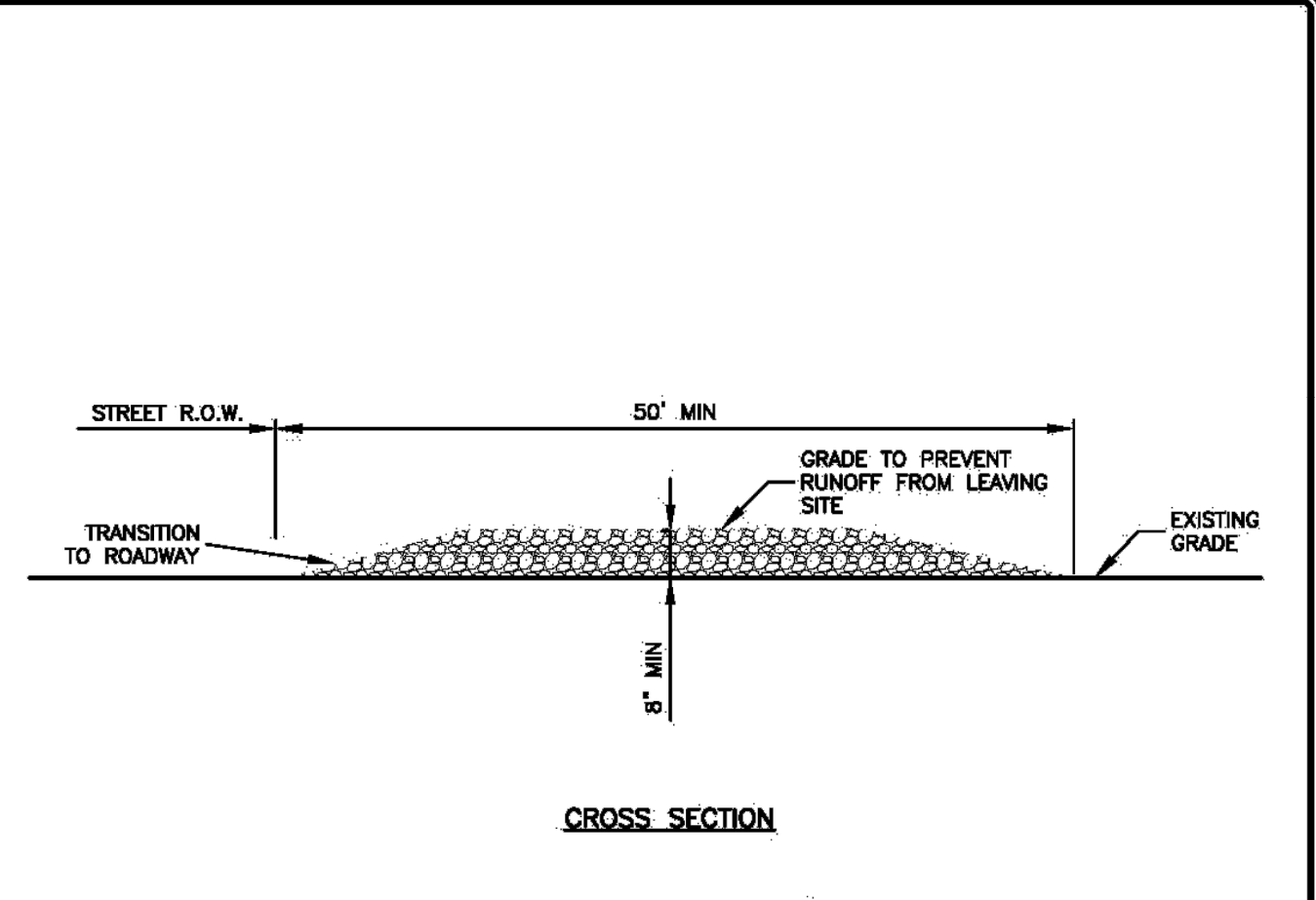


FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.	SCALE: NTS
RECORD SIGNED COPY ON FILE	DRAWING NO: EC-01
APPROVED	SHEET 1 of 1
01-28-21	
DATE	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)	

CITY OF ROUND ROCK	1 TREE PROTECTION NOTES
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FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.	SCALE: NTS
RECORD SIGNED COPY ON FILE	DRAWING NO: EC-03
APPROVED	SHEET 1 of 1
01-28-21	
DATE	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)	

CITY OF ROUND ROCK	2 TREE PROTECTION FENCE LOCATIONS
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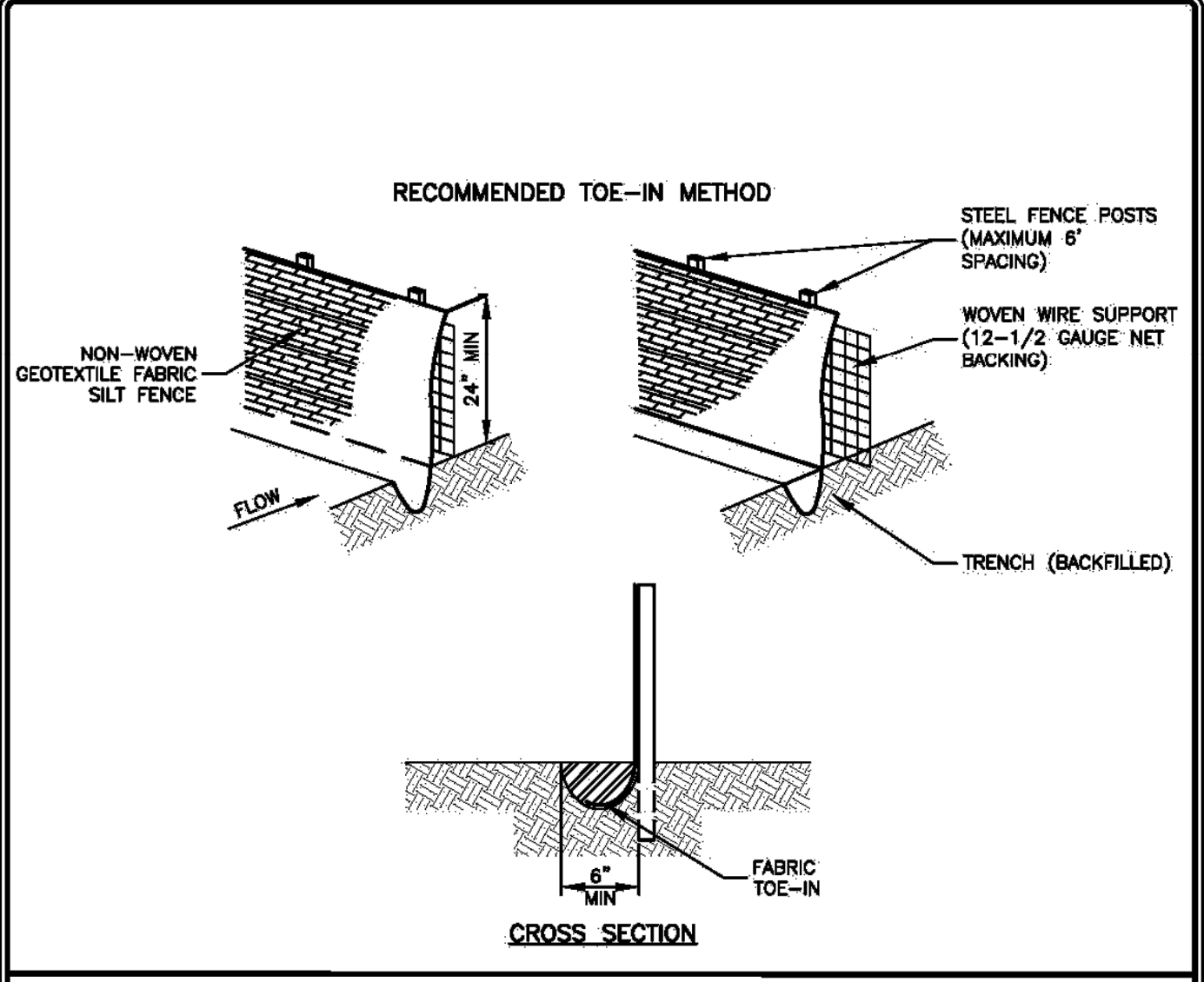


NOTES:

- STONE SIZE SHALL BE 3" - 8" OPEN GRADED ROCK.
- THICKNESS OF CRUSHED STONE PAD TO BE NOT LESS THAN 8".
- LENGTH SHALL BE A MINIMUM OF 50' FROM ACTUAL ROADWAY, AND WIDTH NOT LESS THAN FULL WIDTH OF INGRESS/EGRESS.
- ENTRANCE SHALL BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY BY CONTRACTOR.
- AS NECESSARY, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: EC-09
APPROVED		
03-25-11		
DATE		
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

CITY OF ROUND ROCK	3 STABILIZED CONSTRUCTION ENTRANCE DETAIL
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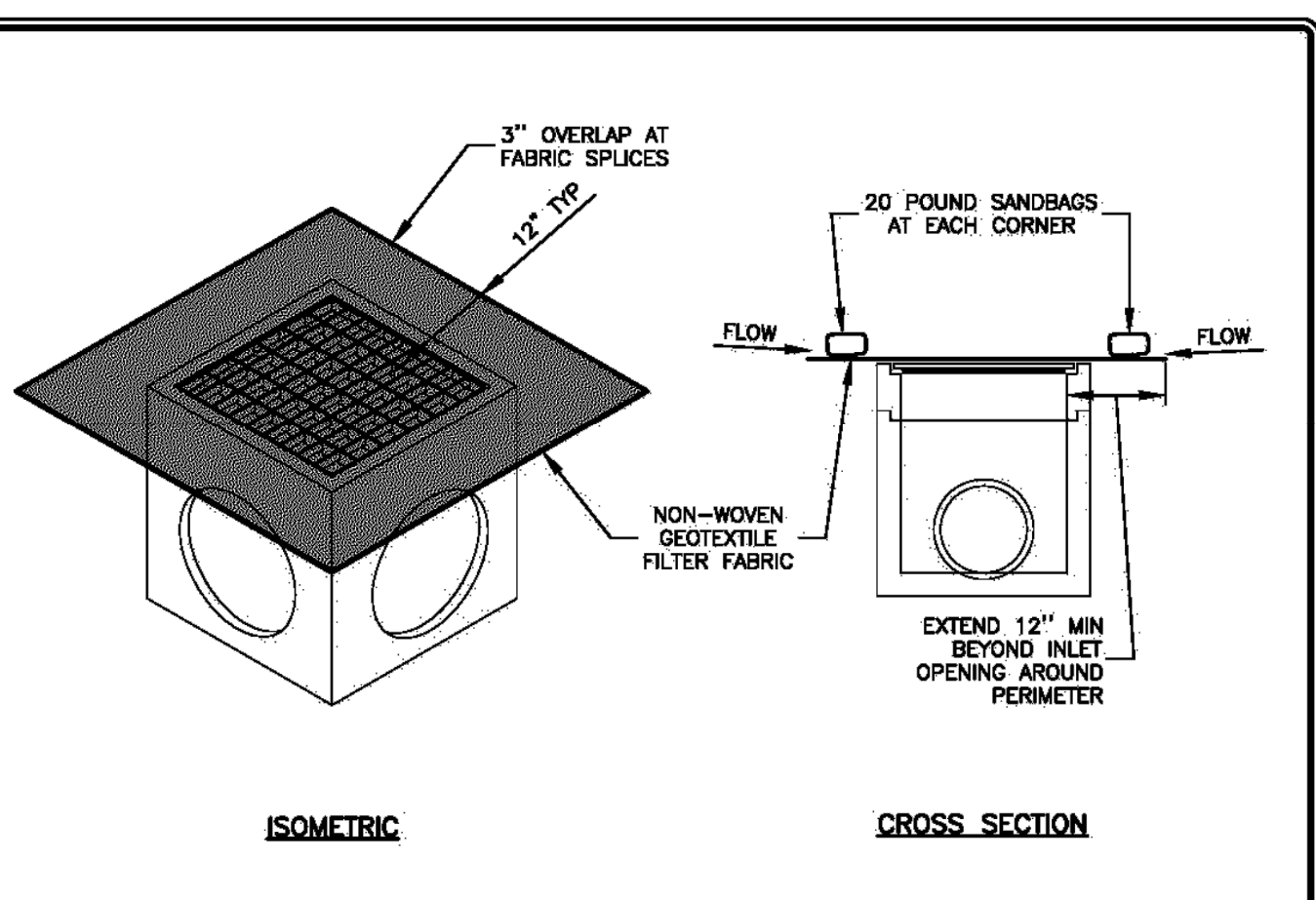


NOTES:

- STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MIN. OF ONE (1) FOOT OF ONE (1) FOOT OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
- THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAD IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE SHALL BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS SECURELY FASTENED TO THE STEEL FENCE POSTS.
- INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
- SILT FENCE SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: EC-10
APPROVED		
03-25-11		
DATE		
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

CITY OF ROUND ROCK	4 SILT FENCE DETAIL
---------------------------	----------------------------

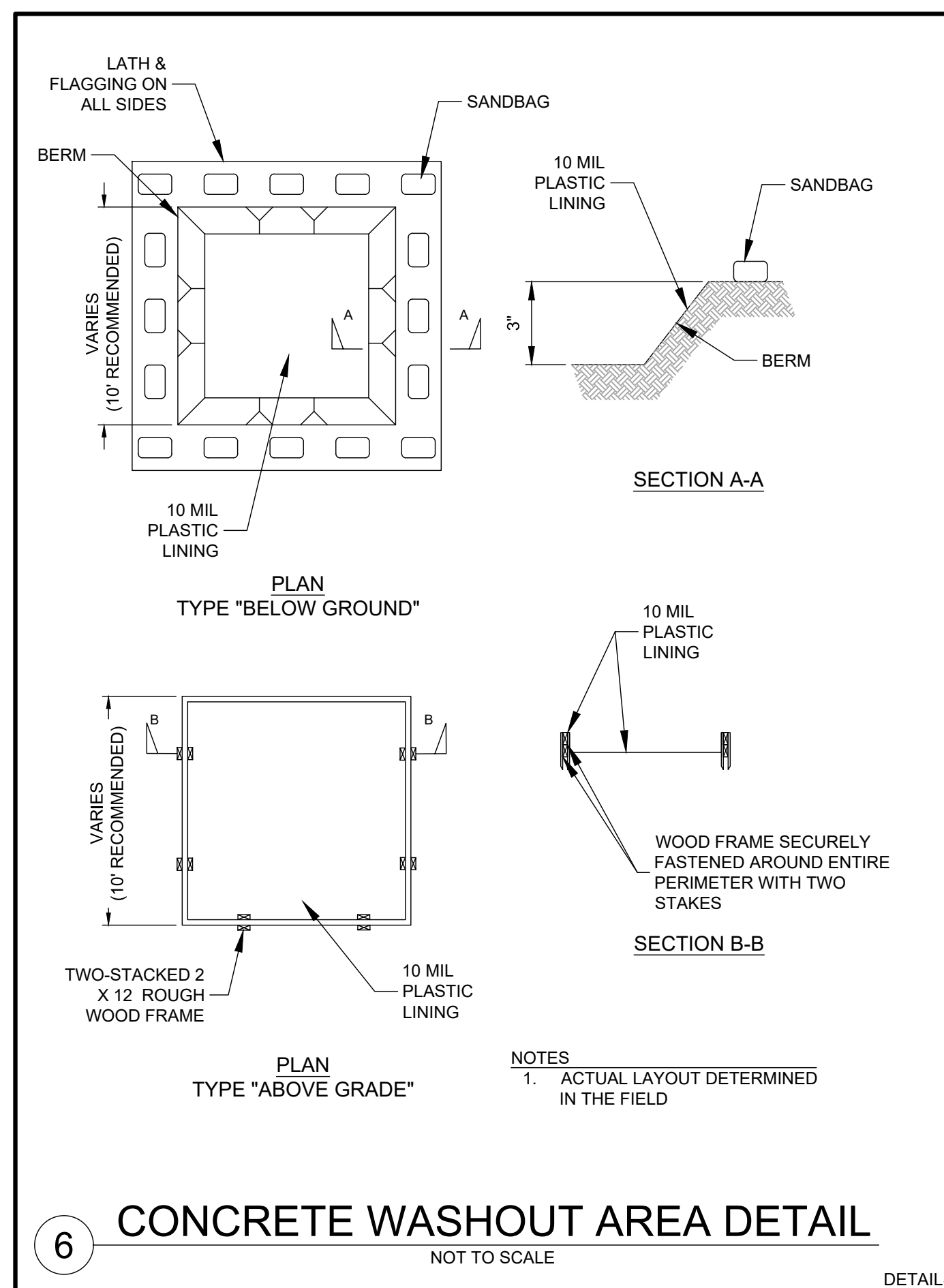


NOTES:

- DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
- CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY CLEAN THE INLET PROTECTION IF EXCESSIVE PONDING OCCURS.
- INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: EC-15
APPROVED		
03-25-11		
DATE		
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

CITY OF ROUND ROCK	5 AREA INLET PROTECTION DETAIL
---------------------------	---------------------------------------



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DATE		
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

CITY OF ROUND ROCK	6 CONCRETE WASHOUT AREA DETAIL
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Marmon Mok
ARCHITECTURE

San Antonio, TX - 1026 NE Loop 410, Suite 201, 78209
Austin, TX - 900 E 4th St, Suite 105, 78702

11/15/2023

ENGINEERING

CONSULTING

ROUND ROCK SPORTS CENTER EXPANSION

2400 CHISHOLM TRAIL RD, ROUND ROCK, TX 78681



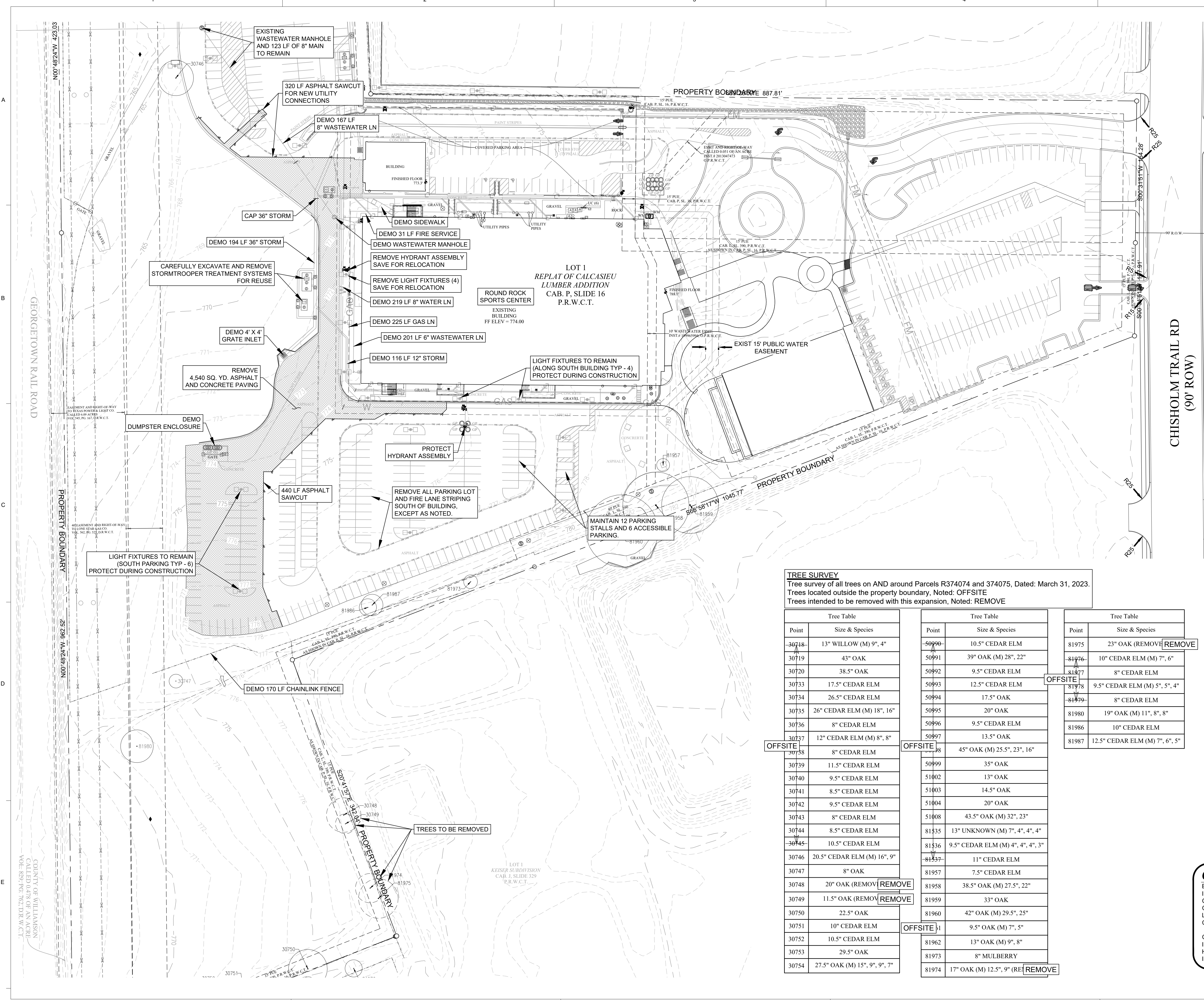
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Project No. 22027
Revisions

SHEET TITLE
EROSION CONTROL DETAILS

SHEET NO.
C104

SDP-23-00041



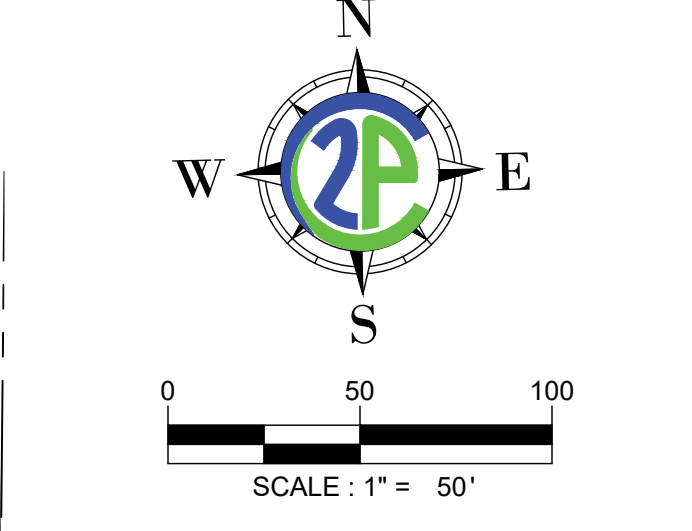
GENERAL LEGEND

SYMBOLS

⊗	WATER METER	—	WW SERVICE
⊕	WATER VALVE	—	WATER SERVICE
⊙	FIRE HYDRANT	—	STORMSEWER MANHOLE
⊖	BACKFLOW PREVENTER	—	SIGN
⊕	UTILITY POLE	—	CURB INLET
⊕	LIGHT POLE	—	GRATE INLET
⊕	WASTEWATER MANHOLE	—	TABLE TOP AREA INLET
⊕	CLEAN OUT	—	
⊕	KEYNOTES	⊕	TREE TO BE SAVED
⊕	PARKING COUNT	⊕	TREE TO BE REMOVED

LINETYPES

---	PROPERTY BOUNDARY
---	LOC LIMITS OF CONSTRUCTION
---	FENCES (CHAINLINK)
---	(IRON)
---	(WOOD)
---	(BARB WIRE)
---	DITCH (CREEK) LINE
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	CURB & GUTTER
---	UG- UNDERGROUND ELEC.
---	OH- OVERHEAD UTILITY
---	TEL- UNDERGROUND TELE.
---	GAS- UNDERGROUND GAS LINE
---	W- WATER LINE
---	WW- WASTEWATER LINE
---	ACCESSIBLE ROUTE



- DEMOLITION NOTES:**
1. WATER, WASTEWATER AND GAS SERVICES TO THE EXISTING BUILDING SHALL BE MAINTAINED THROUGHOUT EXPANSION CONSTRUCTION.
 2. A PRE-CONSTRUCTION MEETING WITH THE CITY, IS REQUIRED PRIOR TO ANY SITE DISTURBANCE.
 3. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS.
 4. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREE, ETC. THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
 5. CONTRACTOR TO ENSURE THAT NO DEMOLITION ACTIVITIES OCCURS WITHIN THE HALF CRITICAL ROOT ZONE OF TREES PROPOSED TO BE PROTECTED.
 6. REFER TO SHEET I101 FOR DETAILED SITE/CONSTRUCTION PHASING.
 7. REFER TO EROSION AND SEDIMENTATION CONTROL DETAILS FOR TREE PROTECTION DETAILS.
 8. FIRE SAFETY: THIS SITE SHALL BE COMPLIANT WITH CHAPTER 33 OF THE INTERNATIONAL FIRE CODE 2015, DURING CONSTRUCTION AND DEMOLITION.

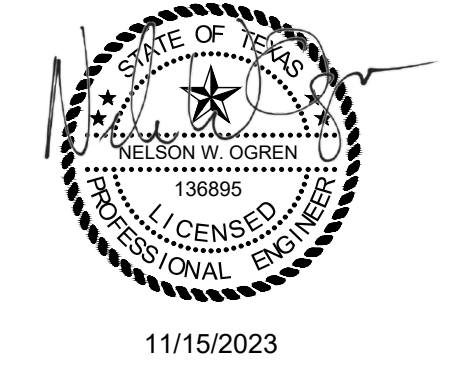
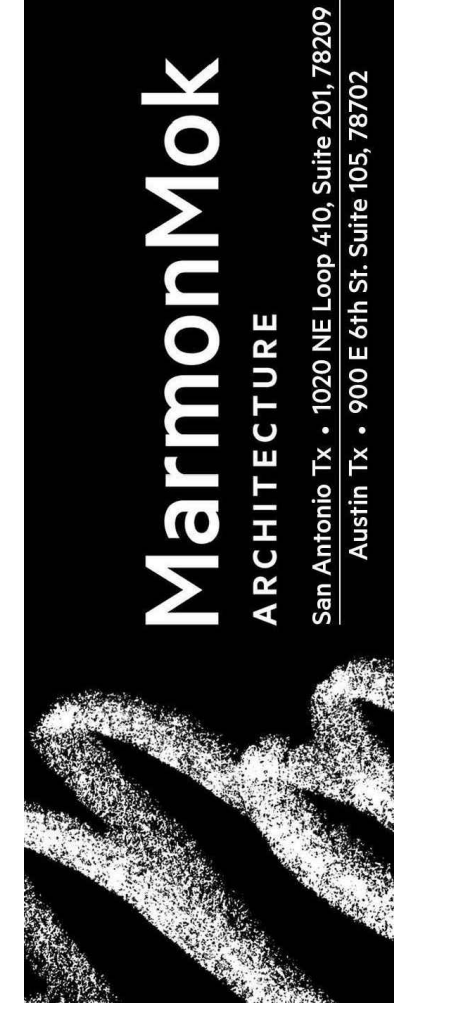
TREE SURVEY
 Tree survey of all trees on AND around Parcels R374074 and 374075, Dated: March 31, 2023.
 Trees located outside the property boundary, Noted: OFFSITE
 Trees intended to be removed with this expansion, Noted: REMOVE

Tree Table		Tree Table		Tree Table	
Point	Size & Species	Point	Size & Species	Point	Size & Species
30718	13" WILLOW (M) 9", 4"	50990	10.5" CEDAR ELM	81975	23" OAK (REMOVE) REMOVE
30719	43" OAK	50991	39" OAK (M) 28", 22"	81976	10" CEDAR ELM (M) 7", 6"
30720	38.5" OAK	50992	9.5" CEDAR ELM	81477	8" CEDAR ELM
30733	17.5" CEDAR ELM	50993	12.5" CEDAR ELM	81978	9.5" CEDAR ELM (M) 5", 5", 4"
30734	26.5" CEDAR ELM	50994	17.5" OAK	81979	8" CEDAR ELM
30735	26" CEDAR ELM (M) 18", 16"	50995	20" OAK	81980	19" OAK (M) 11", 8", 8"
30736	8" CEDAR ELM	50996	9.5" CEDAR ELM	81986	10" CEDAR ELM
30737	12" CEDAR ELM (M) 8", 8"	50997	13.5" OAK	81987	12.5" CEDAR ELM (M) 7", 6", 5"
OFFSITE 30738	8" CEDAR ELM	OFFSITE 50998	45" OAK (M) 25.5", 23", 16"		
30739	11.5" CEDAR ELM	50999	35" OAK		
30740	9.5" CEDAR ELM	51002	13" OAK		
30741	8.5" CEDAR ELM	51003	14.5" OAK		
30742	9.5" CEDAR ELM	51004	20" OAK		
30743	8" CEDAR ELM	51008	43.5" OAK (M) 32", 23"		
30744	8.5" CEDAR ELM	81535	13" UNKNOWN (M) 7", 4", 4", 4"		
30745	10.5" CEDAR ELM	81536	9.5" CEDAR ELM (M) 4", 4", 4", 3"		
30746	20.5" CEDAR ELM (M) 16", 9"	81537	11" CEDAR ELM		
30747	8" OAK	81957	7.5" CEDAR ELM		
30748	20" OAK (REMOVE) REMOVE	81958	38.5" OAK (M) 27.5", 22"		
30749	11.5" OAK (REMOVE) REMOVE	81959	33" OAK		
30750	22.5" OAK	81960	42" OAK (M) 29.5", 25"		
30751	10" CEDAR ELM	OFFSITE 81961	9.5" OAK (M) 7", 5"		
30752	10.5" CEDAR ELM	81962	13" OAK (M) 9", 8"		
30753	29.5" OAK	81973	8" MULBERRY		
30754	27.5" OAK (M) 15", 9", 9", 7"	81974	17" OAK (M) 12.5", 9" (REMOVE) REMOVE		



Know what's below.
 Call before you dig.

CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
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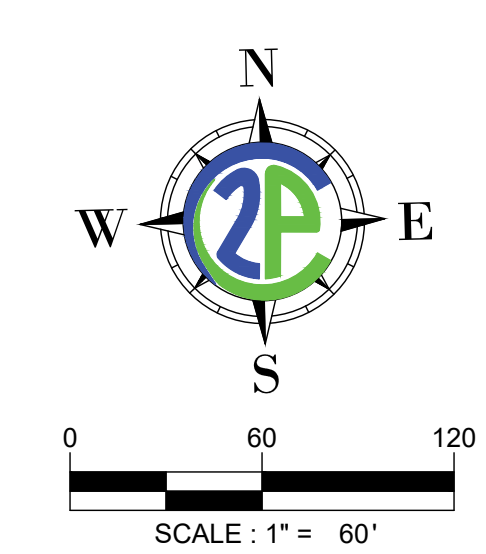
**ROUND ROCK SPORTS CENTER
 EXPANSION**
 2400 CHISHOLM TRAIL RD, ROUND ROCK,
 TX 78681



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SHEET TITLE
DEMOLITION PLAN

SHEET NO.
C105



GENERAL LEGEND

SYMBOLS

- Water Meter
- Water Valve
- Fire Hydrant
- Backflow Preventer
- Utility Pole
- Light Pole
- Wastewater Manhole
- Clean Out
- Keynotes
- Parking Count
- WW Service
- Water Service
- Stormsewer Manhole
- Sign
- Grate Inlet
- Table Top Area Inlet
- Tree to be Saved
- Tree to be Removed

LINE TYPES

- Property Boundary
- Limits of Construction
- Fences (Chainlink)
- (Iron)
- (Wood)
- (Barb Wire)
- Ditch (Creek) Line
- Existing Contours
- Proposed Contours
- Proposed Curb & Gutter
- Underground Elec.
- Overhead Utility
- Underground Tele.
- Underground Gas Line
- Water Line
- Wastewater Line
- Accessible Route

DETAIL NUMBER # **DETAIL NAME**

SHEET NUMBER # **WHERE DETAIL IS LOCATED** **DETAIL REFERENCE CALLOUT**

Marmor Mok ARCHITECTURE
San Antonio TX • 1020 NE Loop 410, Suite 201, 78209
Austin TX • 900 E 4th St, Suite 105, 78702

11/15/2023

ENGINEERING CONSULTING

- PLAN NOTES:**
- FACILITIES, BUILDINGS, OR PORTIONS OF BUILDINGS HEREAFTER CONSTRUCTED SHALL BE ACCESSIBLE TO FIRE DEPARTMENT APPARATUS BY WAY OF AN APPROVED FIRE APPARATUS ACCESS ROAD WITH AN ASPHALT, CONCRETE OR OTHER APPROVED DRIVING SURFACE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS (34,050 KG). THE APPROVED FIRE APPARATUS ACCESS ROAD MUST BE IN PLACE BEFORE COMBUSTIBLES ARE BROUGHT ON SITE.
 - THE GRADE THROUGH THE FIRE LANE ACCESS SHALL NOT BE GREATER THAN 7%, AND THE GRADE BREAKS NOT GREATER THAN 3%.
 - THE VERTICAL CLEARANCE OVER A DESIGNATED FIRE LANE SHALL NOT BE LESS THAN 13'6".
 - THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES INCLUDING EXISTING IRRIGATION ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - REFER TO SHEET I101 FOR DETAILED SITE/CONSTRUCTION PHASING.

ROUND ROCK SPORTS CENTER EXPANSION
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SHEET TITLE
SITE PLAN (1 OF 2)

SHEET NO.
C201

Building Information

Building	Use	Construction Type	Building Occupancy Type	Sprinkled	Maximum Height	Number of Stories	Floor Area (sf)
Existing	Government/Institutional	IIB	A-4	Yes	49'-9"	1	68,220
Expansion	Government/Institutional	IIB	A-4	Yes	49'-9"	1	25,961
Total:							94,181

Parking Table

Building	Use	Parking Requirements	Provided Standard Parking	Provided ADA Parking	Total Provided Parking
Existing	Government/Institutional	N/A	537	19	556
Expansion	Government/Institutional	N/A	161	6	167
Total:			698	25	723

SITE PAVING TABLE

HATCH	PAVEMENT TYPE	QUANTITY	DESCRIPTION
[Hatch]	HEAVY DUTY FLEXIBLE PAVEMENT	10,650 SY	3" HMAC TYPE D 12" CRUSHED LIMESTONE BASE 8" COMPACTED SUBGRADE
[Hatch]	SIDEWALK	1,000 SY	4" REINFORCED CONCRETE 8" COMPACTED SUBGRADE

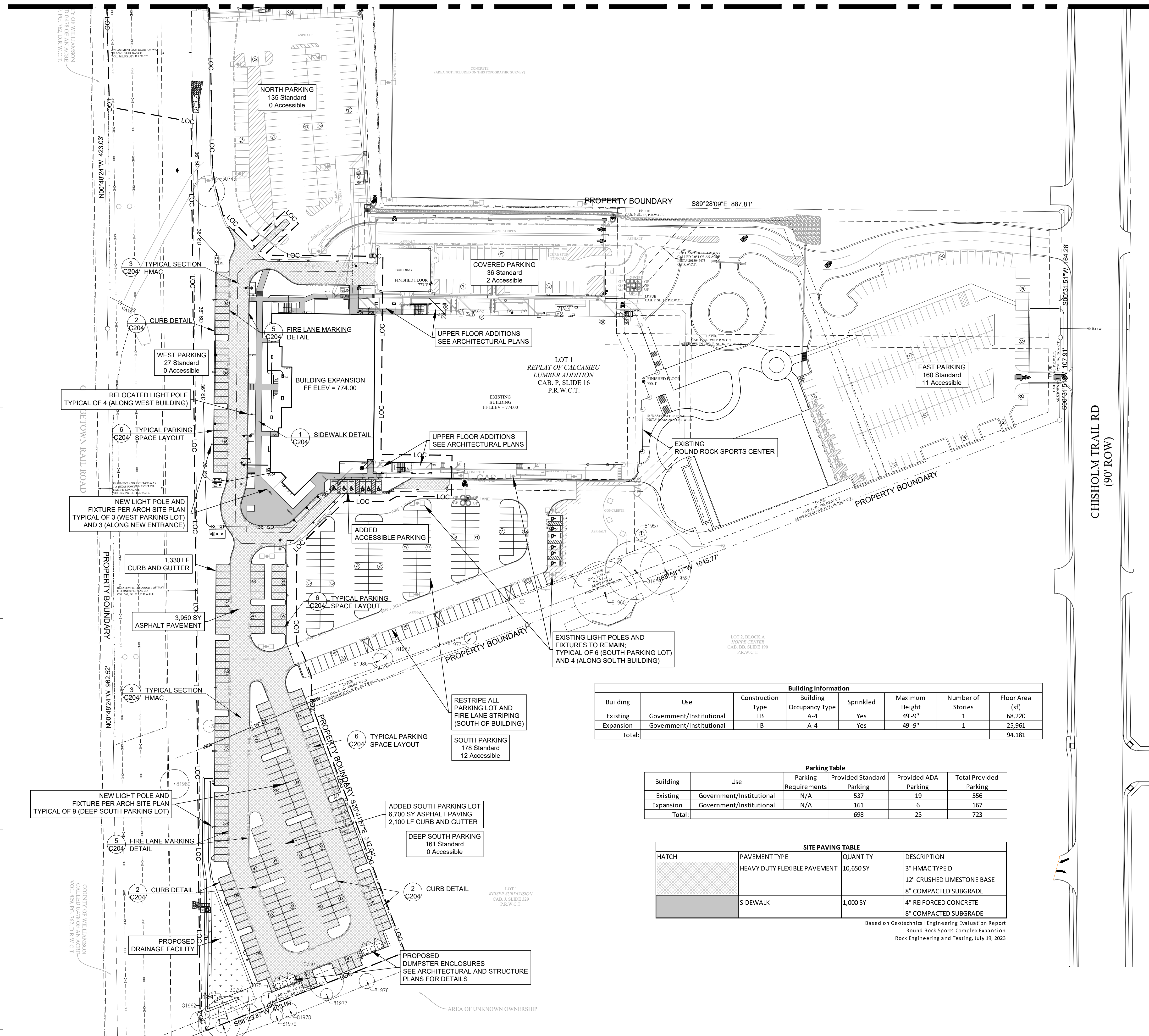
Based on Geotechnical Engineering Evaluation Report
Round Rock Sports Complex Expansion
Rock Engineering and Testing, July 19, 2023



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CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

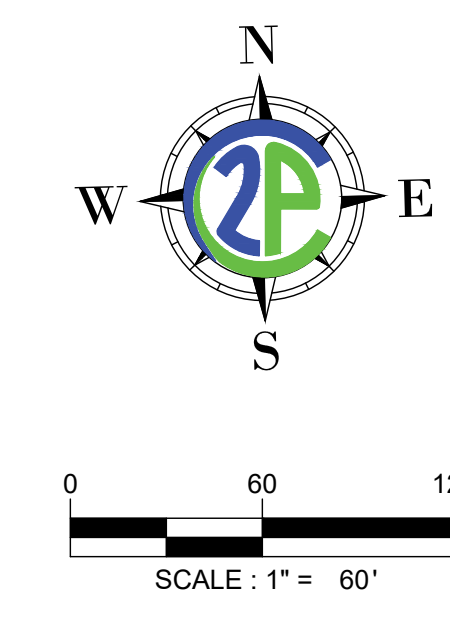
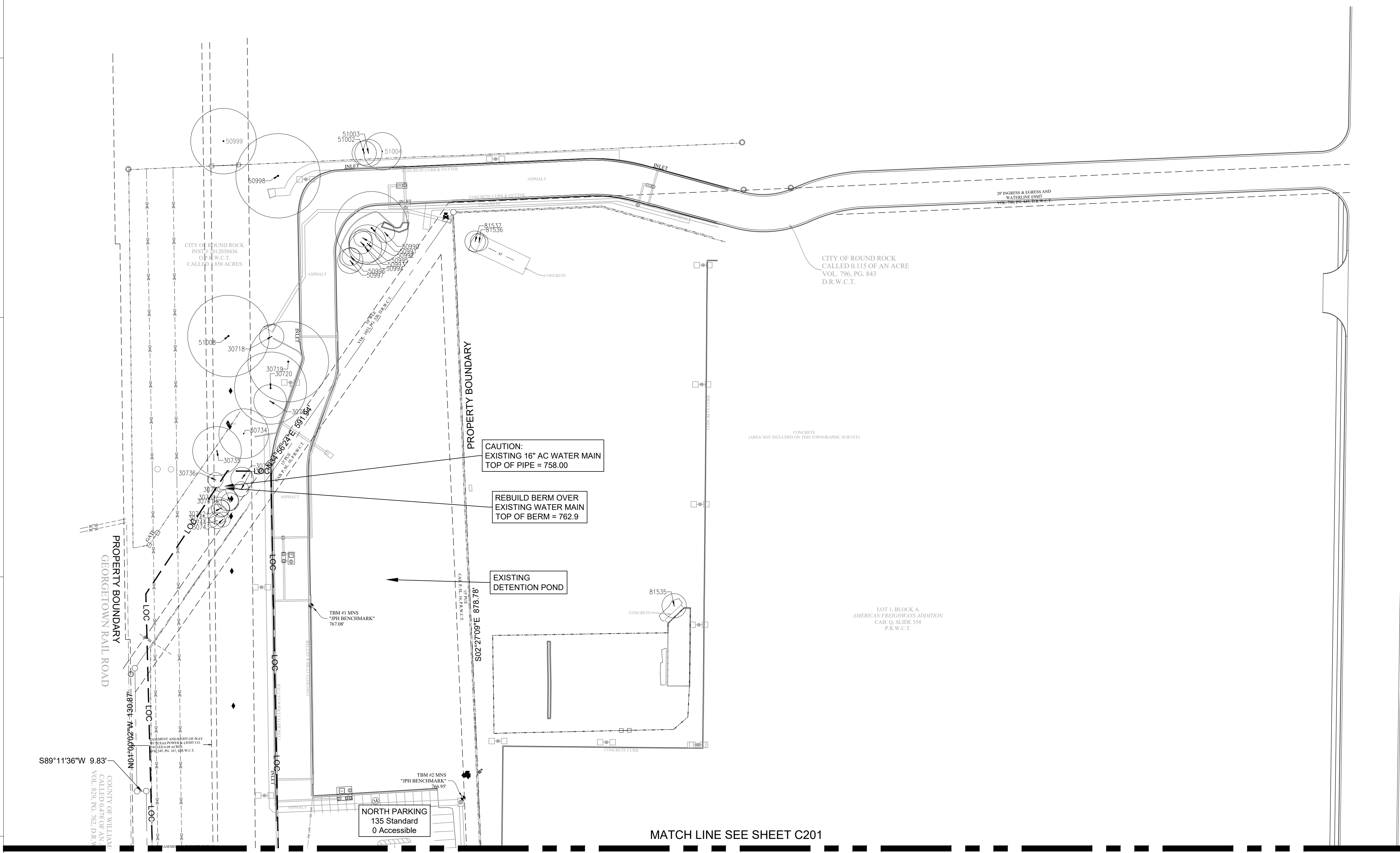
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D

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GENERAL LEGEND	
SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SIGN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED
LINETYPES	
	PROPERTY BOUNDARY
	LOC LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	(IRON)
	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	— UGE — UNDERGROUND ELEC.
	— OUE — OVERHEAD UTILITY
	— TEL — UNDERGROUND TELE.
	— GAS — UNDERGROUND GAS LINE
	— W — WATER LINE
	— WW — WASTEWATER LINE
	ACCESSIBLE ROUTE
DETAIL NUMBER	
	DETAIL NAME
	WHERE DETAIL IS LOCATED
	DETAIL REFERENCE CALLOUT

PLAN NOTES:

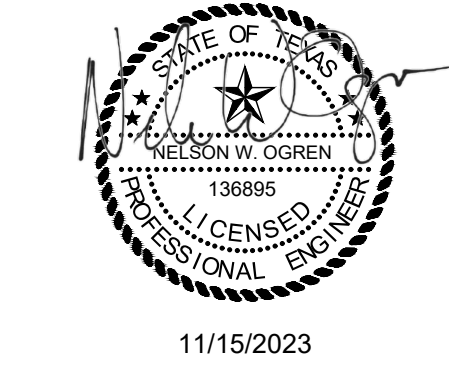
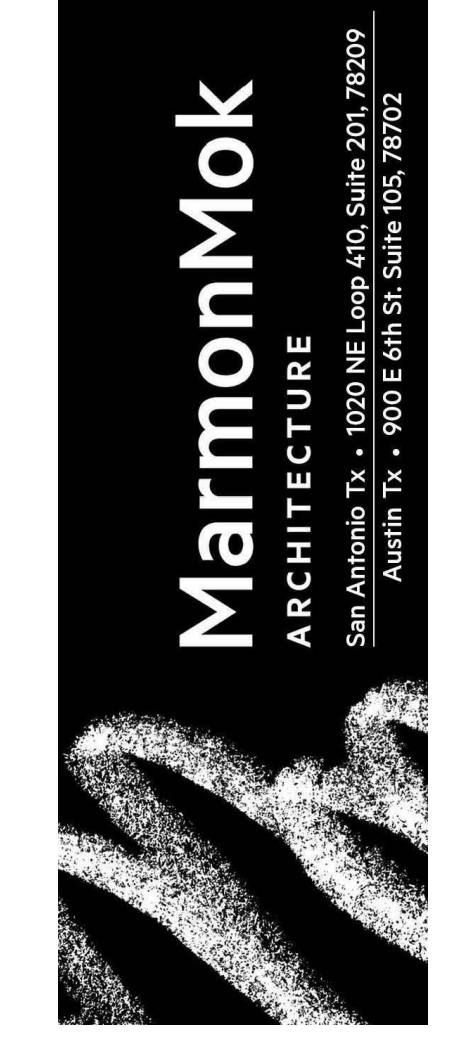
- 1) FACILITIES, BUILDINGS, OR PORTIONS OF BUILDINGS HEREAFTER CONSTRUCTED SHALL BE ACCESSIBLE TO FIRE DEPARTMENT APPARATUS BY WAY OF AN APPROVED FIRE APPARATUS ACCESS ROAD WITH AN ASPHALT, CONCRETE OR OTHER APPROVED DRIVING SURFACE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS (34,050 KG). THE APPROVED FIRE APPARATUS ACCESS ROAD MUST BE IN PLACE BEFORE COMBUSTIBLES ARE BROUGHT ON SITE.
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**ROUND ROCK SPORTS CENTER
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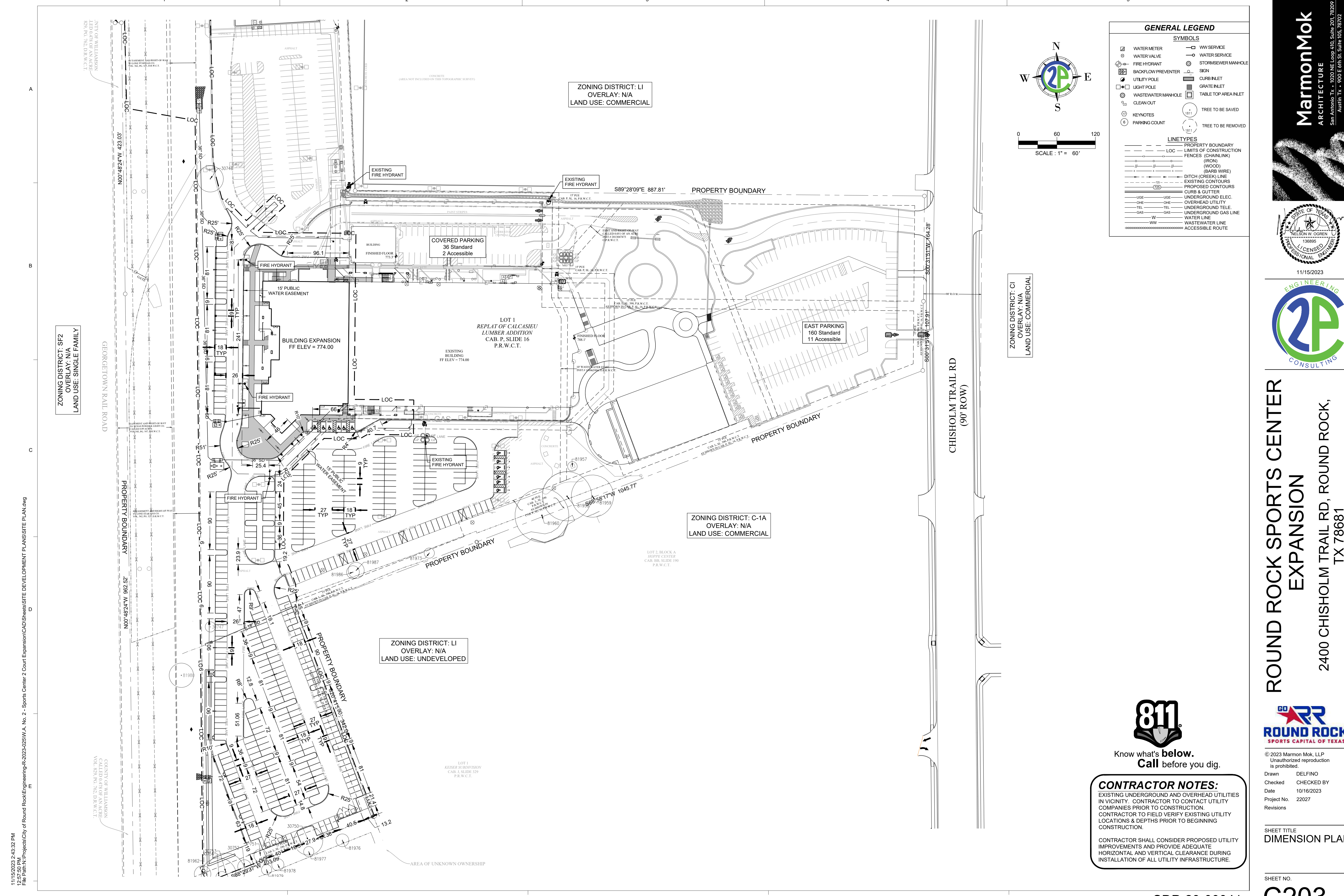
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SHEET TITLE
SITE PLAN (2 OF 2)

SHEET NO.

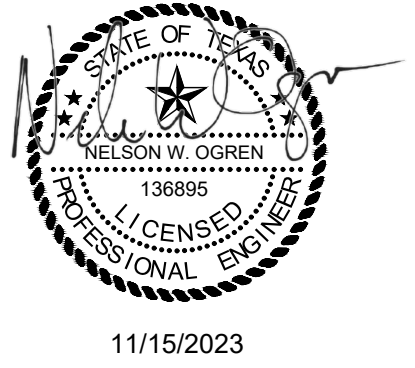
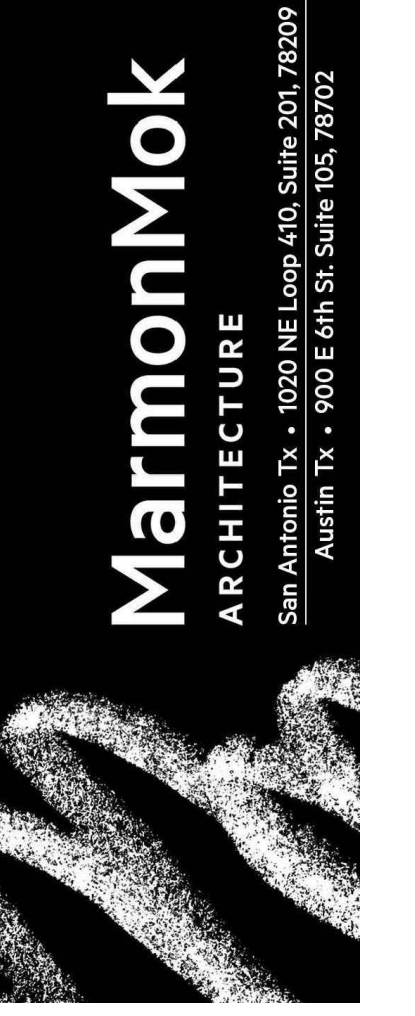
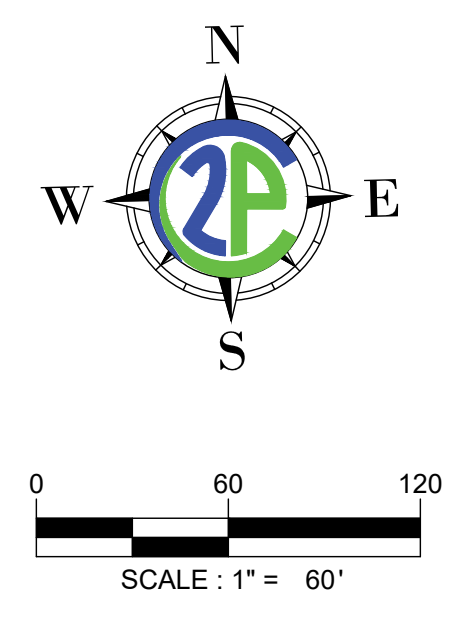
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SDP-23-00041



GENERAL LEGEND	
SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SIGN
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	LIMITS OF CONSTRUCTION
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	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
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	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
	OVERHEAD UTILITY
	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE



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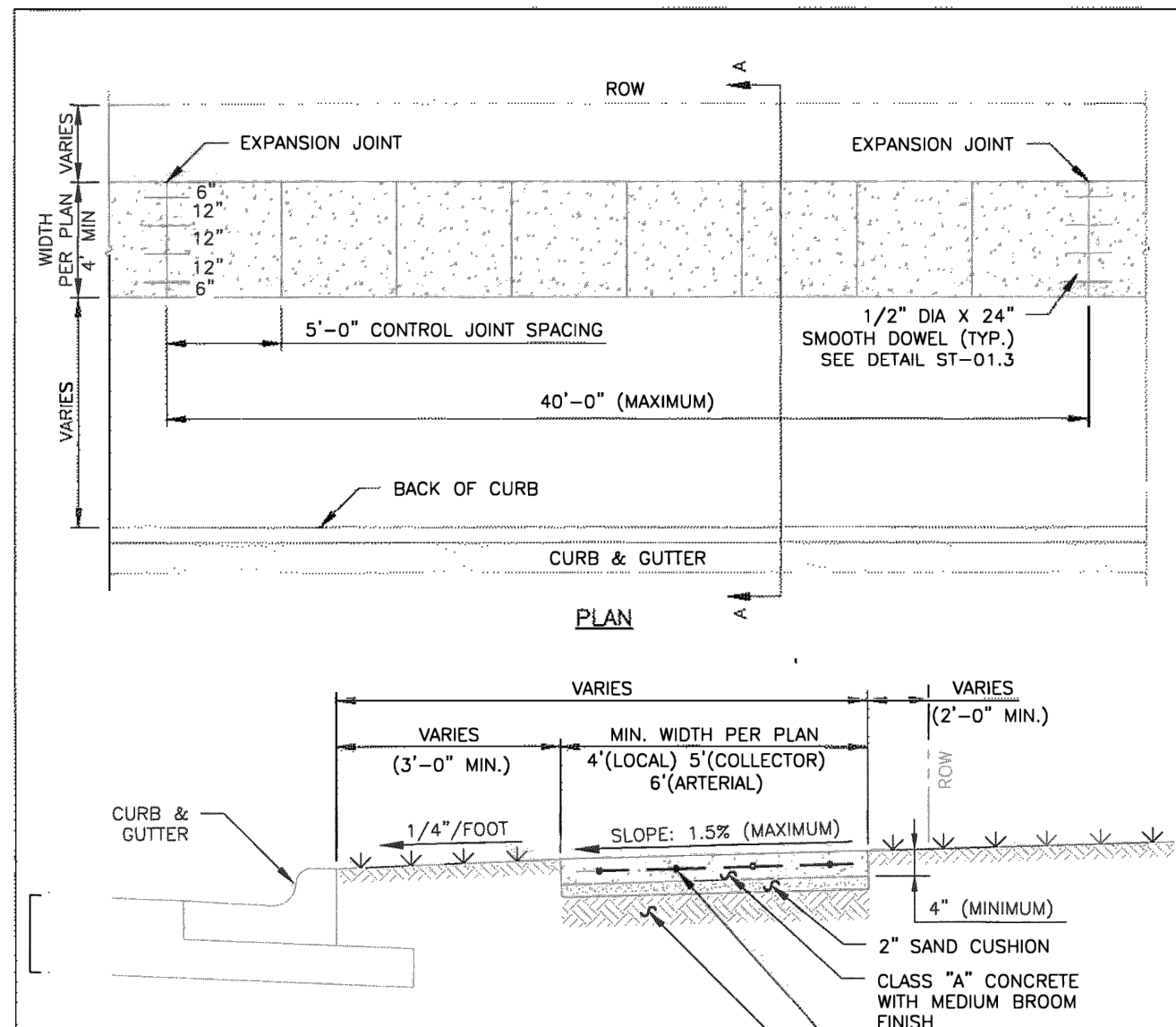
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SHEET TITLE
DIMENSION PLAN

SHEET NO.
C203

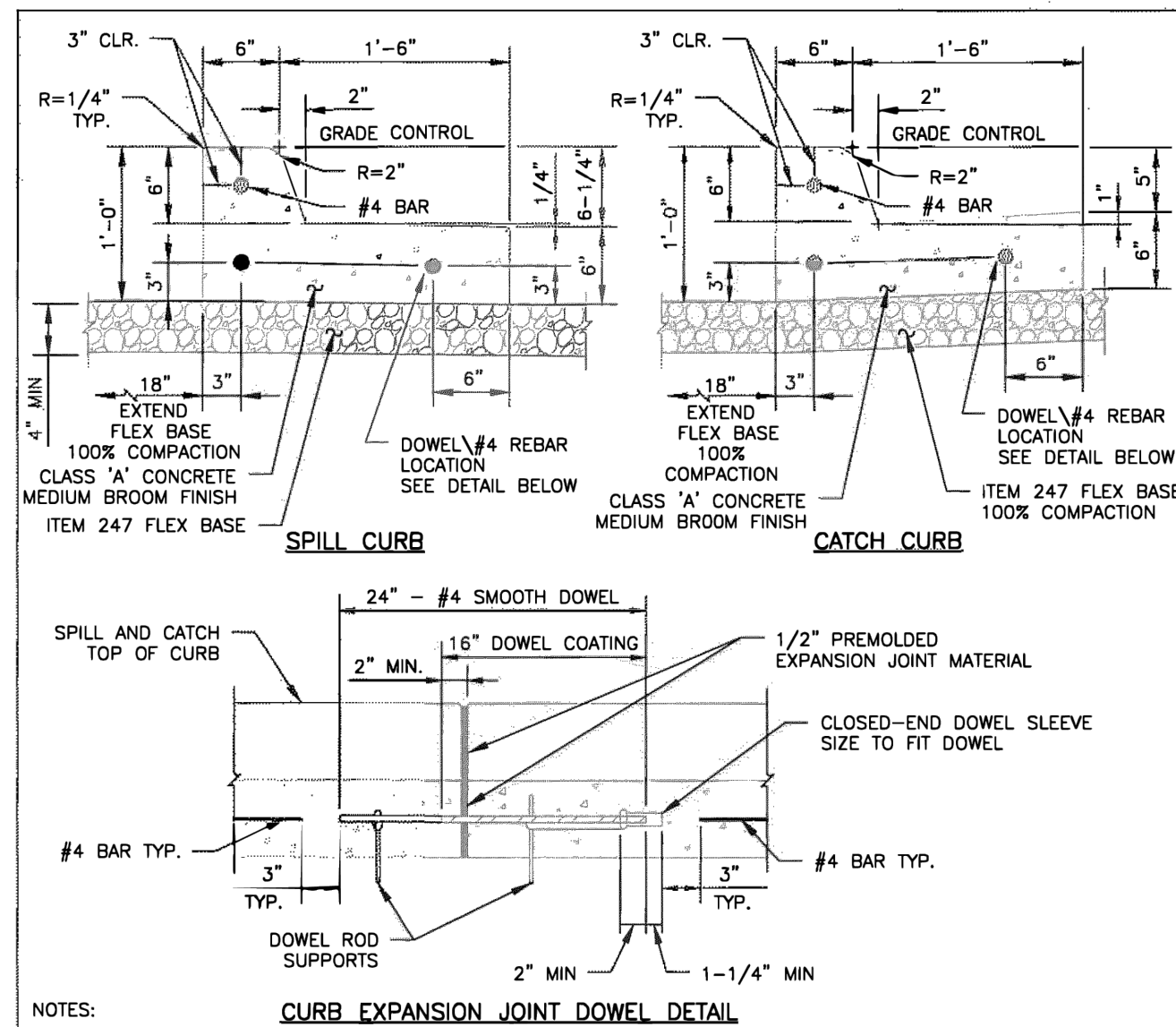
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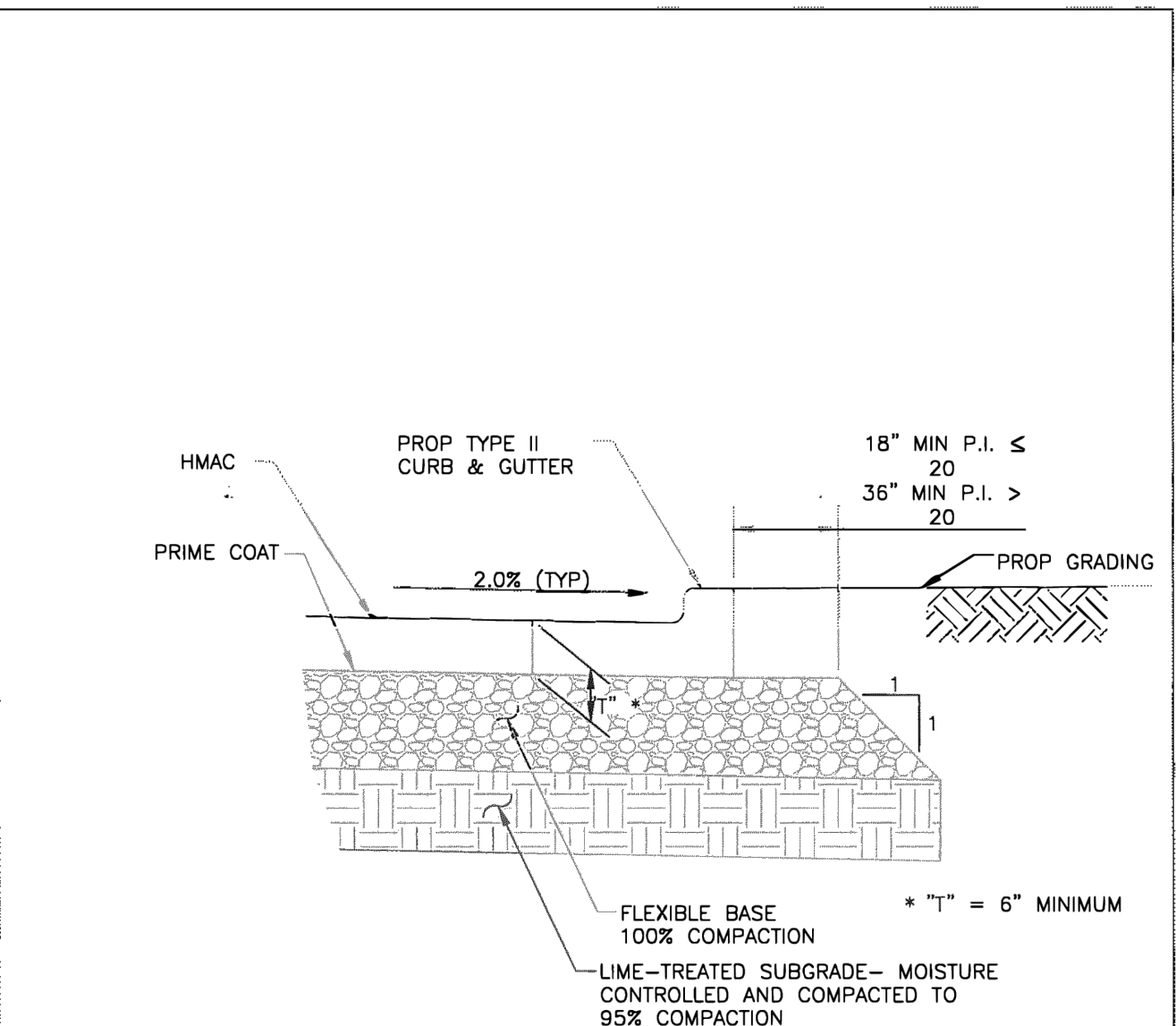
- NOTES:**
1. CONCRETE IS CLASS "A" BROOM FINISHED. (TXDOT ITEM 421 & 531)
 2. REINFORCING IS #4 BARS PLACED AT 12 INCHES O.C.E.W. (SEE DETAIL) DO NOT USE W.W.F (WELDED WIRE FABRIC)
 3. PLACE EXPANSION JOINT AT A MAXIMUM SPACING OF 40 FEET. TERMINATE WORKDAY PRODUCTION AT AN EXPANSION JOINT.
 4. PLACE 1/2" WIDE EXPANSION MATERIAL WHERE SIDEWALK ABUTS AN EXISTING STRUCTURE, DRIVEWAY, OR OBSTRUCTION PROTRUDING THROUGH THE SIDEWALK.
 5. FORM CONTROL JOINTS, 1/4" INCH WIDE AND 3/4" INCH DEEP AT A MAXIMUM SPACING OF 5 FEET. JOINT SPACING SHALL BE PROPORTIONAL TO WIDTH OF SIDEWALK.
 6. ROUND OUTER EDGES AND JOINTS TO A 1/4" INCH RADIUS
 7. CONSTRUCT CURB RAMPS IN ACCORDANCE WITH TXDOT STANDARD "PEDESTRIAN FACILITIES CURB RAMPS"
 8. WHEN SIDEWALK IS A DESIGNATED SHARED USE PATH, CURB RAMP CLEAR WIDTH SHALL MATCH THE WIDTH OF THE SHARED USE PATH.
 9. SIDEWALKS SHALL BE CONSTRUCTED PER CURRENT ADA STANDARDS.
 10. SIDEWALKS WITHIN 3'-0" OF CURB SHALL BE A MINIMUM OF 5 FEET WIDE.

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-01.1
APPROVED		SHEET 1 of 3
DATE	① SIDEWALK DETAIL	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		



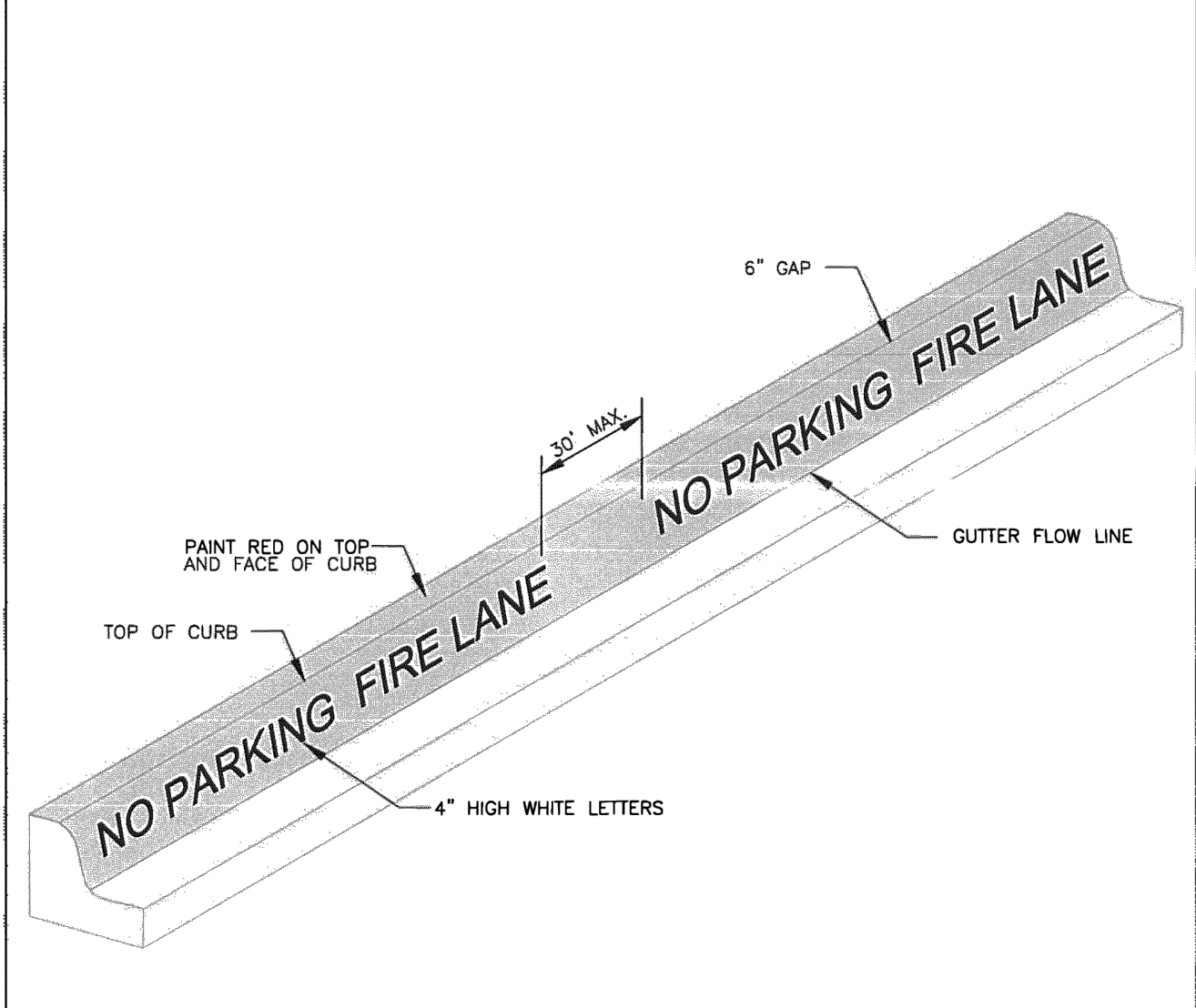
- NOTES:**
1. ALL WORK AND MATERIALS SHALL CONFORM TO SPECIFICATION ITEM 529, "CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER", AND THESE DETAILS (INDEPENDENT OF THE CONSTRUCTION METHODS USED)
 2. ALL CURBS SHALL HAVE A MINIMUM OF 4 INCHES OF COMPACTED FLEXIBLE BASE BETWEEN THE BOTTOM OF THE CURB AND TOP OF SUBGRADE. THE FLEXIBLE BASE MATERIAL, COMPACTED TO 100% DENSITY, SHALL EXTEND 18 INCHES BEHIND BACK OF CURB, OR 36 INCHES IF THE SUBGRADE P.I. IS GREATER THAN 20.
 3. CONCRETE IS CLASS "A" MEDIUM BROOM FINISH.
 4. REINFORCING BARS ARE #4 BARS UNLESS OTHERWISE SHOWN.
 5. PLACE EXPANSION JOINT AT A MAXIMUM SPACING OF 40 FEET. TERMINATE WORKDAY PRODUCTION AT AN EXPANSION JOINT.
 6. PLACE 1/2" WIDE EXPANSION JOINTS AT STRUCTURES, CURB RETURNS AND INCREMENTS NO GREATER THAN 40 FEET.
 7. FORM CONTROL JOINTS, 1/4" INCH WIDE AND 3/4" INCH DEEP AT A MAXIMUM SPACING OF 10 FEET. WHEN CURB ABUTS CONCRETE PAVEMENT, MATCH PAVEMENT JOINT SPACING.
 8. ROUND EXPOSED EDGES AND JOINTS TO A 1/4" INCH RADIUS.
 9. COAT 16 INCHES OF 24 INCH LONG DOWELS WITH GREASE OR APPROVED DEBONDING LUBRICANT. INSTALL DOWEL CAP ON LUBRICATED END OF THE DOWELS.

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-06
APPROVED		SHEET 1 of 1
DATE	② SPILL AND CATCH CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		



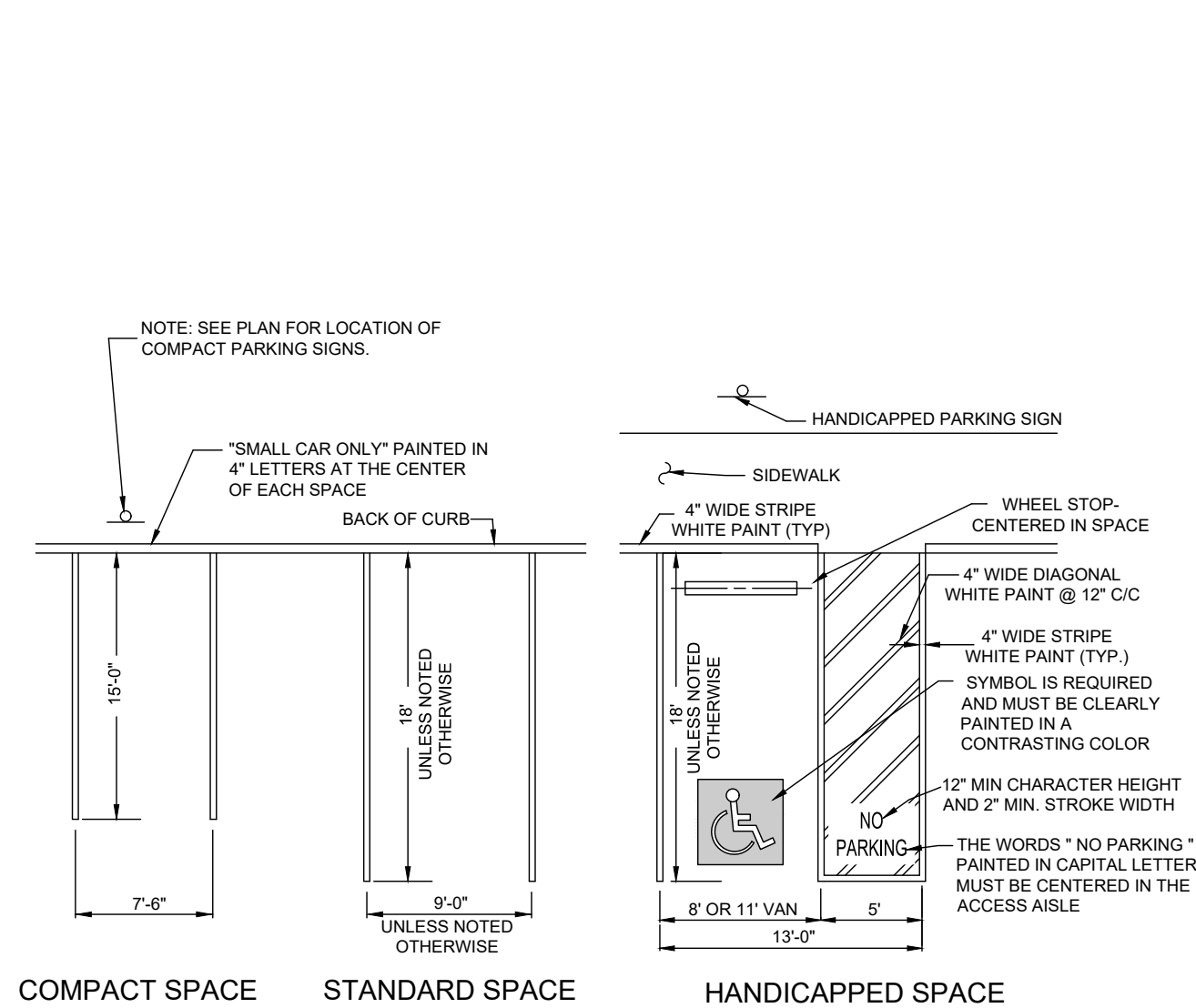
- NOTES:**
1. REFER TO TYPICAL SECTIONS FOR FURTHER DETAILS.
 2. ALL UNPAVED AREAS WITHIN LIMITS OF CONSTRUCTION SHALL BE SODDED OR SEEDED AS SHOWN ON THE PLANS.
 3. SLOPES OF STREET PAVEMENT SHALL BE PER TRANSPORTATION CRITERIA MANUAL.
 4. ALL PAVEMENT LAYER THICKNESSES SHALL BE BASED ON PROJECT PAVEMENT DESIGN REPORT. REFER TO THE TRANSPORTATION CRITERIA MANUAL.

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-14
APPROVED		SHEET 1 of 1
DATE	③ TYPICAL SECTION HMAC	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		



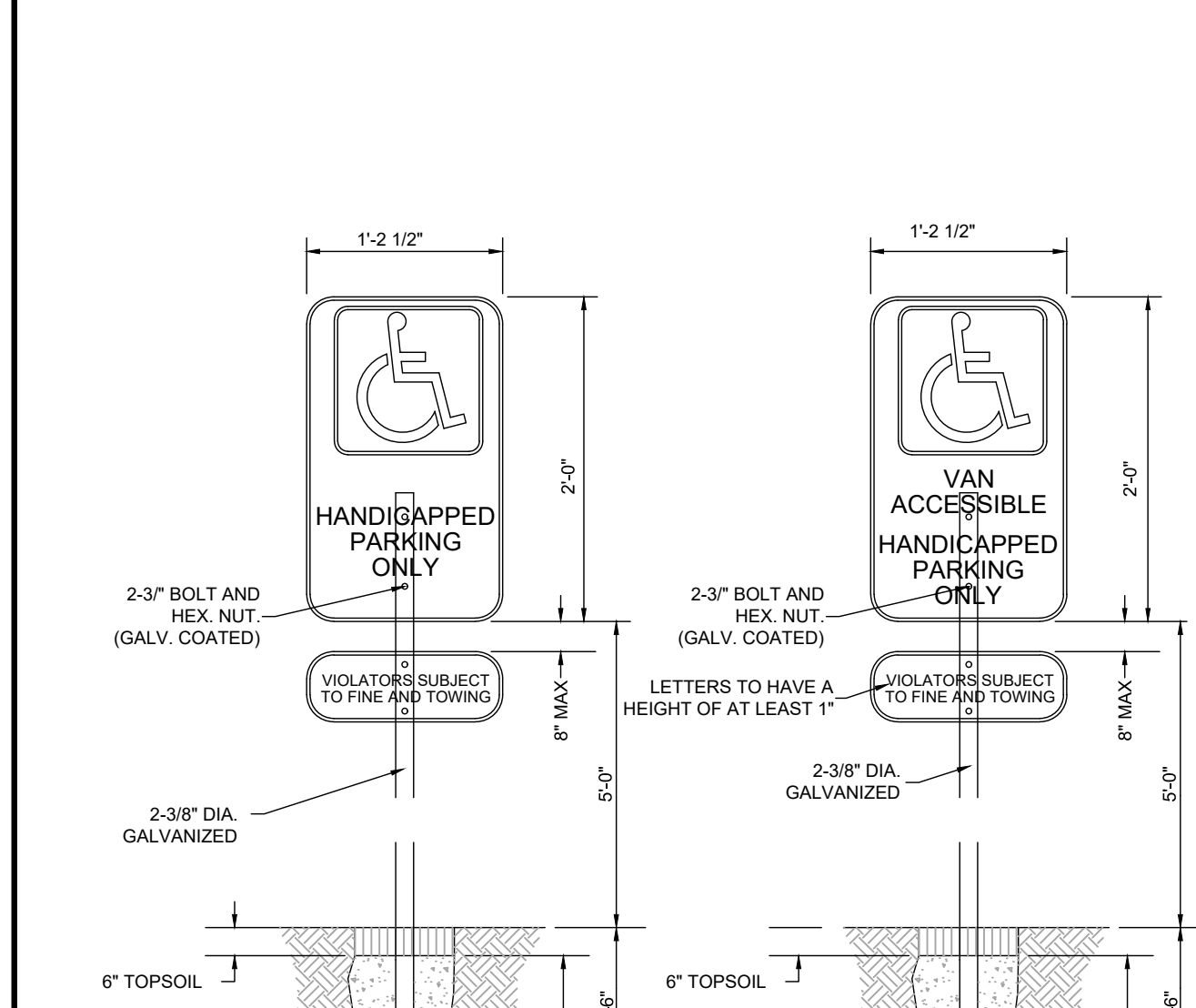
- NOTES:**
- FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "NO PARKING FIRE LANE" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED GREATER THAN 30" APART. STRIPING TO BE PAINTED ON THE FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON THE PARKING SURFACE WHEN IT IS NOT.

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-16
APPROVED		SHEET 1 of 1
DATE	⑤ FIRE LANE MARKING DETAIL	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		



- NOTES:**
1. DRIVE AISLE IS MIN. 25' WIDE
 2. RAMP ACCESS AND SURFACE SLOPES SHALL COMPLY WITH ADA/TAS REQUIREMENTS
 3. EACH HANDICAPPED PARKING SPACE SHALL BE SIGNED IN ACCORDANCE WITH ADA REQUIREMENTS.

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-17
APPROVED		SHEET 1 of 1
DATE	⑥ TYPICAL PARKING SPACE LAYOUT	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		



- NOTES:**
- VIOLATORS SUBJECT TO FINE AND TOWING
- LETTERS TO HAVE A HEIGHT OF AT LEAST 1"

RECORD SIGNED COPY ON FILE	CITY OF ROUND ROCK	DRAWING NO: ST-18
APPROVED		SHEET 1 of 1
DATE	⑦ HANDICAPPED PARKING SIGNS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		

ADA / TAS DESIGN - GENERAL

THE CONTRACTOR IS FULLY RESPONSIBLE FOR CONSTRUCTION OF SIDEWALKS, LANDINGS, PORCHES, RAMPS & PARKING SPACES THAT MEET ADA/TAS REQUIREMENTS. THE CONTRACTOR SHALL HAVE FULL KNOWLEDGE OF THE DETAILS ON THESE PLANS AND OF ADA/TAS REGULATIONS. SHOULD THE CONTRACTOR FIND AN ELEVATION OR CONDITION THAT IS DIFFERENT THAN SHOWN ON THE PLANS, IT IS THE CONTRACTOR'S FINAL RESPONSIBILITY TO CONTACT THE CIVIL DESIGNER AND WORK OUT A DESIGN THAT MEETS ADA & TAS, PRIOR TO CONSTRUCTION, NOT AFTER THE WORK IS COMPLETED.

ADA SIDEWALK RAMP SLOPES

DETERMINE THE LENGTH OF A RAMP BY CHECKING THE ELEVATIONS AT THE TOP AND BOTTOM ELEVATION OF THE RAMPS. THE DESIGN SHALL BE FOR A RUNNING SLOPE OF 8.0%.

ADA CURB RAMP SLOPES

THE DESIGN SHALL BE FOR A RAMP SLOPE OF 8.2%. IT IS IMPOSSIBLE TO HAVE A 6' LONG RAMP WITHOUT THE TOP AND BOTTOM OF RAMP BEING NO MORE THAN 6" DIFFERENCE IN ELEVATION. DETERMINE THE LENGTH BY CHECKING THE TOP AND BOTTOM ELEVATIONS OF THE RAMP.

ADA HANDICAP PARKING SPACES

NO SLOPE WITHIN A PARKING SPACE OR A STRIPED AISLE SHALL EXCEED 1.85% IN EITHER DIRECTION.

ADA CROSSWALKS, SIDEWALKS AND ACCESSIBLE ROUTES

NO CROSS SLOPE SHALL EXCEED 2%
NO RUNNING SLOPE SHALL EXCEED 5%.

ROUND ROCK SPORTS CENTER EXPANSION

2400 CHISHOLM TRAIL RD, ROUND ROCK, TX 78681



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Date 10/16/2023
Project No. 22027
Revisions

SHEET TITLE
SITE DETAILS

SHEET NO.
C204

Marmon Mok ARCHITECTURE

San Antonio TX • 1020 NE Loop 410, Suite 201, 78209
Austin TX • 900 E 4th St, Suite 05, 78702

11/15/2023

ENGINEERING

2A

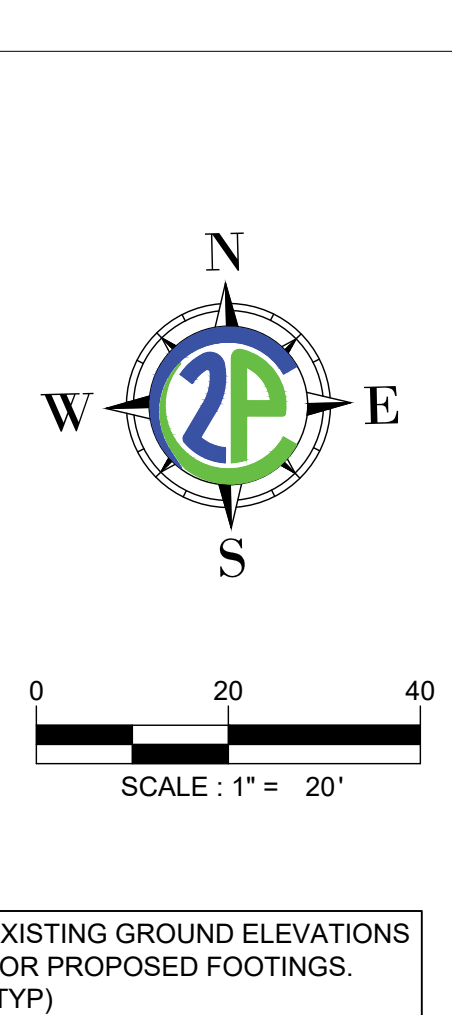
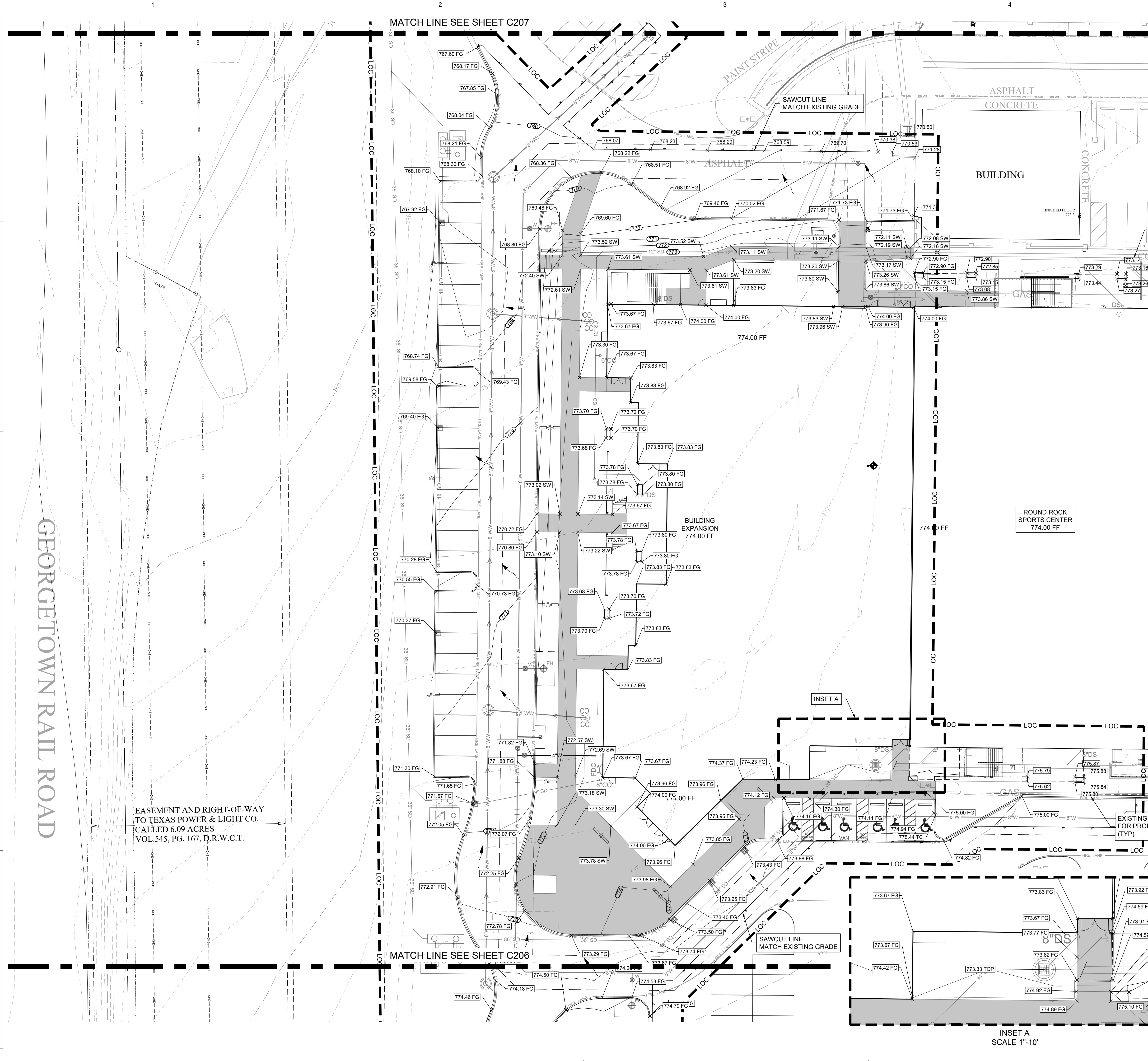
CONSULTING

STATE OF TEXAS
WETSON W. OGDEN
136895
PROFESSIONAL ENGINEER

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 File Path: N:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CAD\Sheets\SITE DEVELOPMENT PLANS\GRADING PLAN.dwg



GENERAL LEGEND	
SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORM SEWER MANHOLE
	SIGN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED

GRADING LEGEND	
	EXISTING GROUND
	PROPOSED PAVEMENT
	PROPOSED TOP OF WALL
	PROPOSED TOP OF SLOPE
	PROPOSED TOP OF CONCRETE INLET
	PROPOSED FLOWLINE
	PROPOSED FINISHED FLOOR
	PROPOSED GRADE BREAK ON SURFACE (CONC, PAVT, GRASS, ETC.)
	LP LOW POINT
	HP HIGH POINT

- ADA GRADING NOTES:**
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 - NO CROSS SLOPE SHALL EXCEED 2%.
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 - CONTRACTOR TO VERIFY ACCESSIBLE FEATURES MEET THE TEXAS DEPARTMENT OF LICENSING AND REGISTRATION'S ARCHITECTURAL BARRIERS AND TEXAS ACCESSIBILITY STANDARDS (CURRENT AT THE TIME OF CONSTRUCTION) PRIOR TO POURING CONCRETE.
 - ALL LANDINGS AND PORCHES SHALL BE LEVEL WITH THE NOTED FINISHED FLOOR ELEVATION AT THE DOOR THRESHOLD AND SLOPE AWAY AT 1:48 (MAX) PER TAS FOR THE FIRST 5 FEET. SEE ARCHITECTURAL PLANS FOR DETAILS.
- SITE GRADING NOTES:**
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 - TOP OF CURB (TC) = PAVEMENT FINISHED GRADE (FG) + 0.5'
 - THE GRADE THROUGH THE FIRE LANE ACCESS SHALL NOT BE GREATER THAN 7%, AND THE GRADE BREAKS SHALL NOT BE GREATER THAN 3%, IN GENERAL ACCORDANCE WITH 2015 INTERNATIONAL FIRE CODE, SECTIONS 503.2.7 AND 503.2.8, AS DETERMINED BY THE FIRE CODE OFFICIAL OR AHJ.

811
 Know what's below.
 Call before you dig.

CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
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Marmor Mok ARCHITECTURE
 San Antonio, TX - 1020 NE Loop 410, Suite 201, 78209
 Austin, TX - 100 E 4th St, Suite 105, 78702

11/15/2023

ENGINEERING CONSULTING

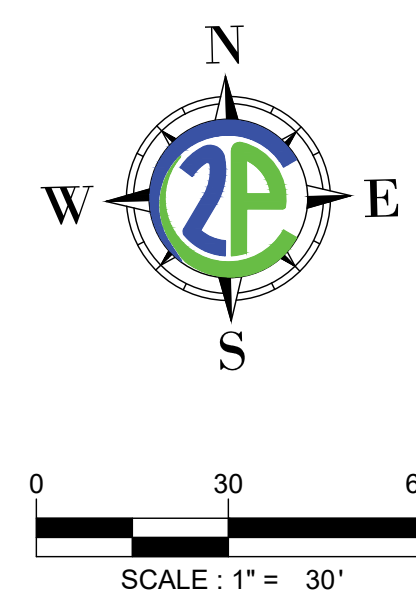
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ROUND ROCK SPORTS CAPITAL OF TEXAS

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 Checked: CHECKED BY
 Date: 10/16/2023
 Project No.: 22027
 Revisions:

MATCH LINE SEE SHEET C205



GENERAL LEGEND	
SYMBOLS	
⊗	WATER METER
⊕	WATER VALVE
⊙	FIRE HYDRANT
⊖	BACKFLOW PREVENTER
⊕	UTILITY POLE
⊙	LIGHT POLE
⊕	WASTEWATER MANHOLE
⊖	CLEAN OUT
⊙	KEYNOTES
⊕	PARKING COUNT
⊖	WW SERVICE
⊕	WATER SERVICE
⊙	STORMSEWER MANHOLE
⊖	SKIN
⊕	CURB INLET
⊙	GRATE INLET
⊖	TABLE TOP AREA INLET
⊕	TREE TO BE SAVED
⊙	TREE TO BE REMOVED
LINETYPES	
---	PROPERTY BOUNDARY
---	LOC LIMITS OF CONSTRUCTION
---	FENCES (CHAINLINK)
---	(IRON)
---	(WOOD)
---	(BARB WIRE)
---	DITCH (CREEK) LINE
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	CURB & GUTTER
---	UG- UNDERGROUND ELEC.
---	OE- OVERHEAD UTILITY
---	TEL- UNDERGROUND TELE.
---	GAS- UNDERGROUND GAS LINE
---	W- WATER LINE
---	WW- WASTEWATER LINE
---	ACCESSIBLE ROUTE
GRADING LEGEND	
EXISTING	
---	NATURAL GROUND
---	EX PAV
---	PVMT
PROPOSED	
---	PAVEMENT
---	TOP OF CURB
---	SIDEWALK
---	TOP OF GRATE
---	FLOWLINE
---	FINISHED GROUND
---	PROPOSED GRADE BREAK ON SURFACE (CONC, PVMT, GRASS, ETC.)
---	TOP OF WALL
---	TOE OF SLOPE
---	TOP OF SLOPE
---	CONCRETE INLET
---	FINISHED FLOOR
---	PROPOSED GRADE BREAK ON SURFACE (CONC, PVMT, GRASS, ETC.)
---	LOW POINT
---	HIGH POINT

ADA GRADING NOTES:

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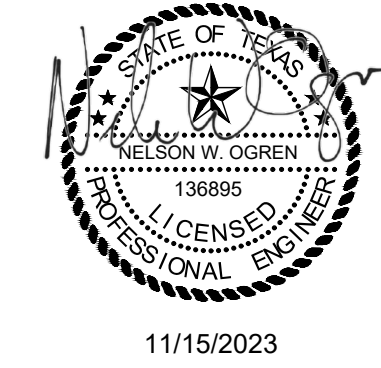
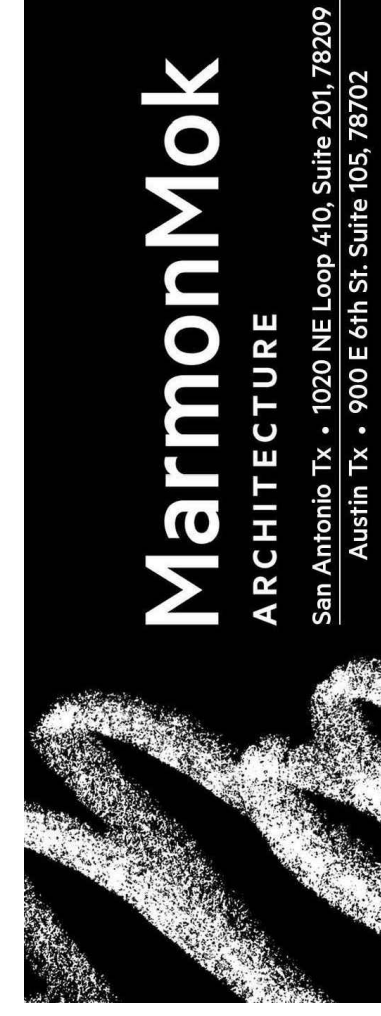
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CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
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Project No. 22027
Revisions

SHEET TITLE
GRADING PLAN
(2 OF 3)

SHEET NO.
C206

11/15/2023 2:44:00 PM
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File Path: N:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CAD\Sheets\Site Development Plans\Grading Plan.dwg

COUNTY OF WILLIAMSON
CALLED 0.478 OF AN ACRE
VOL. 829, PG. 762, D.R.W.C.T.

40' EASEMENT AND RIGHT-OF-WAY
TO LONE STAR GAS CO.
VOL. 562, PG. 525, D.R.W.C.T.

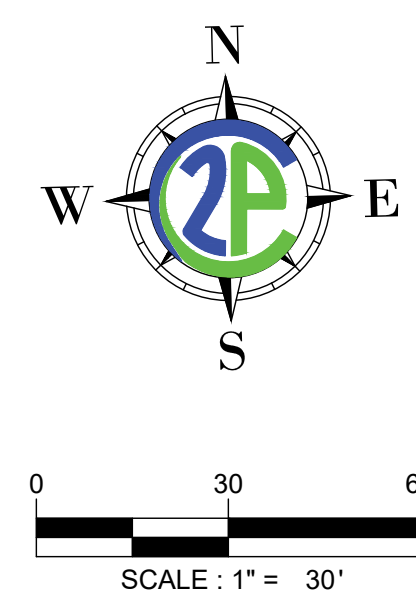
15' PUE
CAB. L. SL. 390, P.R.W.C.T.
AS SHOWN IN CAB. P. SL. 16, P.R.W.C.T.

LOT 1
KEISER SUBDIVISION
CAB. J. SLIDE 329
P.R.W.C.T.

AREA OF UNKNOWN OWNERSHIP

DUMPSTER ENCLOSURE OVER-EXCAVATION.
SEE NOTE 4.

DUMPSTER ENCLOSURE OVER-EXCAVATION.
SEE NOTE 4.



GENERAL LEGEND	
SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SIGN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED
LINETYPES	
	PROPERTY BOUNDARY
	LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	(IRON)
	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
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	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE
GRADING LEGEND	
EXISTING	
	NATURAL GROUND
	GUTTER
	PAVT
	SIDEWALK
PROPOSED	
	PAVEMENT
	TOP OF WALL
	TOE OF SLOPE
	TOP OF SLOPE
	TOP OF GRATE
	CONCRETE INLET
	FLOWLINE
	FINISHED FLOOR
	FINISHED GROUND
	PROPOSED GRADE BREAK ON SURFACE (CONC, PAVT, GRASS, ETC.)
LP	LOW POINT
HP	HIGH POINT

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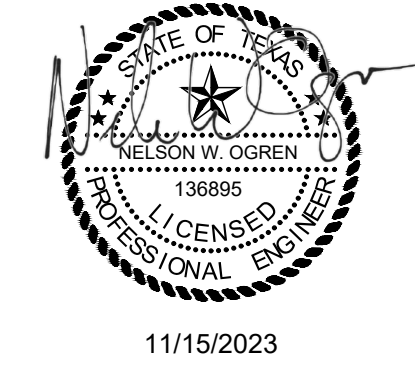
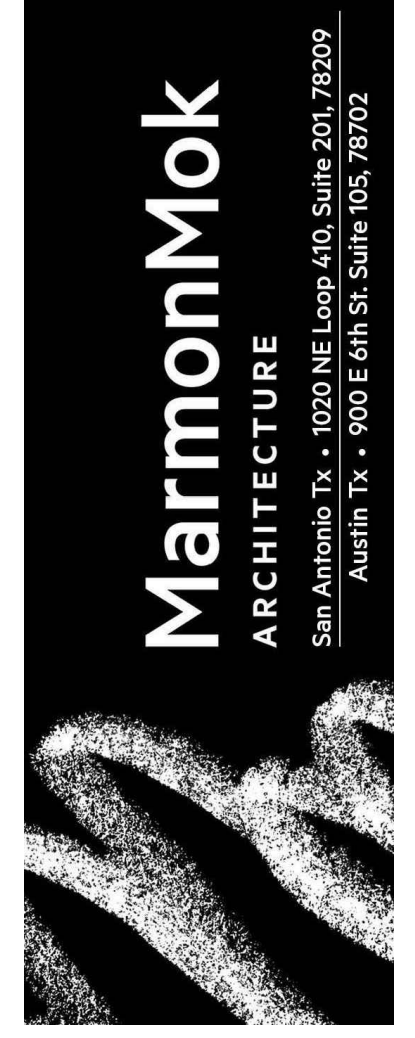


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**ROUND ROCK SPORTS CENTER
EXPANSION**
2400 CHISHOLM TRAIL RD, ROUND ROCK,
TX 78681



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Revisions

SHEET TITLE
GRADING PLAN
(3 OF 3)

SHEET NO.
C207

11/15/2023 2:44:01 PM
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File Path: N:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CAD\Sheets\SITE DEVELOPMENT PLANS\GRADING PLAN.dwg

Williamson County NOAA Atlas 14 Rainfall Zones - Brushy Creek

Precipitation Depths (inches) per Recurrence Interval					
EVENT	2-YR	10-YR	25-YR	50-YR	100-YR
24-HR	3.99"	6.44"	8.26"	9.83"	11.6"

Precipitation Data taken from NOAA Atlas 14 website
Address: 2400 Chisholm Trail Rd, Round Rock, TX

EXISTING CONDITIONS DRAINAGE BASIN INFORMATION

BASIN	AREA		IMPERVIOUS COVER		SCS CURVE	TIME OF CONCENTRATION (MIN)	LAG (MIN)
	SF	AC	SF	%			
1	51400.80	1.18	0.0018438	45.181.00	88%	95.82	12.0
2	37461.60	0.86	0.0013438	22439	60%	90.78	8.47
3	43124.40	0.99	0.0015469	35621	83%	94.87	9.42
4	48351.60	1.11	0.0017344	16074	33%	85.98	8.81
5	175111.20	4.02	0.0062813	109989	63%	91.31	8.3
6	33976.80	0.78	0.0012188	33977	100%	98.00	5
7	56628.00	1.30	0.0020313	56612	100%	97.99	5
8	87991.20	2.02	0.0031563	87118	99%	97.82	5
9	161244.70	3.70	0.0057839	4613.4	3%	80.52	14.88
10	231233.57	5.31	0.0082944	0	0%	80.00	19.23
11	237093.86	5.44	0.0085046	35691.3	15%	82.71	23.3

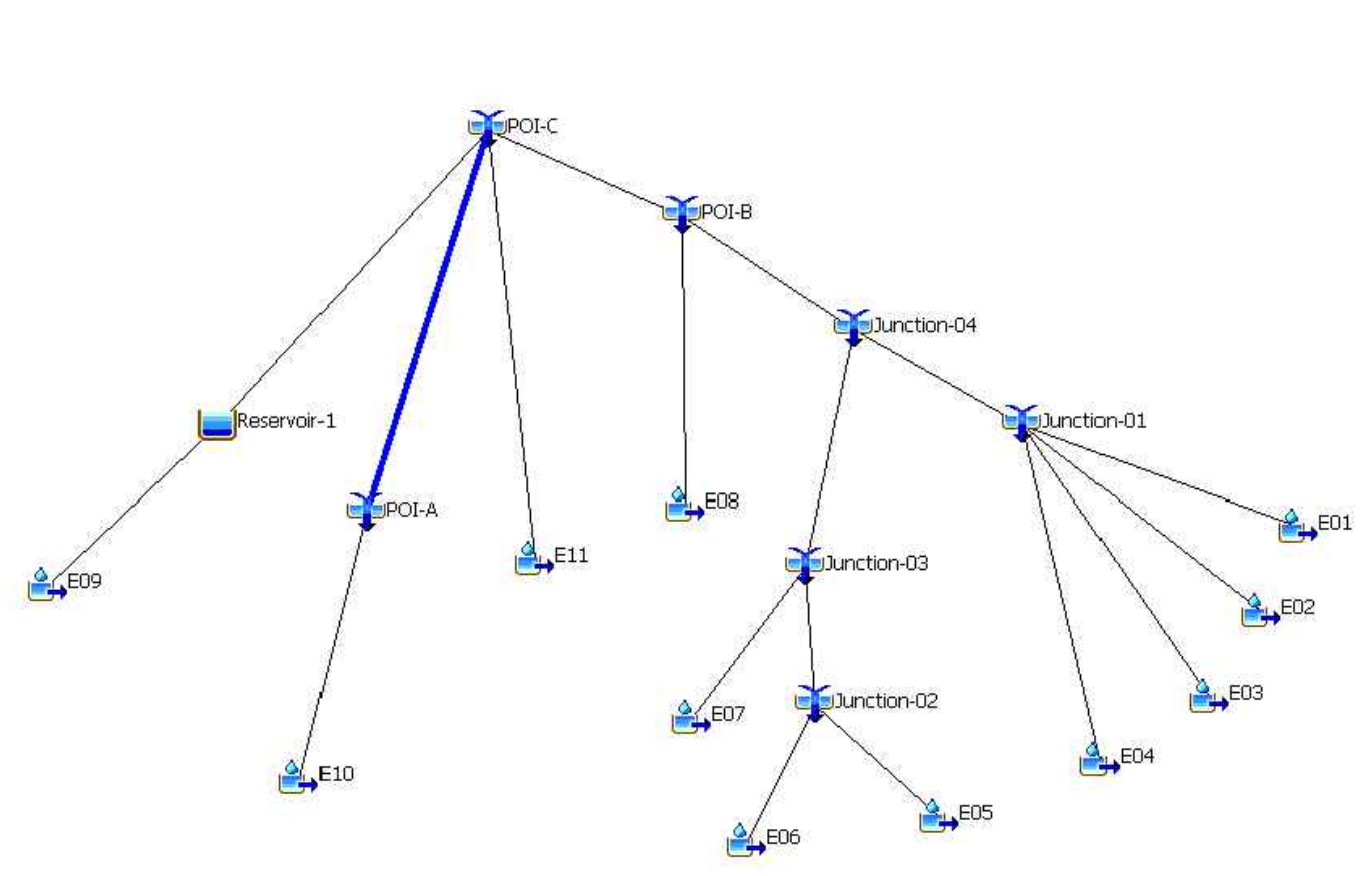
INTERNAL DRAINAGE CALCULATIONS

Area	Acres	Tc (min)	I25 (in/hr)	I100 (in/hr)	C25	C100	Q25 (cfs)	Q100 (cfs)
1	1.18	19.92	6.71	8.45	0.80	0.89	6.3	8.9
2	0.86	8.47	9.97	12.56	0.67	0.75	5.7	8.1
3	0.99	9.42	9.56	12.05	0.78	0.86	7.4	10.3
4	1.11	8.81	9.82	12.37	0.55	0.62	6.0	8.5
5	4.02	8.3	10.05	12.66	0.69	0.77	27.9	39.2
6	0.78	5	11.89	15.01	0.86	0.95	8.0	11.1
7	1.30	5	11.89	15.01	0.86	0.95	13.3	18.5
8	2.02	5	11.89	15.01	0.86	0.95	20.7	28.8
9	6.26	14.81	7.81	9.84	0.45	0.52	22.0	32.0
10	6.42	23.6	6.11	7.70	0.39	0.46	15.3	22.7
11	1.73	23.3	6.15	7.76	0.39	0.46	4.1	6.2

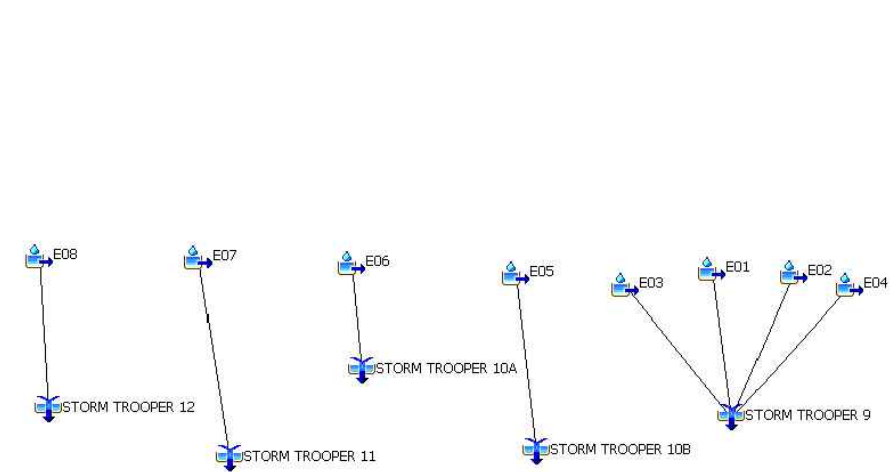
EXISTING CONDITIONS DRAINAGE CALCULATIONS (CFS)

BASIN	2-YR	10-YR	25-YR	100-YR
E01	1.9	2.9	3.6	4.8
E02	1.5	2.4	3	4.1
E03	1.9	2.9	3.6	4.9
E04	1.6	2.8	3.7	5.1
E05	7	11.2	14.2	19.3
E06	1.6	2.4	3	3.9
E07	2.7	4	4.9	6.5
E08	4.2	6.2	7.7	10.1
E09	4.1	7.9	10.6	15.3
E10	5.3	10.2	13.7	19.7
E11	5.6	10.2	13.5	19.3
Junction-01	6.9	11	13.9	18.9
Junction-02	8.6	13.6	17.1	23.2
Junction-03	11.3	17.7	22.1	29.7
Junction-04	18.2	28.7	36	48.6
POI-A	5.3	10.2	13.7	19.7
POI-B	22.4	34.9	43.7	58.7
POI-C	33.9	56.6	72.6	100.2

EXISTING HEC-HMS SCHEMATIC

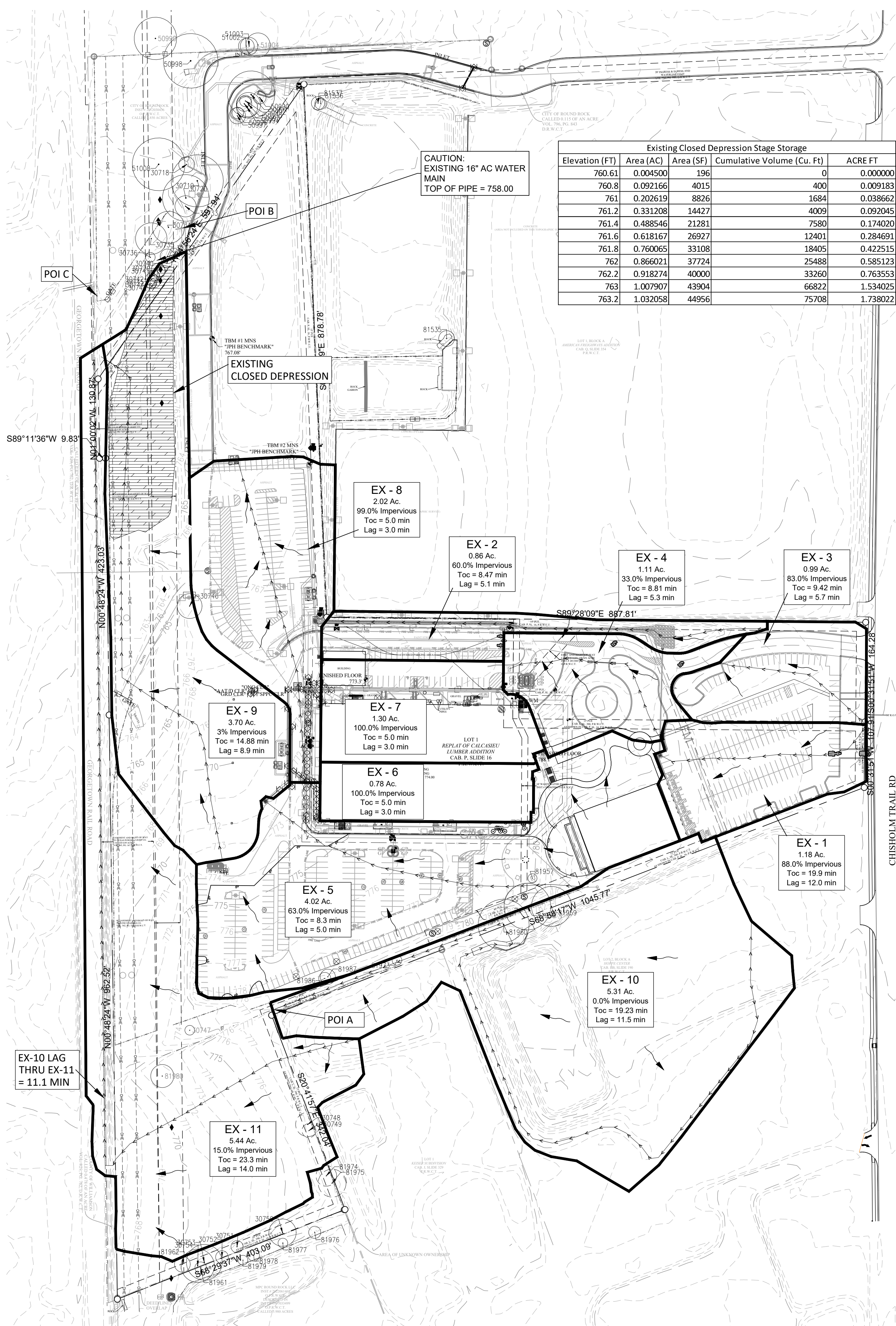


EXISTING STORM TROOPER SCHEMATIC



Existing Closed Depression Stage Storage

Elevation (FT)	Area (AC)	Area (SF)	Cumulative Volume (Cu. Ft)	ACRE FT
760.61	0.004500	196	0	0.000000
760.8	0.092166	4015	400	0.009183
761	0.202619	8826	1684	0.038662
761.2	0.331208	14427	4009	0.092045
761.4	0.488546	21281	7580	0.174020
761.6	0.618167	26927	12401	0.284691
761.8	0.760065	33108	18405	0.422515
762	0.866021	37724	25488	0.585123
762.2	0.918274	40000	33260	0.763553
763	1.007907	43904	66822	1.534025
763.2	1.032058	44956	75708	1.738022



GENERAL LEGEND

SYMBOLS

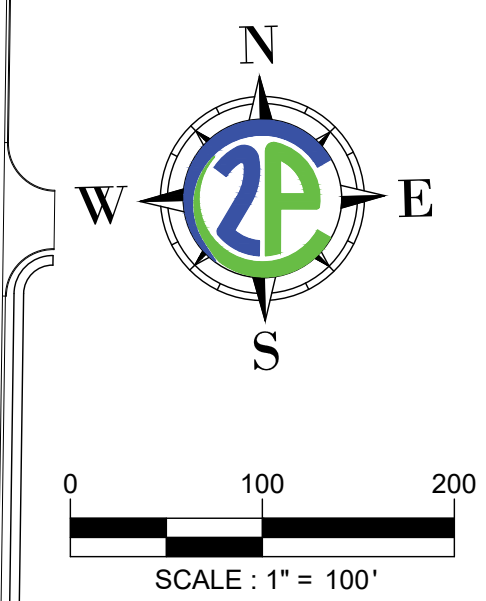
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNT
- WW SERVICE
- WATER SERVICE
- STORMSEWER MANHOLE
- SKIN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINETYPES

- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

DRAINAGE STUDY LEGEND

- DRAINAGE BOUNDARY LINE
- DRAINAGE BOUNDARY LABEL
- DRAINAGE AREA (ACRES)
- INLET NUMBER
- FLOW ARROW
- TIME OF CONCENTRATION LINE
- EXISTING 100-YR FLOOD PLAIN LINE
- PROPOSED 100-YR FLOOD PLAIN LINE
- LOW POINT
- HIGH POINT



Marmon Mok ARCHITECTURE

San Antonio, TX - 1020 NE Loop 410, Suite 201, 78209
Austin, TX - 900 E 4th St, Suite 05, 78702

11/15/2023

ENGINEERING CONSULTING

ROUND ROCK SPORTS CENTER EXPANSION

2400 CHISHOLM TRAIL RD, ROUND ROCK, TX 78681



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CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



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Project No. 22027
Revisions

SHEET TITLE
EXISTING CONDITIONS
DRAINAGE AREA MAP

SHEET NO.
C301

SDP-23-00041

11/15/2023 2:44:14 PM
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File Path: N:\Projects\City of Round Rock\Engineering-R-2023-025\W.A. No. 2 - Sports Center 2 Court Expansion\CADD\Sheets\SITE DEVELOPMENT PLANS\EXISTING CONDITIONS DRAINAGE AREA MAP.dwg

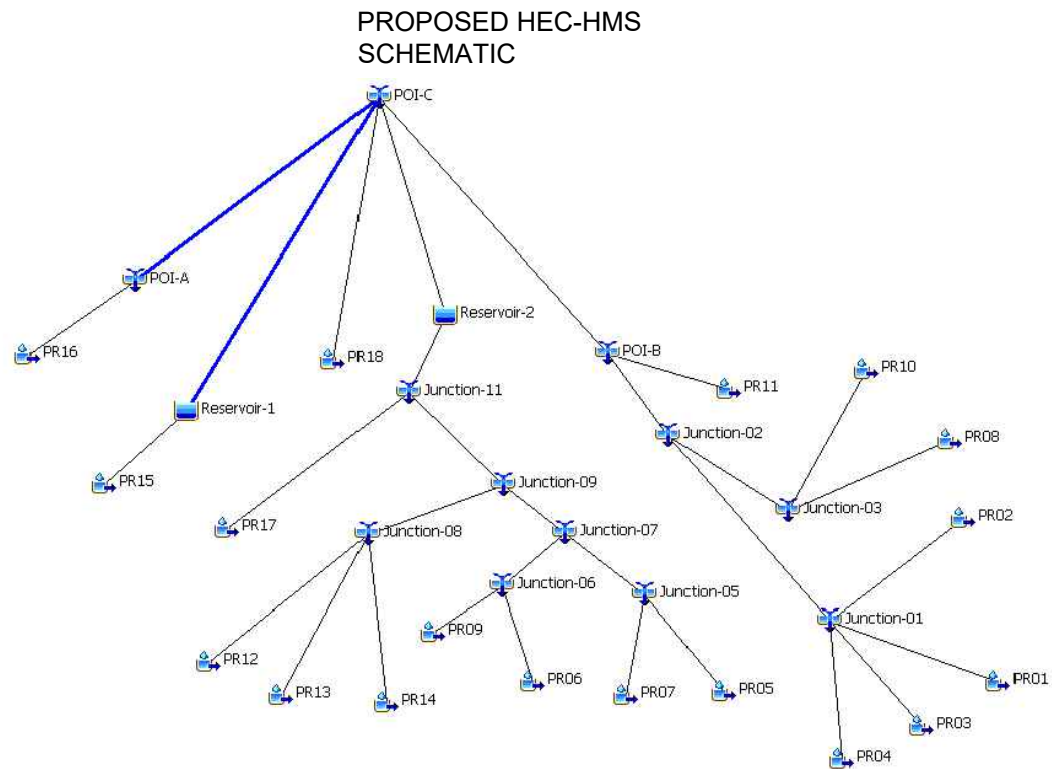
Williamson County NOAA Atlas 14 Rainfall Zones - Brushy Creek					
Precipitation Depths (inches) per Recurrence Interval					
EVENT	2-YR	10-YR	25-YR	50-YR	100-YR
24-HR	3.99"	6.44"	8.26"	9.83"	11.6"

Precipitation Data taken from NOAA Atlas 14 website
Address: 2400 Chisholm Trail Rd, Round Rock, TX

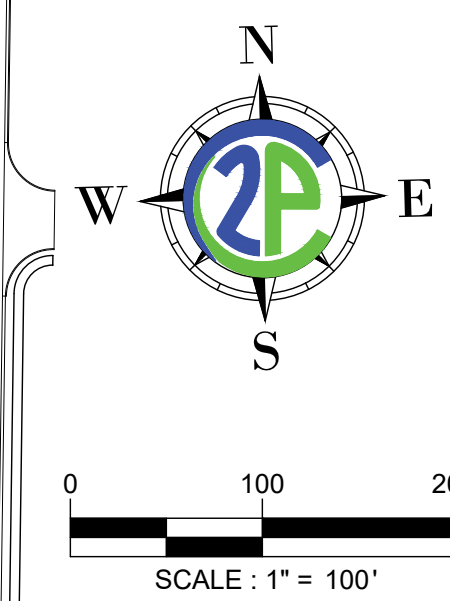
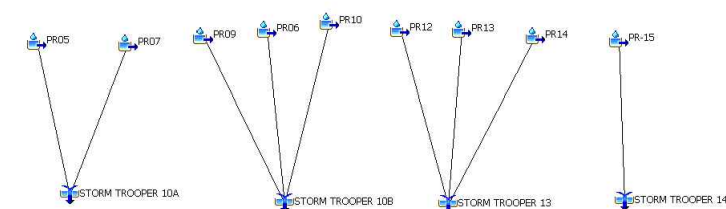
DEVELOPED CONDITIONS DRAINAGE BASIN INFORMATION							
BASIN	SF	AREA AC	SQMI	IMPERVIOUS COVER %	SCS CURVE	TIME OF CONCENTRATION (MIN)	LAG (MIN)
1	51,400.80	1.18	0.0018438	45,181.00	88%	95.82	19.9
2	37461.6	0.86	0.0013438	22439	60%	90.78	8.47
3	43124.4	0.99	0.0015469	35621	83%	94.87	9.42
4	48351.6	1.11	0.0017344	16074	33%	85.98	8.81
5	138520.8	3.18	0.0049688	101120	73%	93.14	6.78
6	30927.6	0.71	0.0011094	28453	92%	96.56	5
7	41382	0.95	0.0014844	41382	100%	98.00	5
8	63162	1.45	0.0022656	63162	100%	98.00	5
9	8712	0.20	0.0003125	8700	100%	97.98	5
10	6534	0.15	0.0002344	6534	100%	98.00	5
11	81457.2	1.87	0.0029219	69110	85%	95.27	5
12	10454.4	0.24	0.0003750	7645	73%	93.16	5
13	6534	0.15	0.0002344	4772	73%	93.15	5
14	7405.2	0.17	0.0002656	5410	73%	93.15	5
15	88812.56	2.04	0.0031857	69969.5	79%	94.18	6.71
16	232595.4	5.34	0.0083432	0	0%	80.00	23.92
17	119242.5	2.74	0.0042772	3428.07	3%	80.52	15.27
18	152857.81	3.51	0.0054830	37128.15	24%	84.37	24.28

INTERNAL DRAINAGE CALCULATIONS								
Area	Acres	Tc (min)	I25 (in/hr)	I100 (in/hr)	C25	C100	Q25 (cfs)	Q100 (cfs)
1	1.18	19.92	6.71	8.45	0.80	0.89	6.3	8.9
2	0.86	8.47	9.97	12.56	0.67	0.75	5.7	8.1
3	0.99	9.42	9.56	12.05	0.78	0.86	7.4	10.3
4	1.11	8.81	9.82	12.37	0.55	0.62	6.0	8.5
5	3.18	6.78	10.81	13.63	0.73	0.82	25.1	35.5
6	0.71	5	11.89	15.01	0.82	0.91	6.9	9.7
7	0.95	5	11.89	15.01	0.86	0.95	9.7	13.5
8	1.45	5	11.89	15.01	0.86	0.95	14.8	20.7
9	0.20	5	11.89	15.01	0.86	0.95	2.0	2.9
10	0.15	5	11.89	15.01	0.86	0.95	1.5	2.1
11	1.87	5	11.89	15.01	0.79	0.88	17.6	24.7
12	0.24	5	11.89	15.01	0.73	0.82	2.1	3.0
13	0.15	5	11.89	15.01	0.73	0.82	1.3	1.8
14	0.17	5	11.89	15.01	0.73	0.82	1.5	2.1
15	2.04	6.71	10.85	13.68	0.77	0.86	17.0	24.0
16	6.35	23.92	6.06	7.64	0.39	0.46	15.0	22.3
17	5.14	15.27	7.70	9.69	0.46	0.54	18.2	26.9

PROPOSED CONDITIONS DRAINAGE CALCULATIONS (CFS)				
BASIN	2-YR	10-YR	25-YR	100-YR
Junction-01	6.9	11	13.9	18.9
Junction-02	10.2	16	20	26.9
Junction-03	3.3	5	6.1	8
Junction-05	7.8	12.1	15.1	20.2
Junction-06	1.8	2.8	3.4	4.5
Junction-07	9.7	14.8	18.5	24.7
Junction-08	1	1.6	2	2.7
Junction-09	10.7	16.5	20.5	27.5
Junction-11	13.7	22.2	28.2	38.6
PR01	1.9	2.9	3.6	4.8
PR02	1.5	2.4	3	4.1
PR03	1.9	2.9	3.6	4.9
PR04	1.6	2.8	3.7	5.1
PR05	5.8	9.1	11.5	15.4
PR06	1.4	2.2	2.7	3.5
PR07	2	2.9	3.6	4.8
PR08	3	4.5	5.5	7.3
PR09	0.4	0.6	0.8	1
PR10	0.3	0.5	0.6	0.8
PR11	3.6	5.6	6.9	9.2
PR12	0.4	0.7	0.9	1.2
PR13	0.3	0.4	0.5	0.7
PR14	0.3	0.5	0.6	0.8
PR15	3.9	6	7.4	10
PR16	4.9	9.4	12.7	18.3
PR17	3	5.7	7.7	11.1
PR18	3.7	6.7	8.8	12.4
POI-A	4.9	9.4	12.7	18.3
POI-B	13.9	21.5	26.9	36.1
POI-C	29	47.6	60.9	92.7



PROPOSED STORM TROOPER SCHEMATIC

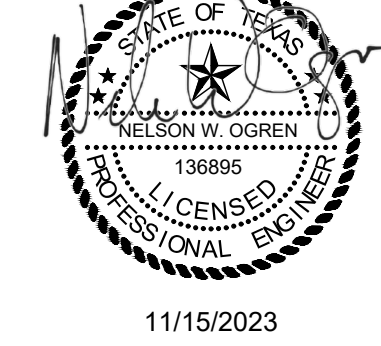
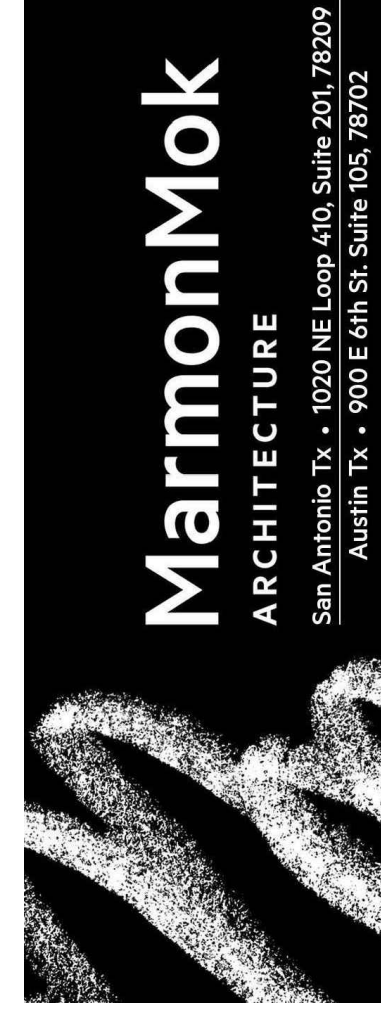
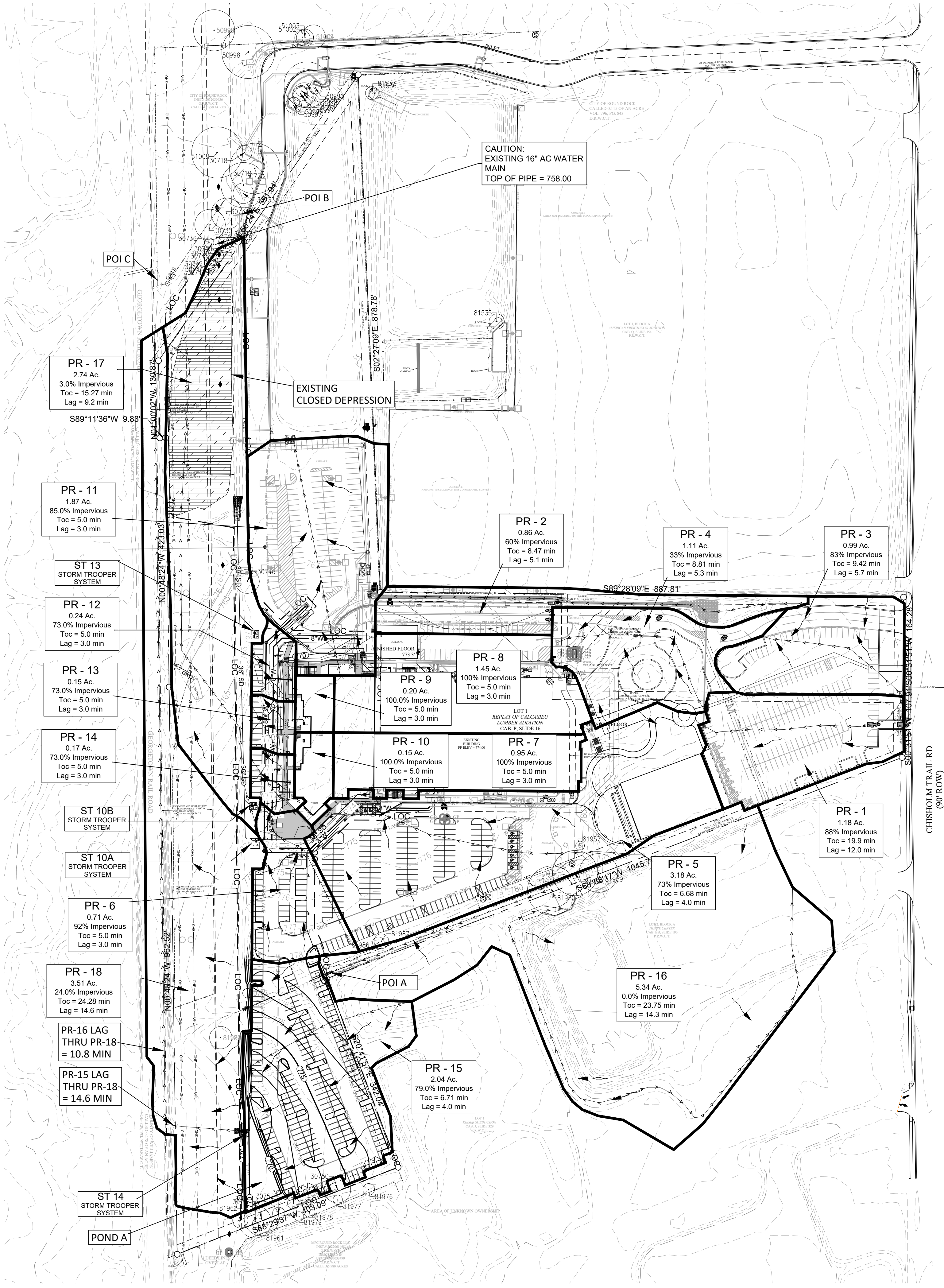


GENERAL LEGEND	
SYMBOLS	
Water Meter	WW Service
Water Valve	Water Service
Fire Hydrant	Storm Sewer Manhole
Backflow Preventer	Sign
Utility Pole	Curb Inlet
Light Pole	Grate Inlet
Wastewater Manhole	Table Top Area Inlet
Clean Out	Tree to be Saved
Keynotes	Tree to be Removed
Parking Count	

LINETYPES	
Property Boundary	Limit of Construction
Loc	Fences (Chainlink)
	(Iron)
	(Wood)
	(Barb Wire)
Ditch (Creek) Line	Existing Contours
Proposed Contours	Proposed Curbs & Gutters
UG - E	Underground Elec.
OH - E	Overhead Utility
TEL	Underground Tele.
GAS	Underground Gas Line
W	Water Line
WW	Wastewater Line
	Accessible Route

DRAINAGE STUDY LEGEND	
Drainage Boundary Line	
Drainage Boundary Label (Drainage Area in Acres)	
NO	Inlet Number
Flow Arrow	
Time of Concentration Line	
Existing 100-YR Flood Plain Line	
Proposed 100-YR Flood Plain Line	
LP	Low Point
HP	High Point

DEVELOPED VS EXISTING CONDITIONS DRAINAGE CALCULATIONS (CFS)				
	2-YR	10-YR	25-YR	100-YR
POI A	-0.4	-0.8	-1	-1.4
POI B	-8.5	-13.4	-16.8	-22.6
POI C	-4.9	-9	-11.7	-7.5



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Revisions

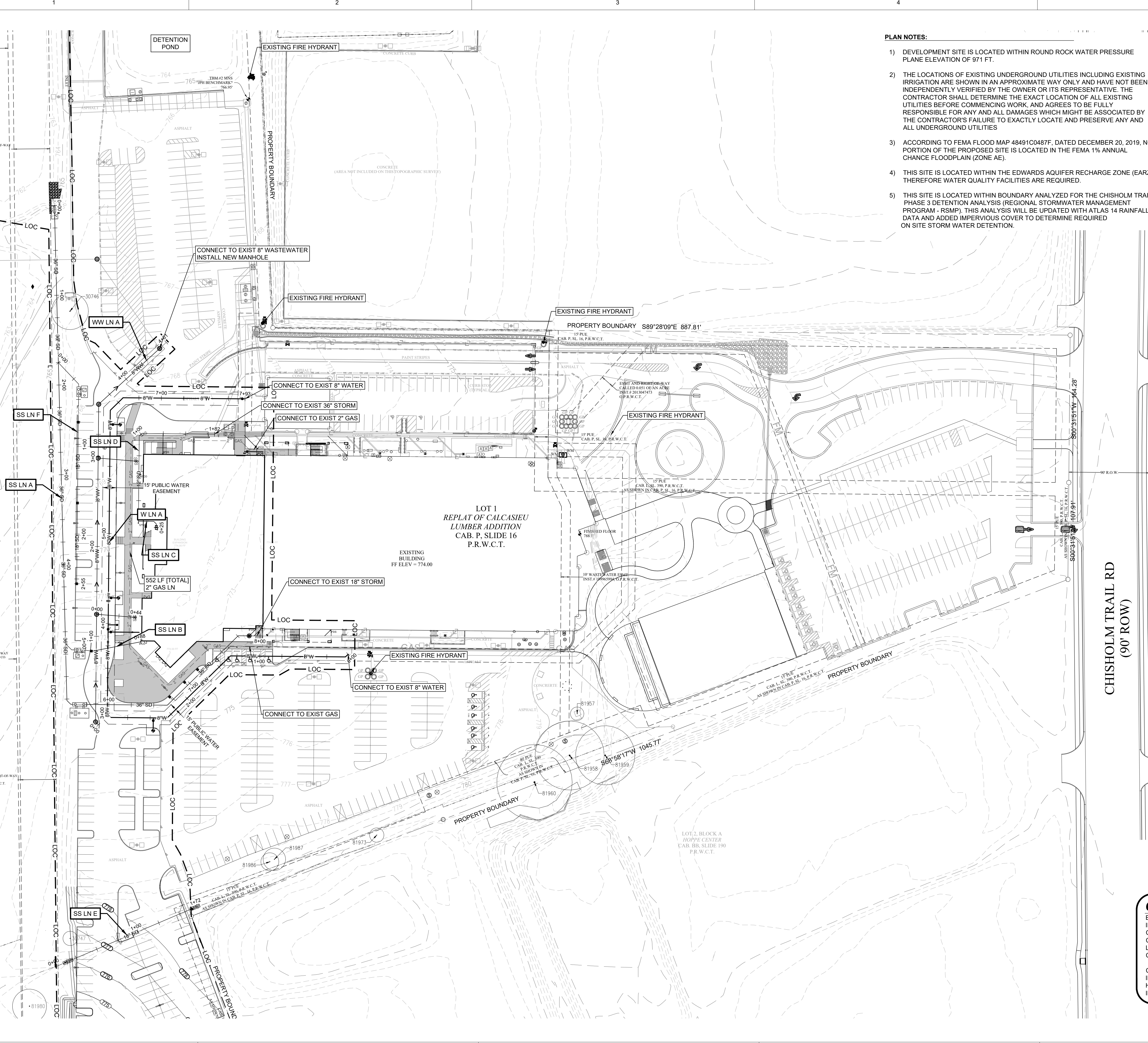
SHEET TITLE
PROPOSED
CONDITIONS
DRAINAGE AREA MAP

SHEET NO.

C302

SDP-23-00041

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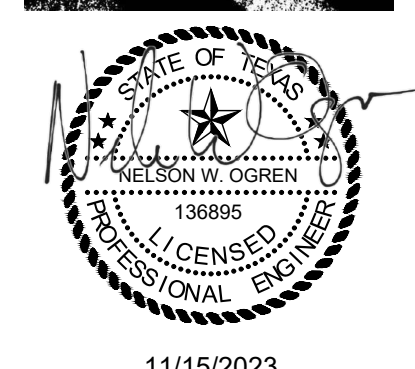
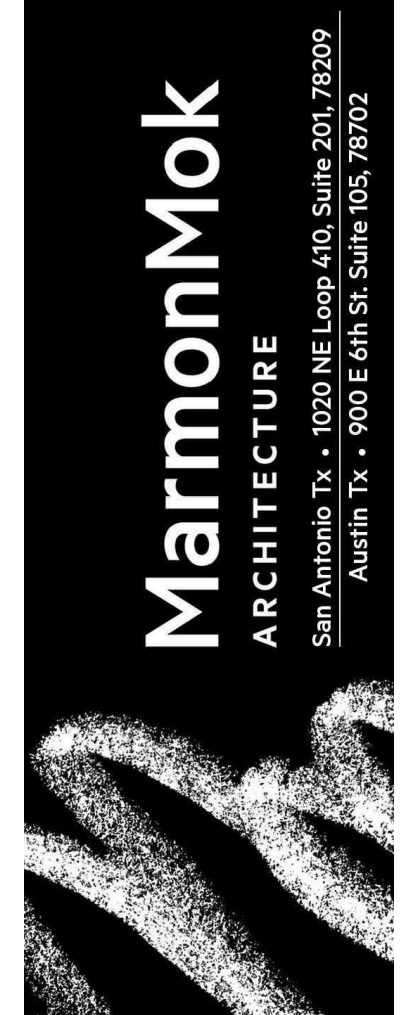
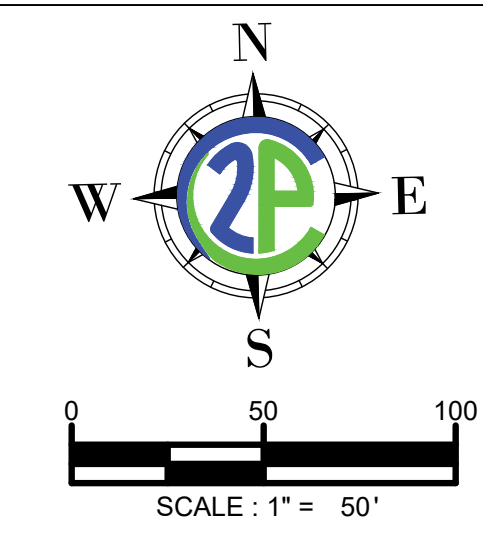


- PLAN NOTES:**
- 1) DEVELOPMENT SITE IS LOCATED WITHIN ROUND ROCK WATER PRESSURE PLANE ELEVATION OF 971 FT.
 - 2) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES INCLUDING EXISTING IRRIGATION ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES
 - 3) ACCORDING TO FEMA FLOOD MAP 48491C0487F, DATED DECEMBER 20, 2019, NO PORTION OF THE PROPOSED SITE IS LOCATED IN THE FEMA 1% ANNUAL CHANCE FLOODPLAIN (ZONE AE).
 - 4) THIS SITE IS LOCATED WITHIN THE EDWARDS AQUIFER RECHARGE ZONE (EARZ), THEREFORE WATER QUALITY FACILITIES ARE REQUIRED.
 - 5) THIS SITE IS LOCATED WITHIN BOUNDARY ANALYZED FOR THE CHISHOLM TRAIL PHASE 3 DETENTION ANALYSIS (REGIONAL STORMWATER MANAGEMENT PROGRAM - RSM). THIS ANALYSIS WILL BE UPDATED WITH ATLAS 14 RAINFALL DATA AND ADDED IMPERVIOUS COVER TO DETERMINE REQUIRED ON SITE STORM WATER DETENTION.

GENERAL LEGEND

SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SIGN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED

LINETYPES	
	PROPERTY BOUNDARY
	LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	(IRON)
	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
	OVERHEAD UTILITY
	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE



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SHEET TITLE
**OVERALL UTILITY
 PLAN**

SHEET NO.

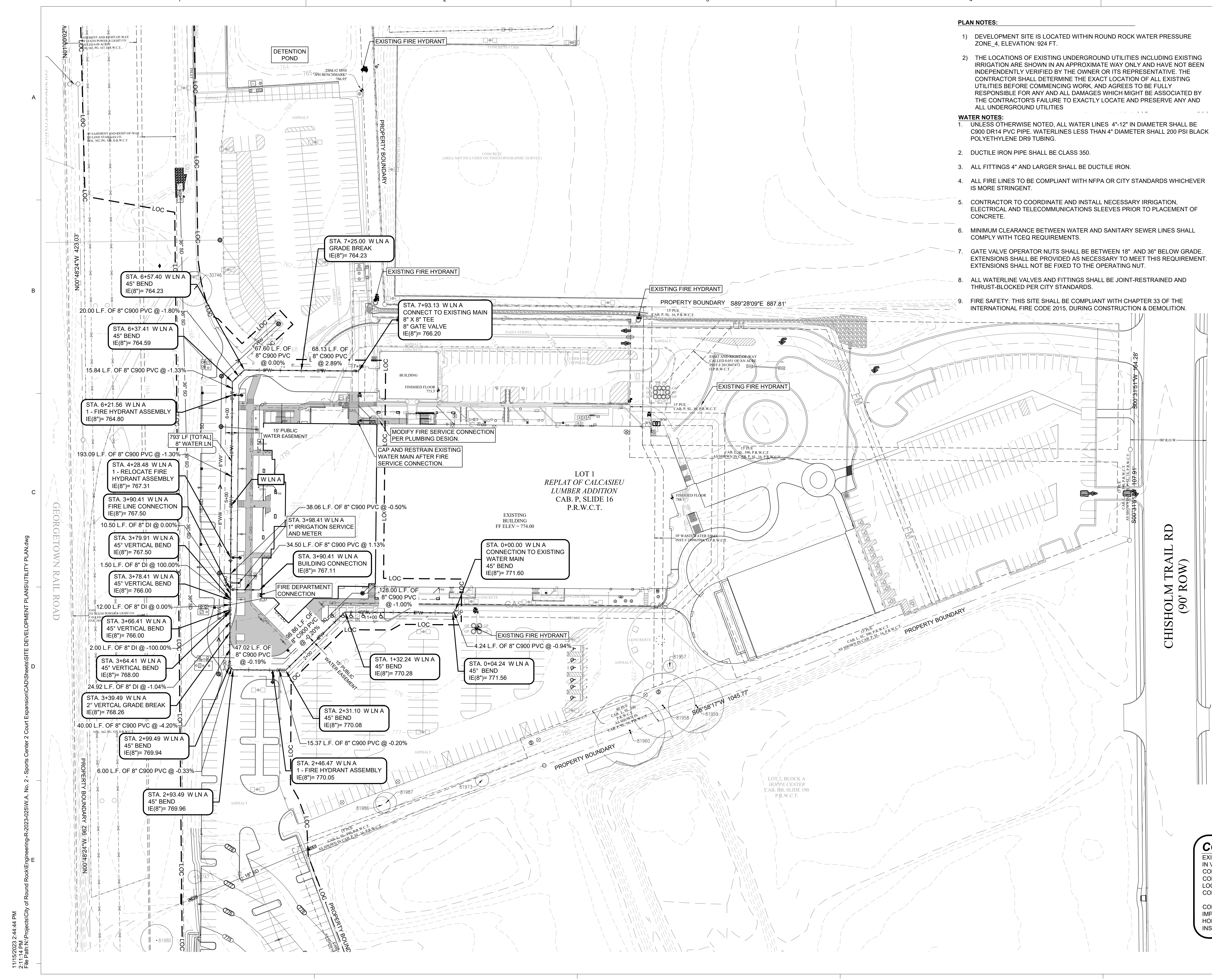
C401



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 CONTRACTOR TO FIELD VERIFY EXISTING UTILITY
 LOCATIONS & DEPTHS PRIOR TO BEGINNING
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PLAN NOTES:

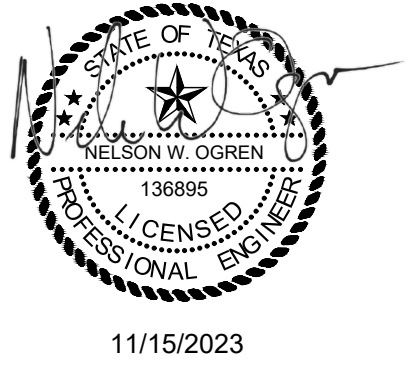
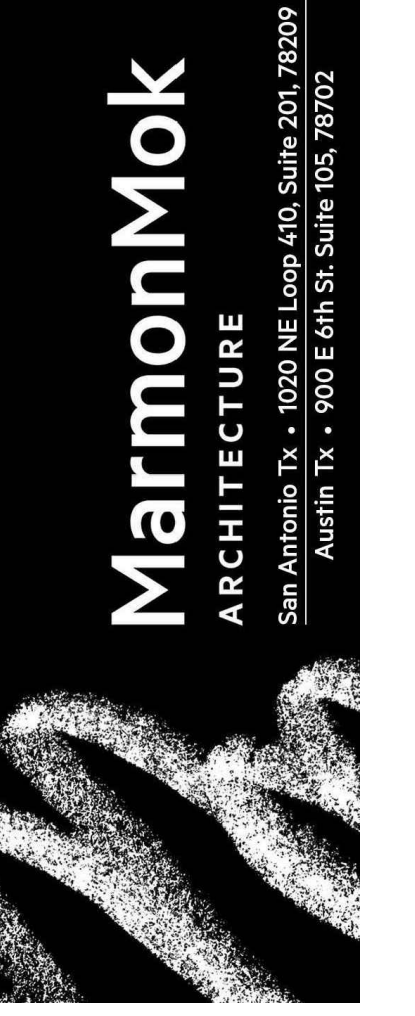
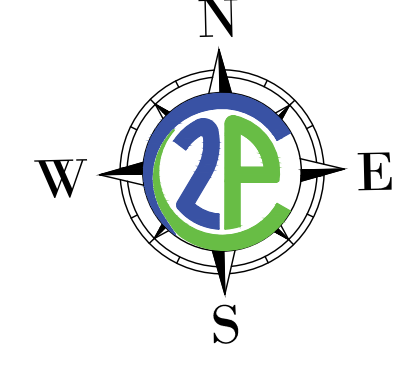
- 1) DEVELOPMENT SITE IS LOCATED WITHIN ROUND ROCK WATER PRESSURE ZONE 4, ELEVATION: 924 FT.
 - 2) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES INCLUDING EXISTING IRRIGATION ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES
- WATER NOTES:**
1. UNLESS OTHERWISE NOTED, ALL WATER LINES 4"-12" IN DIAMETER SHALL BE C900 DR14 PVC PIPE. WATERLINES LESS THAN 4" DIAMETER SHALL 200 PSI BLACK POLYETHYLENE DR9 TUBING.
 2. DUCTILE IRON PIPE SHALL BE CLASS 350.
 3. ALL FITTINGS 4" AND LARGER SHALL BE DUCTILE IRON.
 4. ALL FIRE LINES TO BE COMPLIANT WITH NFPA OR CITY STANDARDS WHICHEVER IS MORE STRINGENT.
 5. CONTRACTOR TO COORDINATE AND INSTALL NECESSARY IRRIGATION, ELECTRICAL AND TELECOMMUNICATIONS SLEEVES PRIOR TO PLACEMENT OF CONCRETE.
 6. MINIMUM CLEARANCE BETWEEN WATER AND SANITARY SEWER LINES SHALL COMPLY WITH TCEQ REQUIREMENTS.
 7. GATE VALVE OPERATOR NUTS SHALL BE BETWEEN 18" AND 36" BELOW GRADE. EXTENSIONS SHALL BE PROVIDED AS NECESSARY TO MEET THIS REQUIREMENT. EXTENSIONS SHALL NOT BE FIXED TO THE OPERATING NUT.
 8. ALL WATERLINE VALVES AND FITTINGS SHALL BE JOINT-RESTRAINED AND THRUST-BLOCKED PER CITY STANDARDS.
 9. FIRE SAFETY: THIS SITE SHALL BE COMPLIANT WITH CHAPTER 33 OF THE INTERNATIONAL FIRE CODE 2015, DURING CONSTRUCTION & DEMOLITION.

GENERAL LEGEND

SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORM SEWER MANHOLE
	SKIRT
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED

LINETYPES

	PROPERTY BOUNDARY
	LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	FENCES (IRON)
	FENCES (WOOD)
	FENCES (BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
	OVERHEAD UTILITY
	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE



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CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



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SHEET TITLE
WATER PLAN

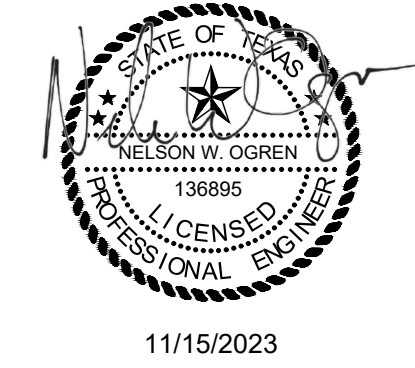
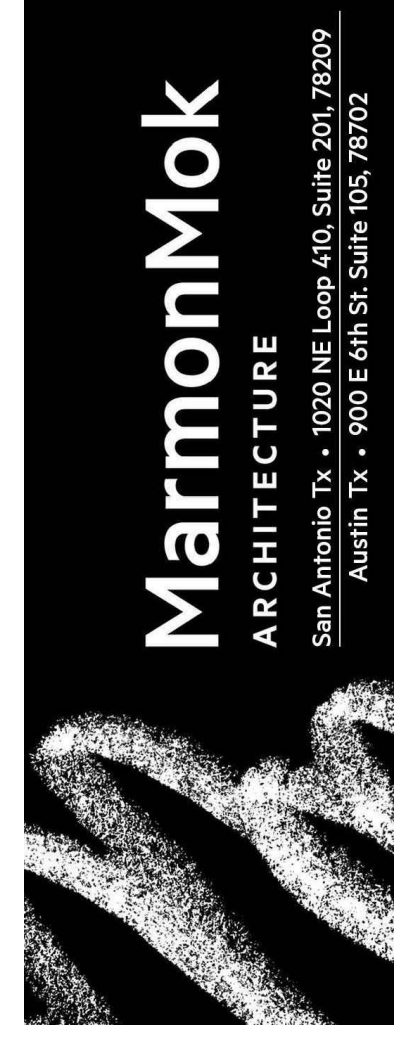
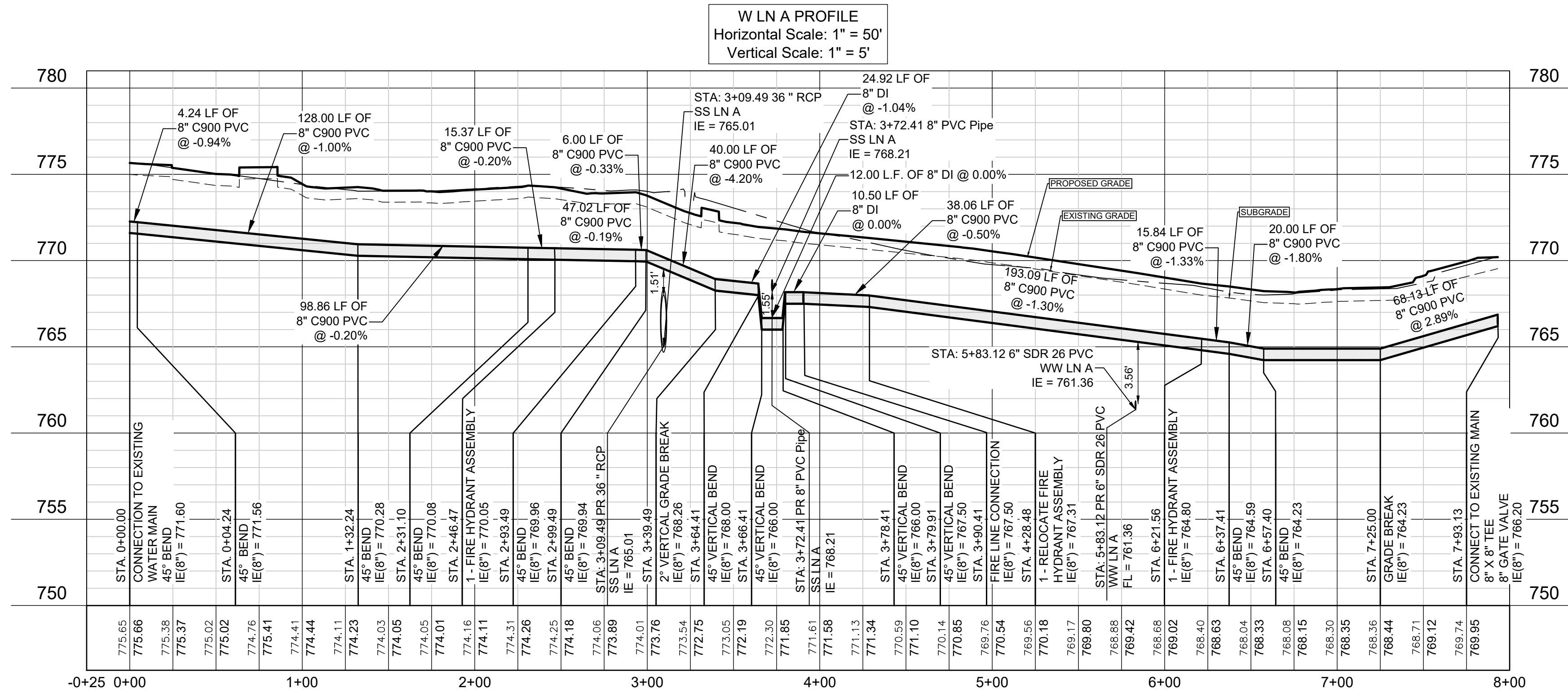
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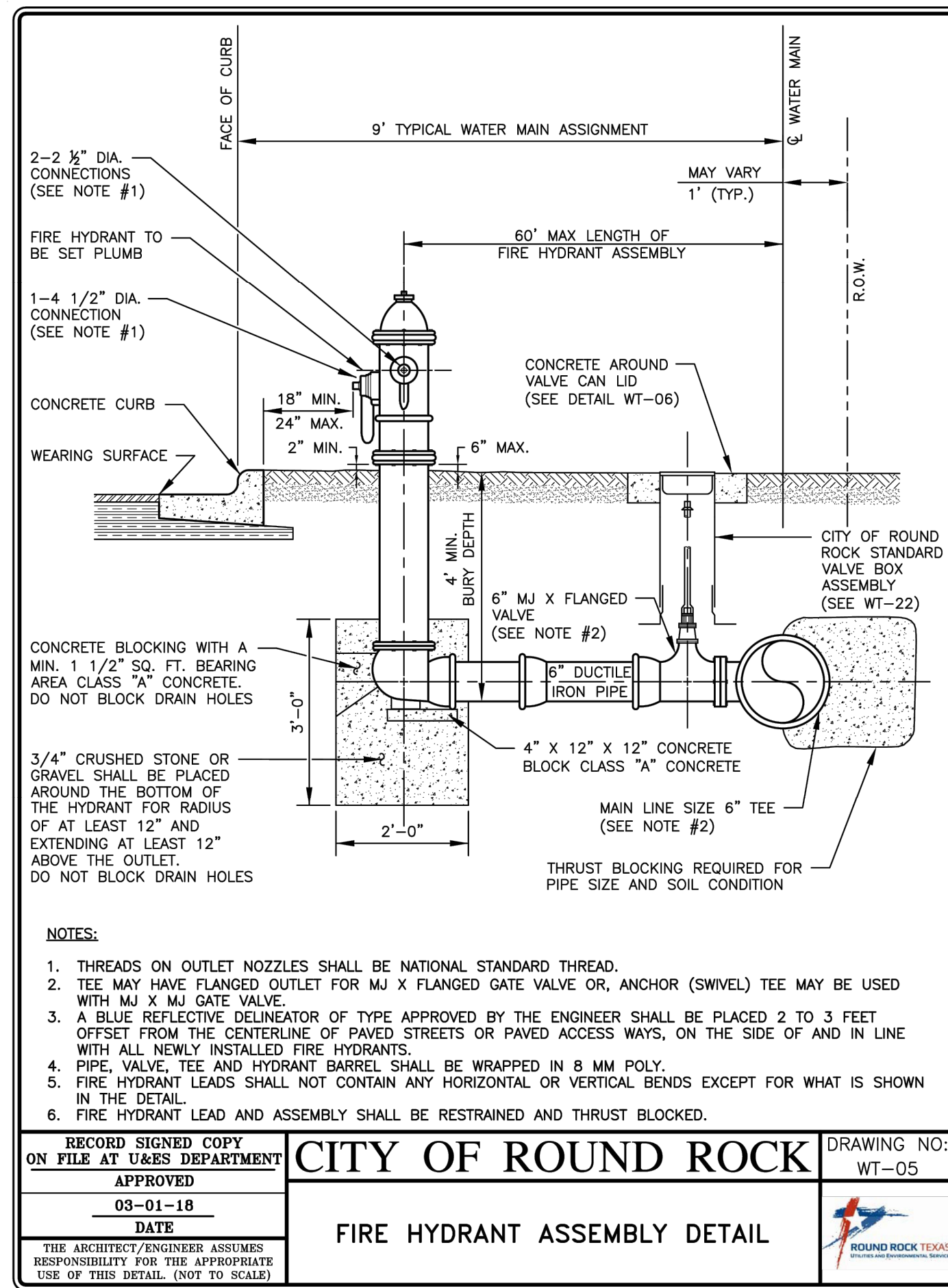
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SHEET TITLE
WATER PROFILES

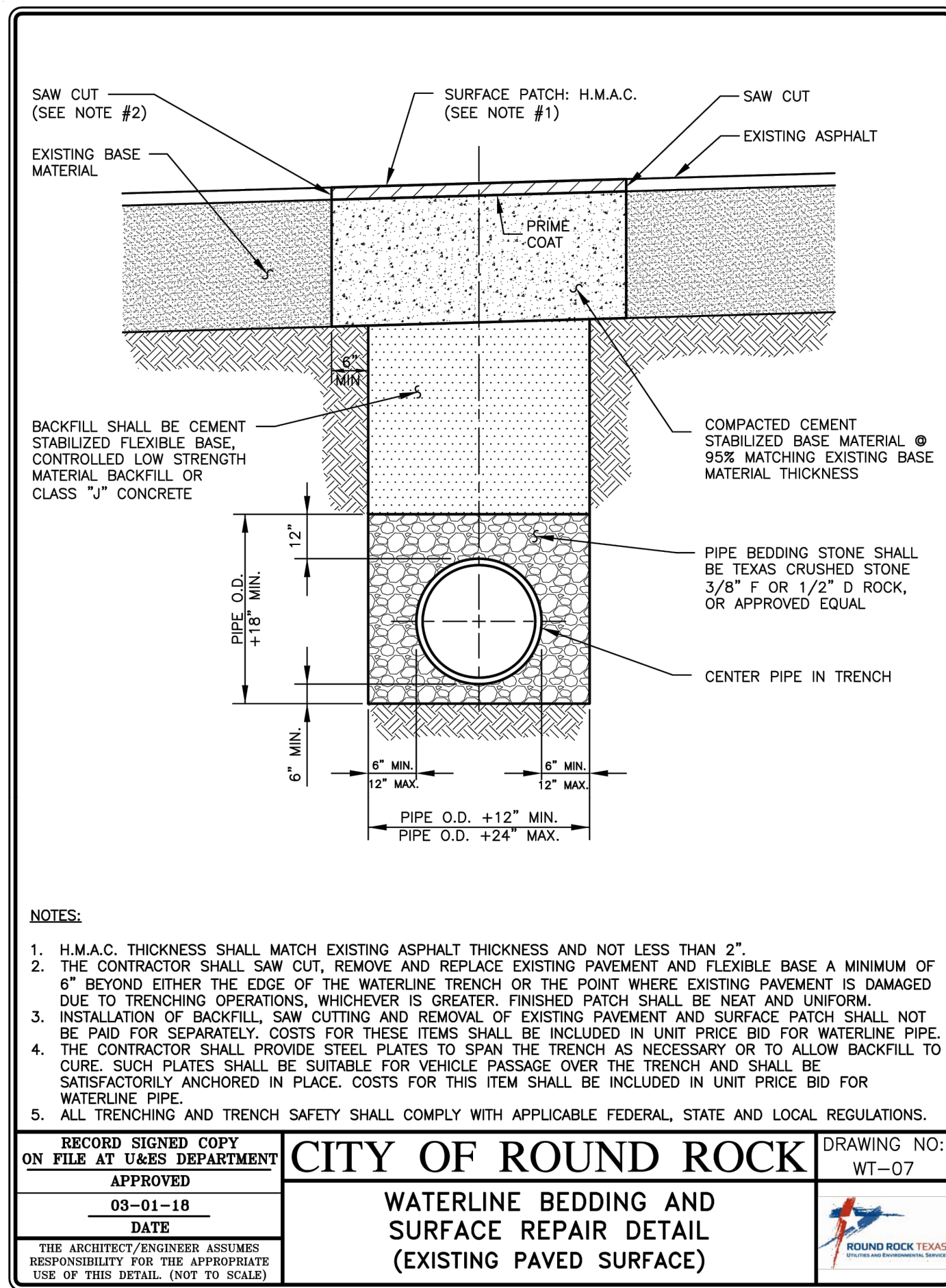
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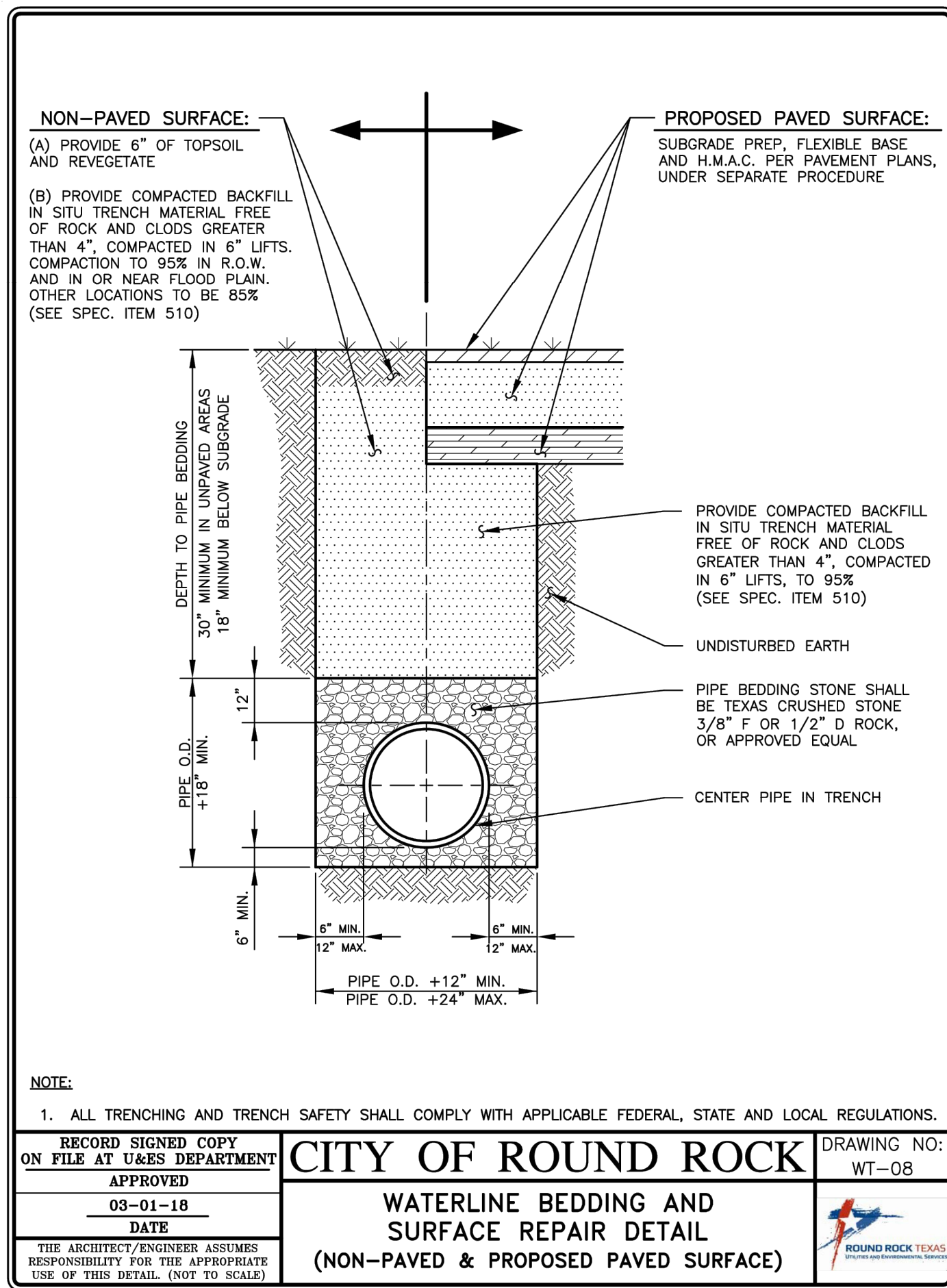
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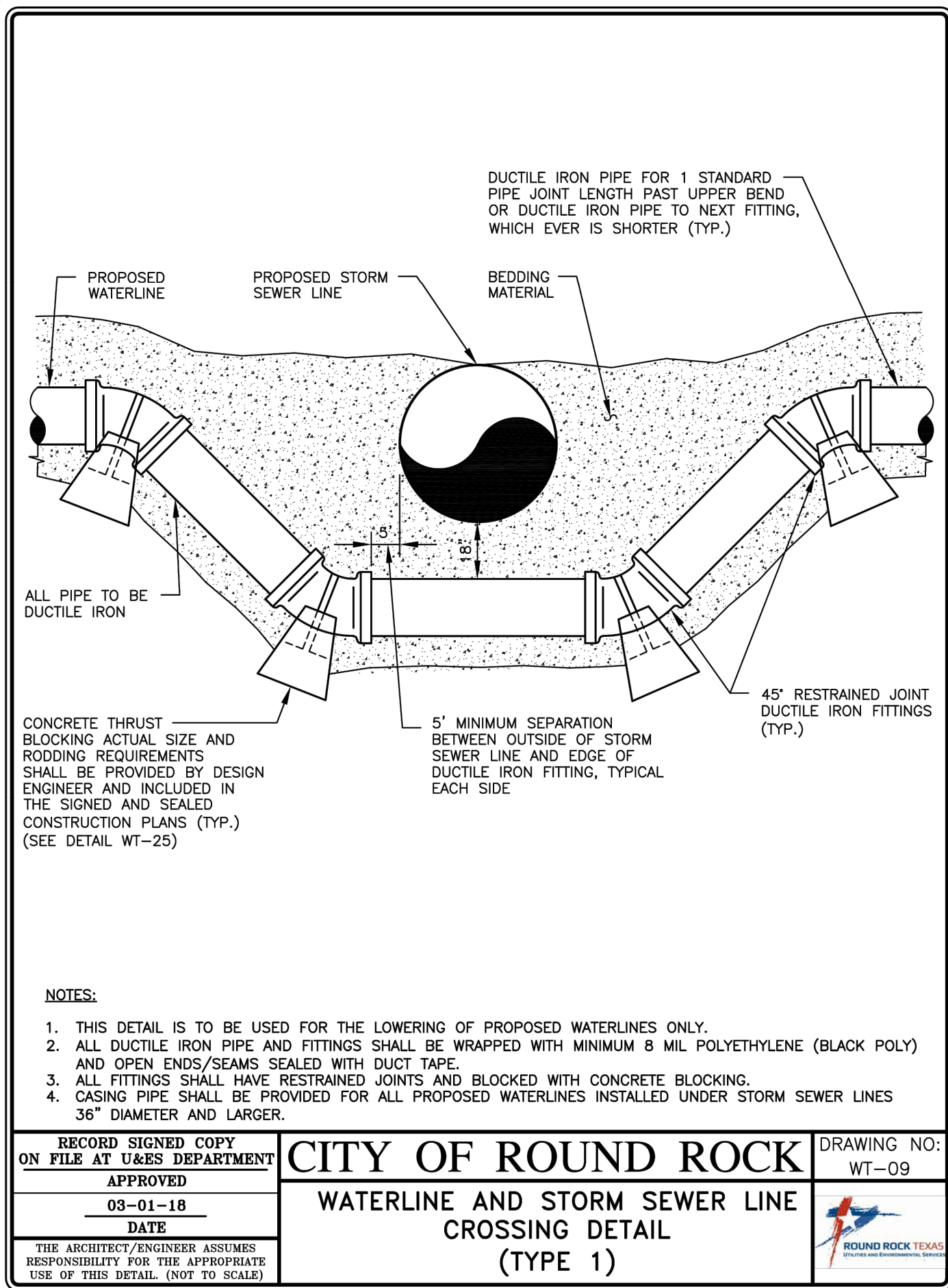
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FIRE HYDRANT ASSEMBLY DETAIL		



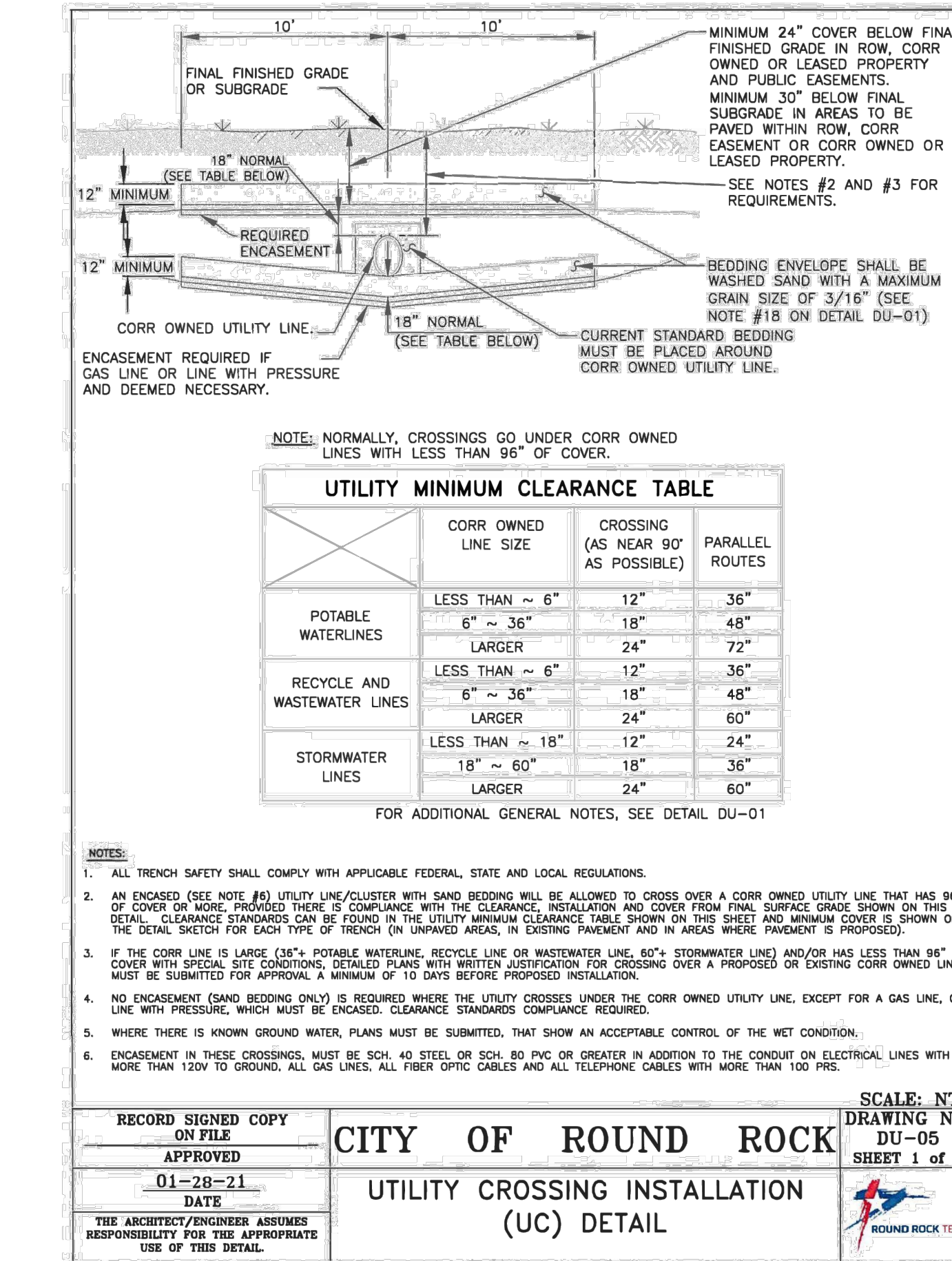
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WATERLINE BEDDING AND SURFACE REPAIR DETAIL (EXISTING PAVED SURFACE)		



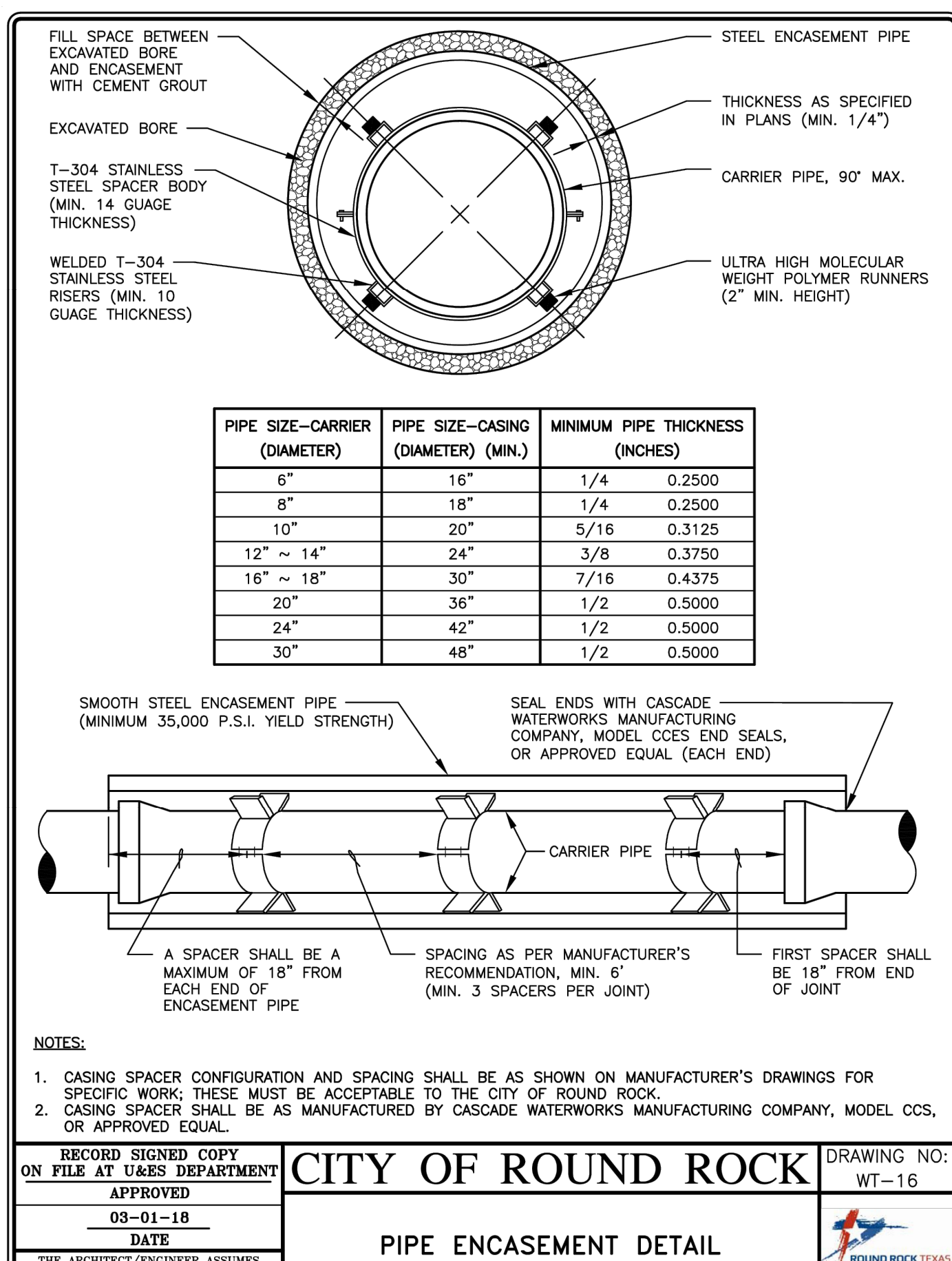
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WATERLINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)		



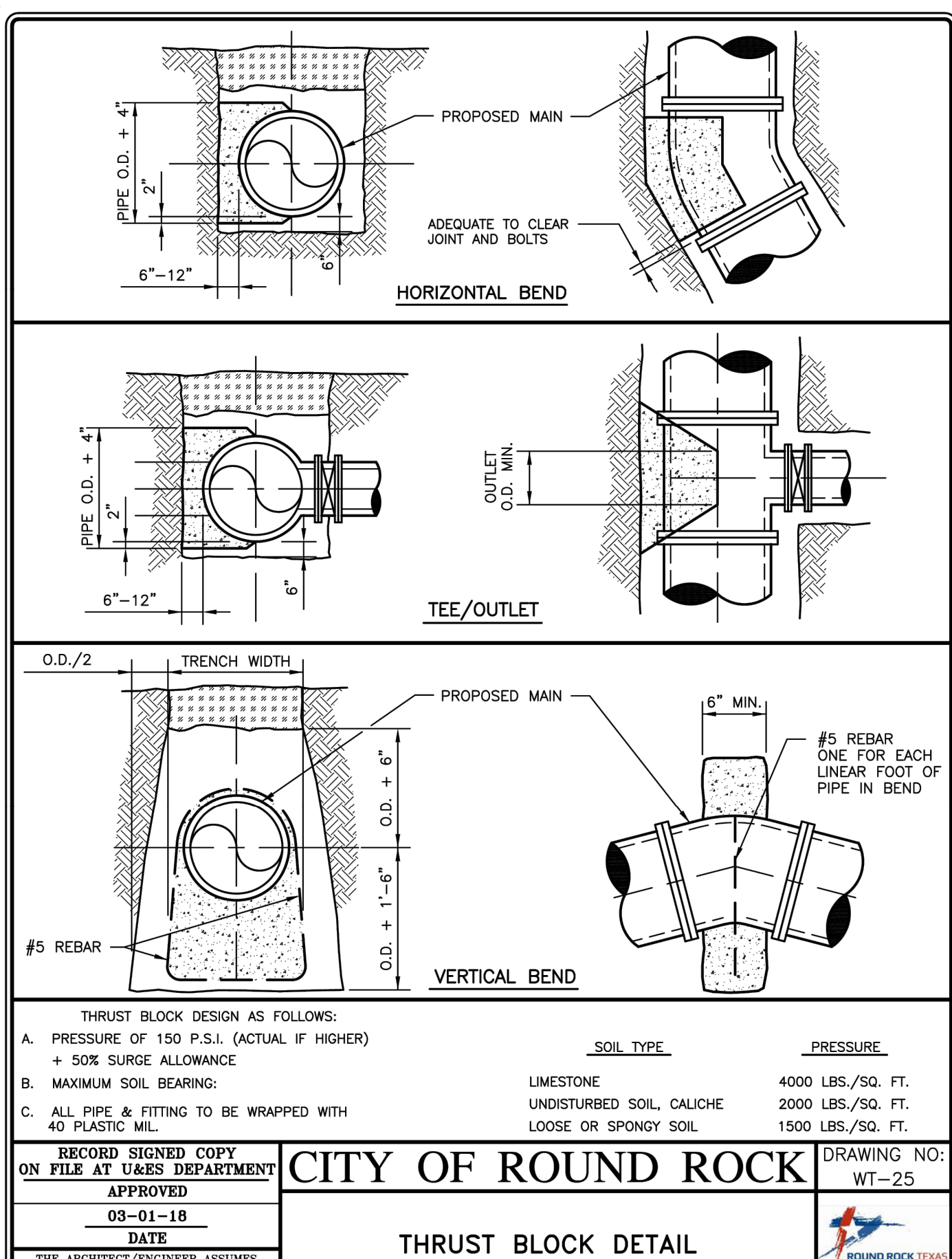
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WATERLINE AND STORM SEWER LINE CROSSING DETAIL (TYPE 1)		



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UTILITY CROSSING INSTALLATION (UC) DETAIL		



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PIPE ENCASUREMENT DETAIL		



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THRUST BLOCK DETAIL		

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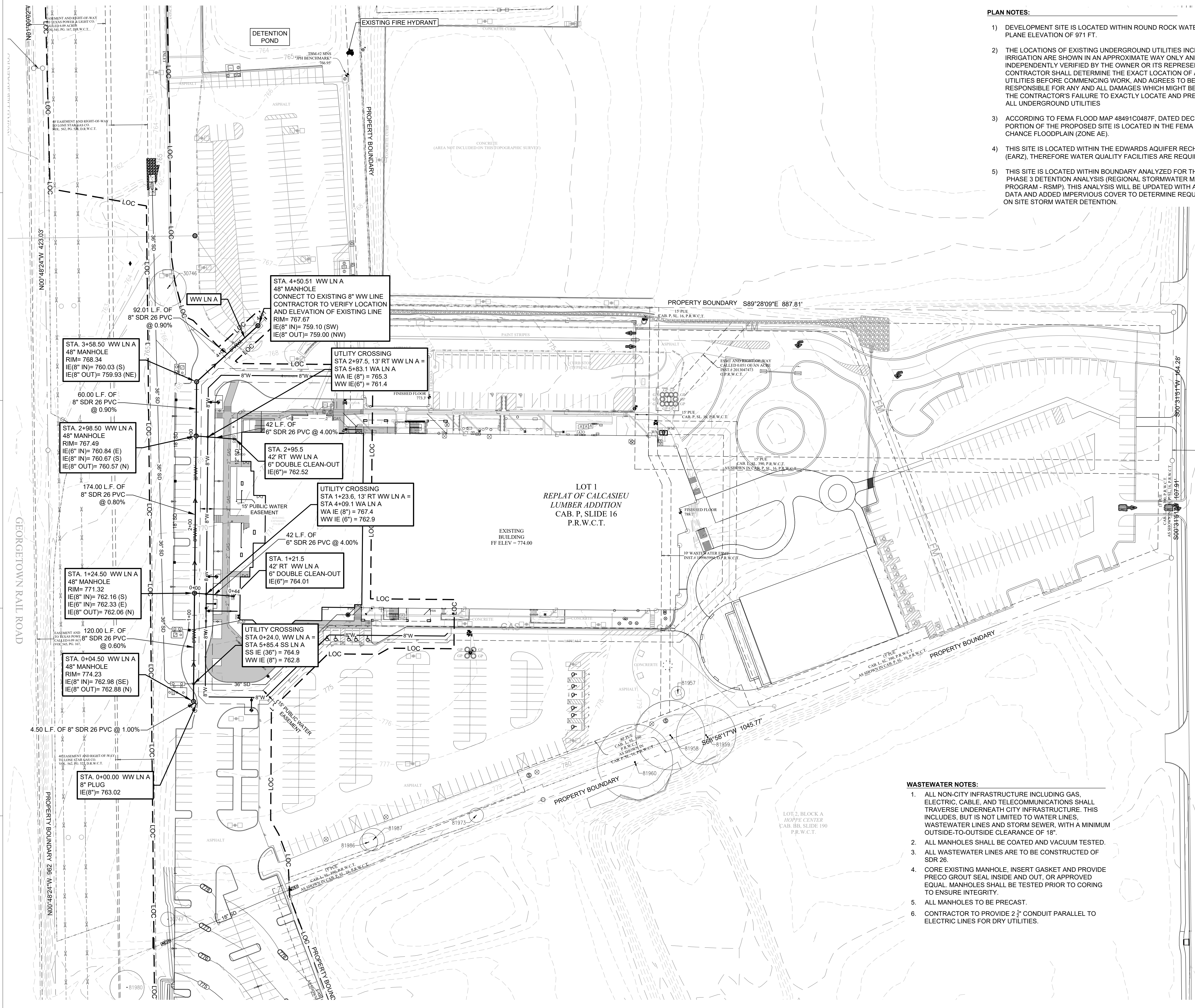
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SHEET TITLE
WATER DETAILS

SHEET NO.
C503

SDP-23-00041

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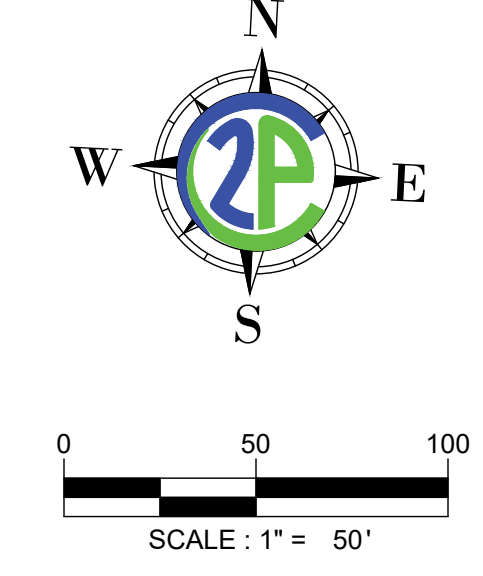
PLAN NOTES:

- 1) DEVELOPMENT SITE IS LOCATED WITHIN ROUND ROCK WATER PRESSURE PLANE ELEVATION OF 971 FT.
- 2) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES INCLUDING EXISTING IRRIGATION ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES
- 3) ACCORDING TO FEMA FLOOD MAP 48491C0487, DATED DECEMBER 20, 2019, NO PORTION OF THE PROPOSED SITE IS LOCATED IN THE FEMA 1% ANNUAL CHANCE FLOODPLAIN (ZONE AE).
- 4) THIS SITE IS LOCATED WITHIN THE EDWARDS AQUIFER RECHARGE ZONE (EARZ), THEREFORE WATER QUALITY FACILITIES ARE REQUIRED.
- 5) THIS SITE IS LOCATED WITHIN BOUNDARY ANALYZED FOR THE CHISHOLM TRAIL PHASE 3 DETENTION ANALYSIS (REGIONAL STORMWATER MANAGEMENT PROGRAM - RSM). THIS ANALYSIS WILL BE UPDATED WITH ATLAS 14 RAINFALL DATA AND ADDED IMPERVIOUS COVER TO DETERMINE REQUIRED ON SITE STORM WATER DETENTION.

GENERAL LEGEND

SYMBOLS	
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	BACKFLOW PREVENTER
	UTILITY POLE
	LIGHT POLE
	WASTEWATER MANHOLE
	CLEAN OUT
	KEYNOTES
	PARKING COUNT
	WW SERVICE
	WATER SERVICE
	STORMSEWER MANHOLE
	SKIN
	CURB INLET
	GRATE INLET
	TABLE TOP AREA INLET
	TREE TO BE SAVED
	TREE TO BE REMOVED

LINETYPES	
	PROPERTY BOUNDARY
	LOC LIMITS OF CONSTRUCTION
	FENCES (CHAINLINK)
	(IRON)
	(WOOD)
	(BARB WIRE)
	DITCH (CREEK) LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CURB & GUTTER
	UNDERGROUND ELEC.
	OVERHEAD UTILITY
	UNDERGROUND TELE.
	UNDERGROUND GAS LINE
	WATER LINE
	WASTEWATER LINE
	ACCESSIBLE ROUTE



WASTEWATER NOTES:

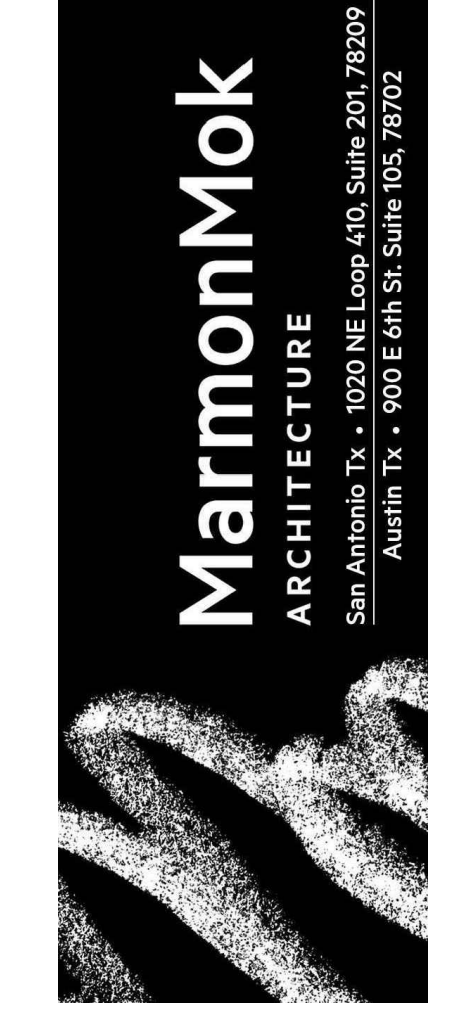
1. ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE, AND TELECOMMUNICATIONS SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER LINES AND STORM SEWER, WITH A MINIMUM OUTSIDE-TO-OUTSIDE CLEARANCE OF 18".
2. ALL MANHOLES SHALL BE COATED AND VACUUM TESTED.
3. ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26.
4. CORE EXISTING MANHOLE, INSERT GASKET AND PROVIDE PRECO GROUT SEAL INSIDE AND OUT, OR APPROVED EQUAL. MANHOLES SHALL BE TESTED PRIOR TO CORING TO ENSURE INTEGRITY.
5. ALL MANHOLES TO BE PRECAST.
6. CONTRACTOR TO PROVIDE 2" CONDUIT PARALLEL TO ELECTRIC LINES FOR DRY UTILITIES.



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SHEET TITLE
WASTEWATER PLAN

SHEET NO.
C601

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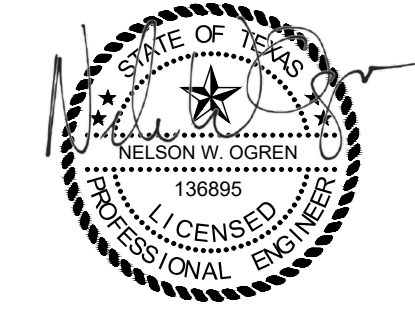
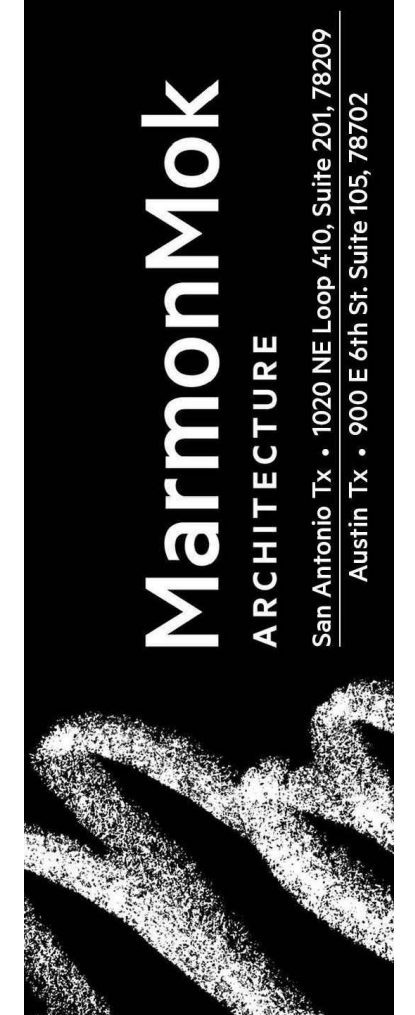
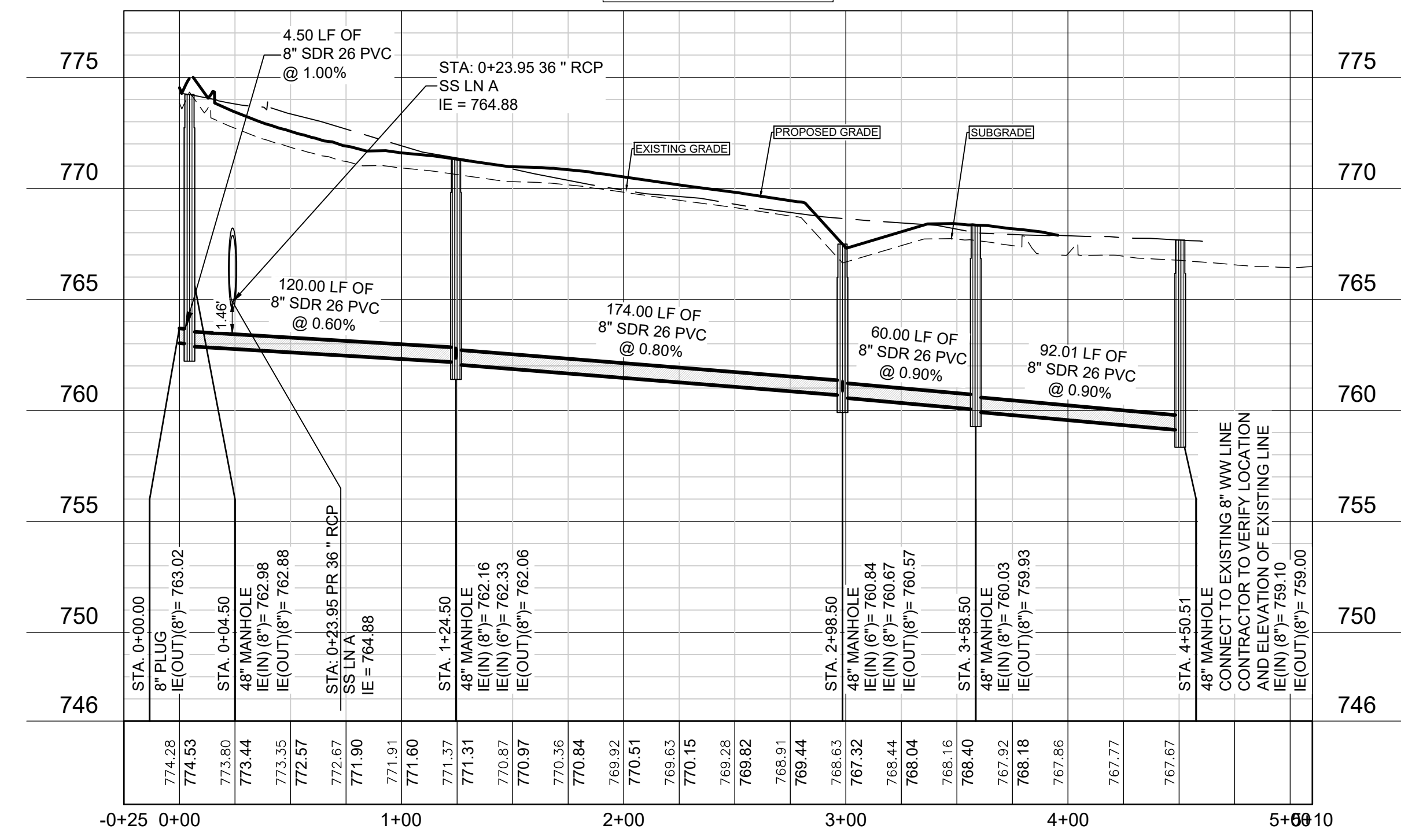
A

B

C

D

WW LN A PROFILE
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 5'



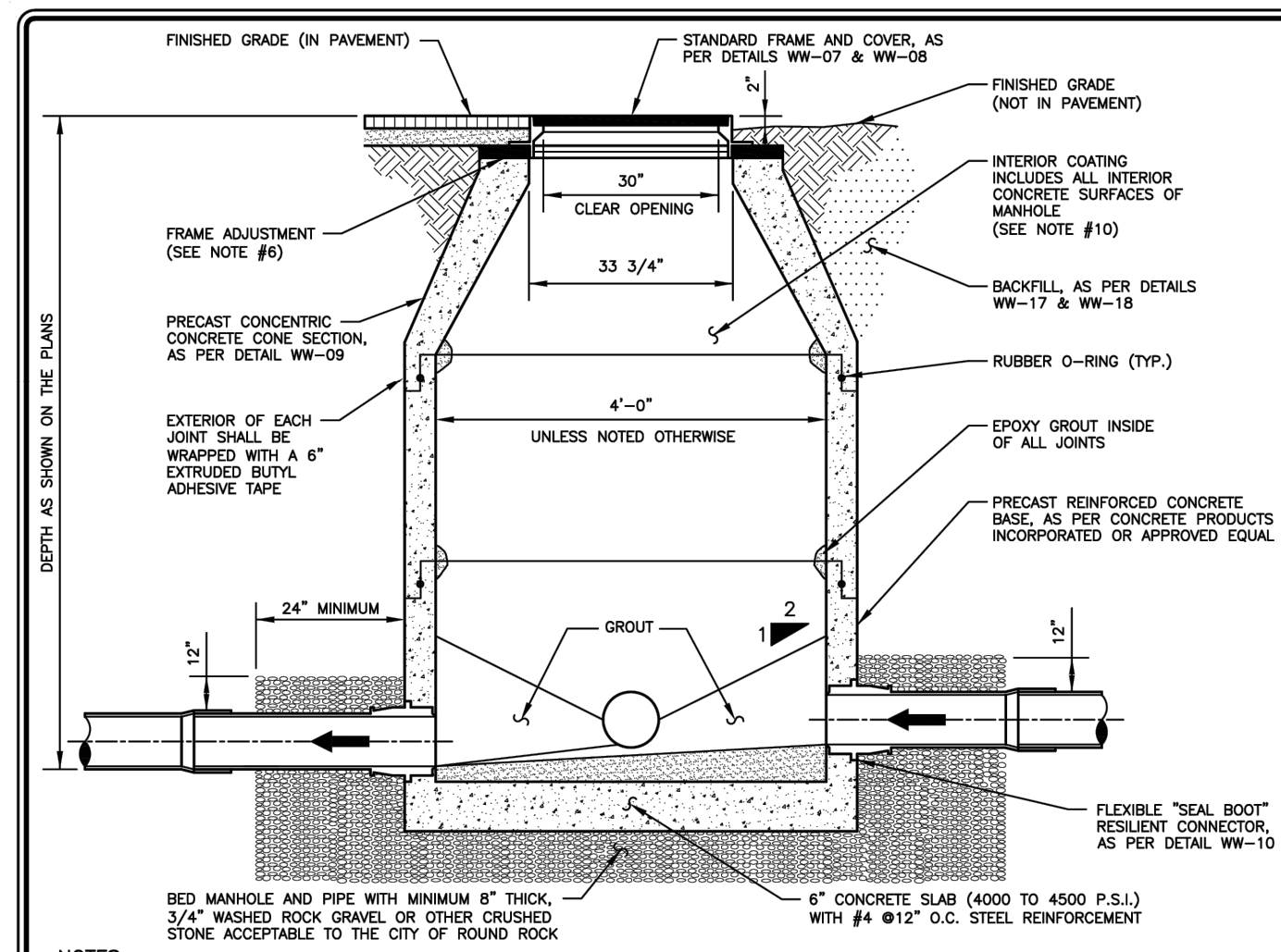
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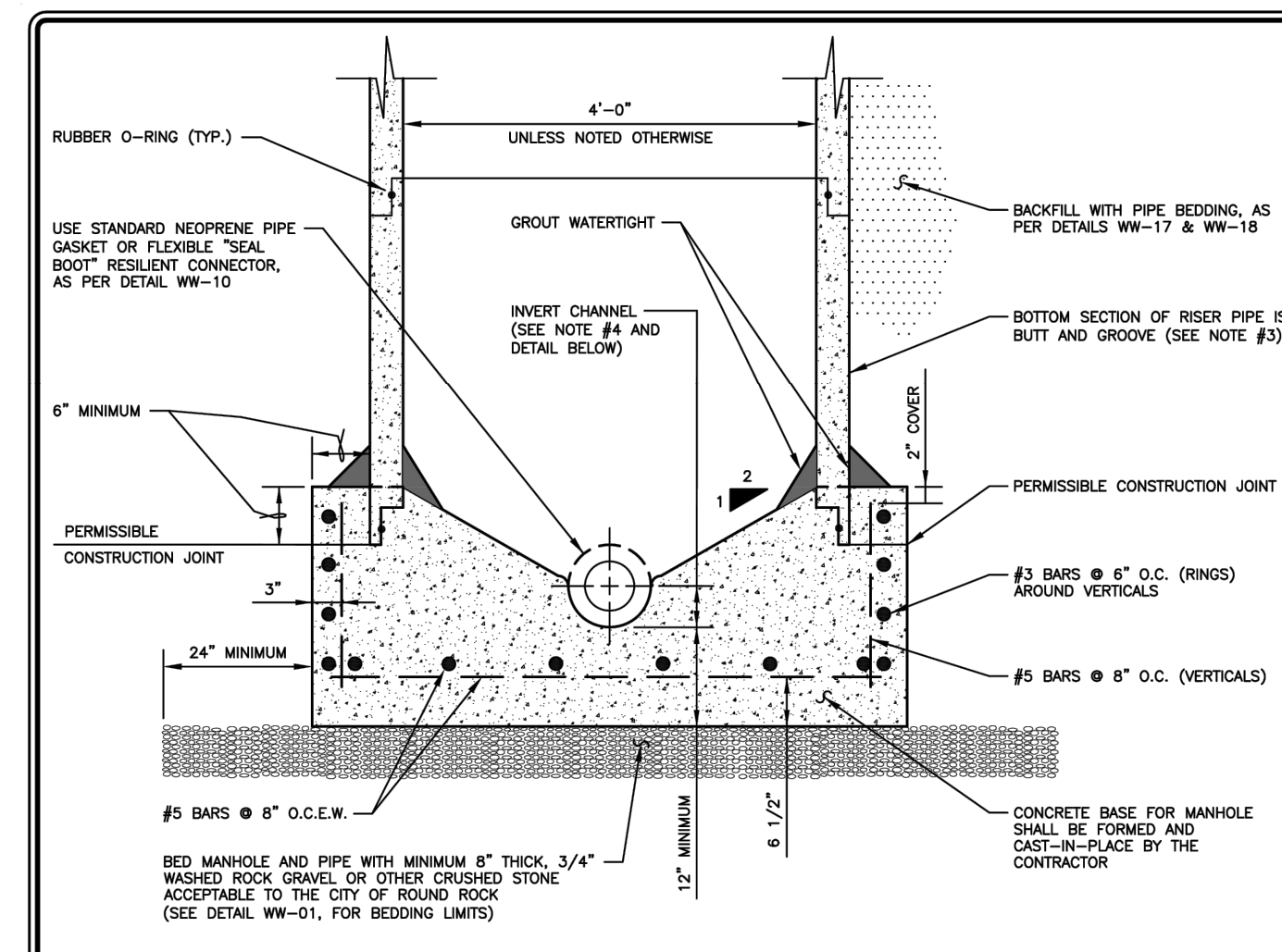
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WASTEWATER
PROFILES

SHEET NO.
C602



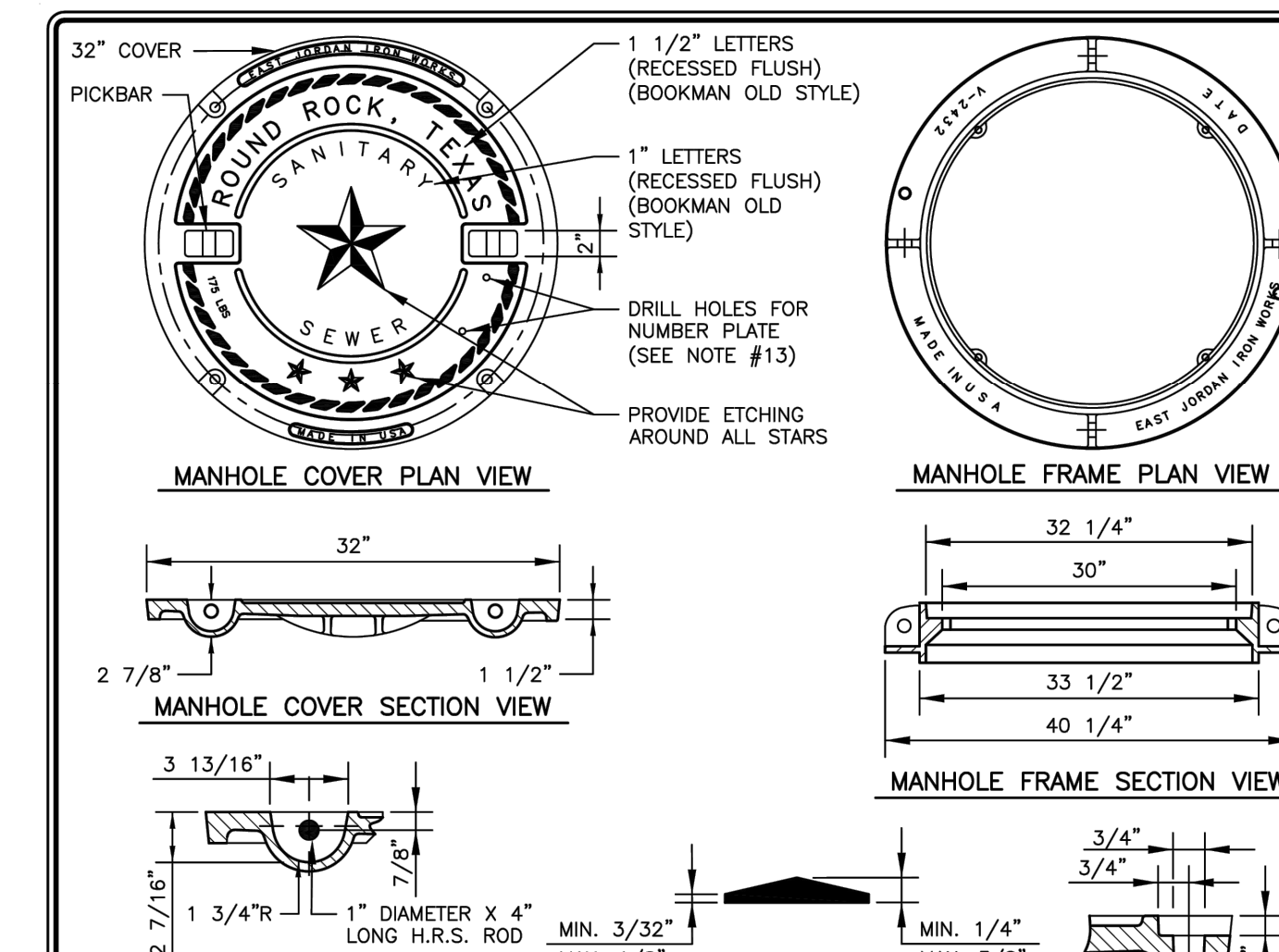
- NOTES:
- IF DROP IS SIX INCHES (6") TO TWO FEET (2'-0"), CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED INVERT TO EXTEND UNDER THE DROP CONNECTION.
 - SEE CONSTRUCTION PLANS FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZES AND TYPES.
 - MANHOLES SHALL BE PRECAST A.S.T.M. C478 BELL AND SPIGOT WITH "O" RING JOINTS.
 - MANHOLES TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR H2O TRAFFIC LOADING.
 - ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED, WHEN MANHOLES ARE LOCATED OUTSIDE OF PAVEMENT.
 - FRAME ADJUSTMENT HEIGHT SHALL CONSIST OF FIVE INCHES (5") MINIMUM TO EIGHTEEN INCHES (18") MAXIMUM. GRADE RINGS SHALL BE GROUDED WITH A NON-SHRINK GROUT INSIDE AND OUTSIDE. HDPE GRADE RINGS, MAY NOT BE USED.
 - FOR MANHOLES TO BE VENTED, SEE DETAILS WW-05 AND WW-06.
 - A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO THE FLOW STREAM. ALL P.V.C. PIPE SHALL BE REMOVED FROM INVERT.
 - BASE SECTION SHALL BE DESIGNED FOR H2O LOADING, PLUS EARTH LOAD AT 130 PCF.
 - ENTIRE INTERIOR CONCRETE SURFACES OF WASTEWATER MANHOLES TO BE COATED WITH RAVEN 405, SPRAYWALL, OR APPROVED EQUAL, (WITH A UNIFORM THICKNESS OF 124 MILS AND A MINIMUM THICKNESS OF 100 MILS, APPLIED AFTER MANHOLE HAS PASSED THE VACUUM TEST). FOR REHABILITATING MANHOLES 1/2" MINIMUM THICKNESS CALCIUM ALUMINATE CEMENTITIOUS COATING AND OTHER INTERIOR SURFACES MAY BE COATED IF RECOMMENDED BY COATING MANUFACTURER. (IN LIEU OF INTERIOR COATINGS NEW PRECAST MANHOLES CONTAINING CONSHIELD WILL BE ACCEPTED PROVIDING THE MANUFACTURER STENCILS "CONSHIELD" ON THE INSIDE AND OUTSIDE OF ALL MANHOLE SECTIONS.)

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PRECAST CONCRETE WASTEWATER MANHOLE DETAIL		



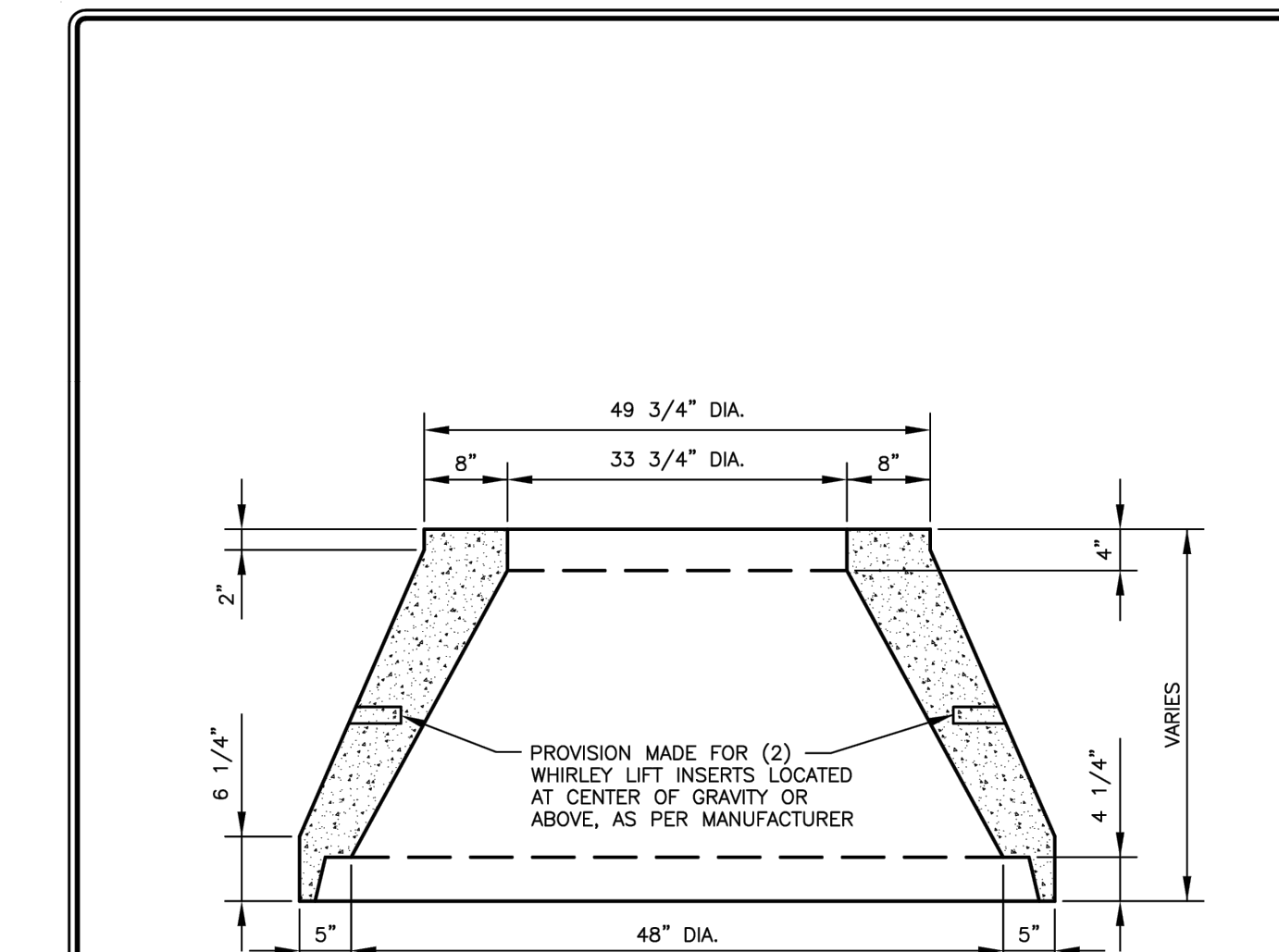
- NOTES:
- CAST-IN-PLACE BASE SHALL BE 4000 TO 4500 P.S.I. CONCRETE, 28 DAY STRENGTH.
 - STEEL SHALL BE GRADE 60.
 - MANHOLE RISER PIPE FURNISHED IN LENGTHS OF ONE (1), TWO (2), THREE (3), FOUR (4) OR SIX (6) FEET AND SHALL BE IN ACCORDANCE WITH A.S.T.M. C478.
 - INVERT CHANNEL SHALL BE PROVIDED THAT AS MUCH AS POSSIBLE, FORMS A SMOOTH CONTINUATION OF INLET AND OUTLET PIPES.
 - BASE SHALL BE PROPERLY FORMED IN THE FIELD WITH WOOD OR OTHER APPROVED FORMS.
 - VERTICAL BARS MAY BE EXTENSIONS OF BOTTOM STEEL OR SEPARATE FROM, BUT TIED TO BOTTOM HORIZONTAL STEEL.

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CAST-IN-PLACE BASE FOR CONCRETE WASTEWATER MANHOLE DETAIL		



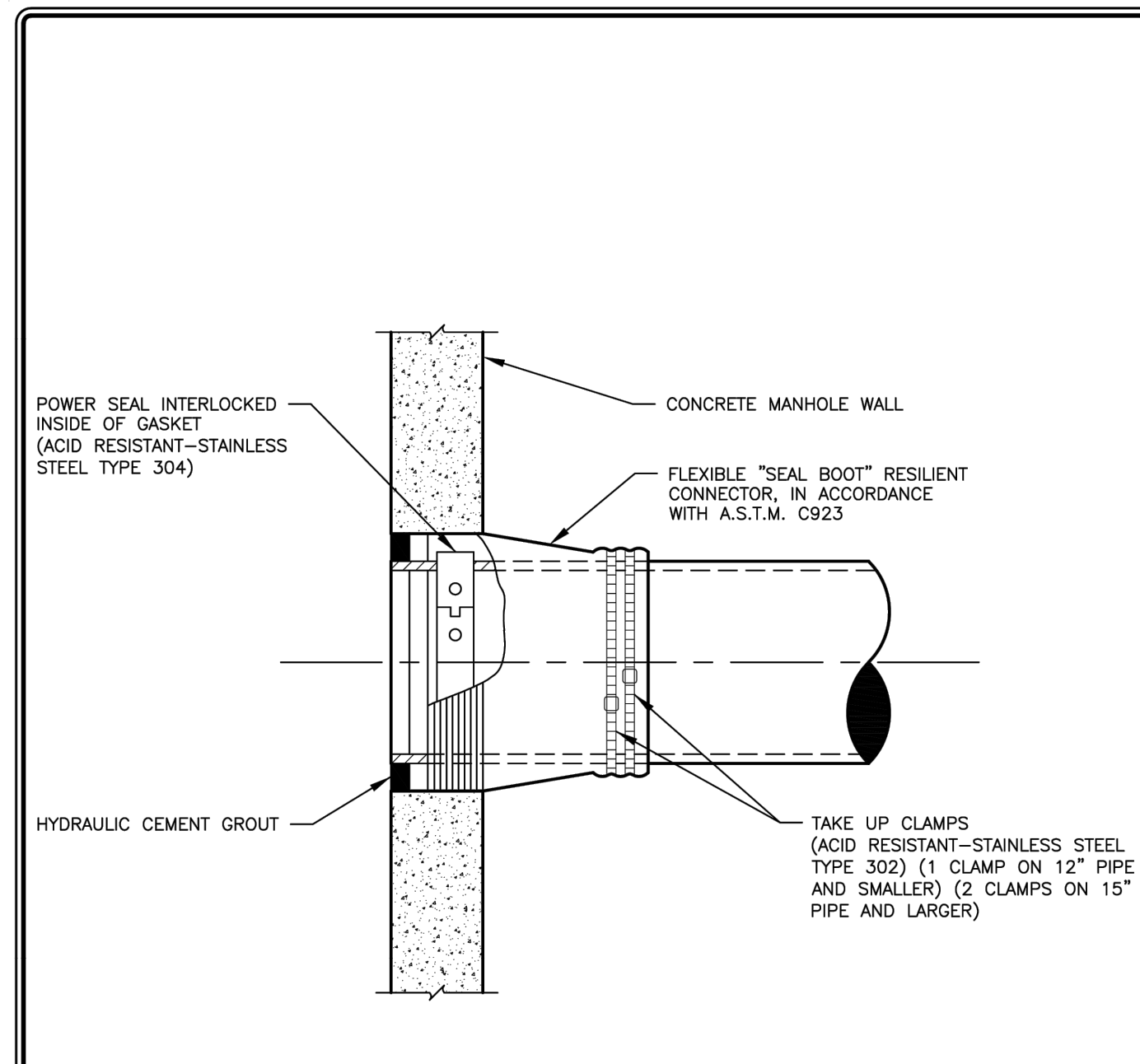
- NOTES:
- COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
 - MANHOLE COVER SHALL BE MODEL NUMBER: V-2432-3 (PRODUCT NUMBER: 42432033), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
 - MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
 - FRAME COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432073), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
 - ALL CORNERS AND EDGES SHALL HAVE A 1/8" MINIMUM AND 1/8" MAXIMUM RADIUS.
 - MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
 - MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
 - MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
 - FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
 - MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
 - COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
 - COVER SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
 - MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

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BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL		



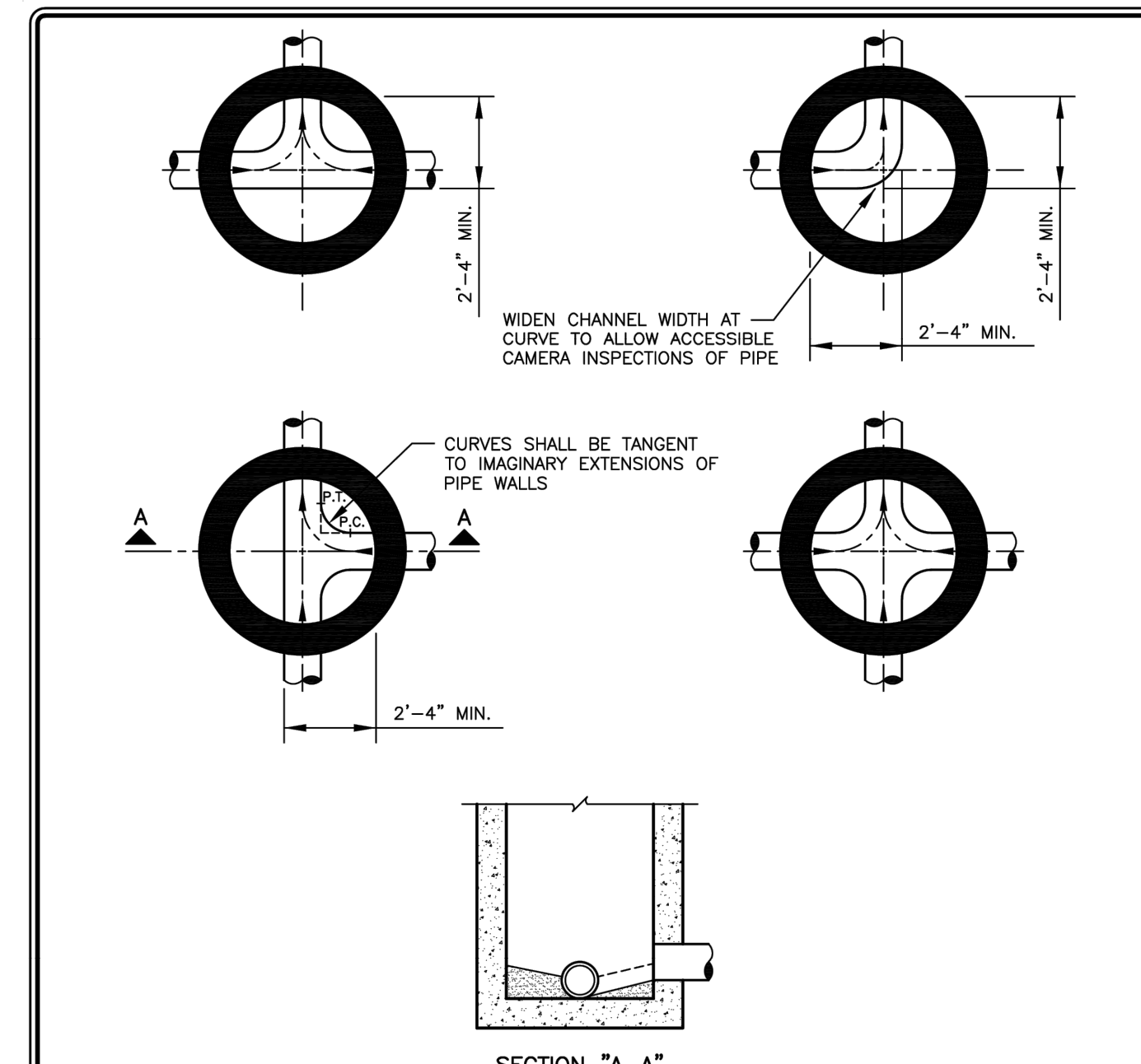
- NOTE:
- CONCENTRIC CONCRETE CONE SECTION SHALL BE MANUFACTURED USING 4000 TO 4500 P.S.I. CONCRETE, 28 DAY STRENGTH AND IN ACCORDANCE WITH A.S.T.M. C478, AS MANUFACTURED BY CONCRETE PRODUCTS INCORPORATED, OR APPROVED EQUAL.

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PRECAST 48" CONCENTRIC CONCRETE CONE SECTION DETAIL		



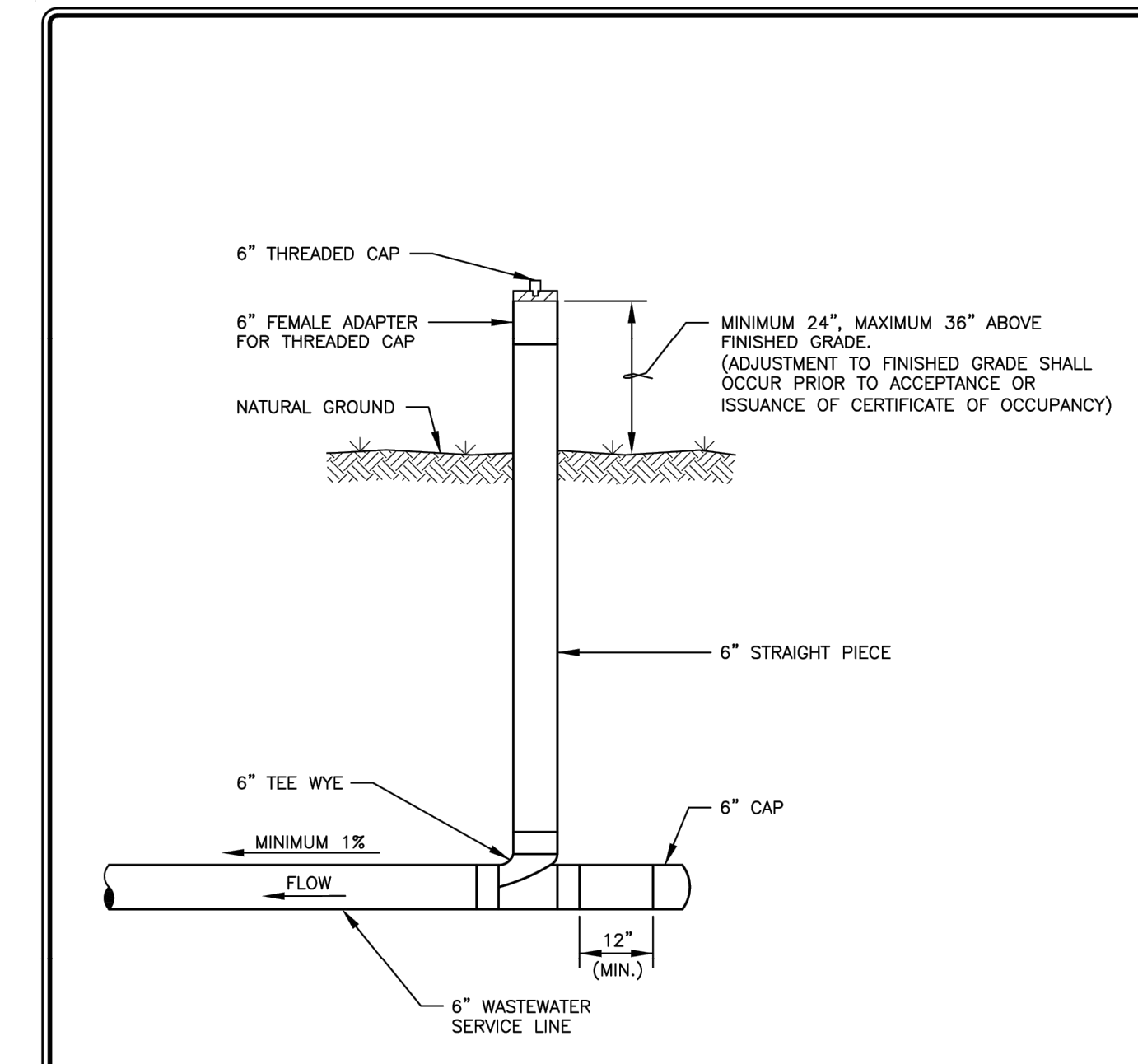
- NOTES:
- FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR TO BE A MINIMUM OF 12 INCHES (12") FROM A MANHOLE JOINT.

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FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR DETAIL		



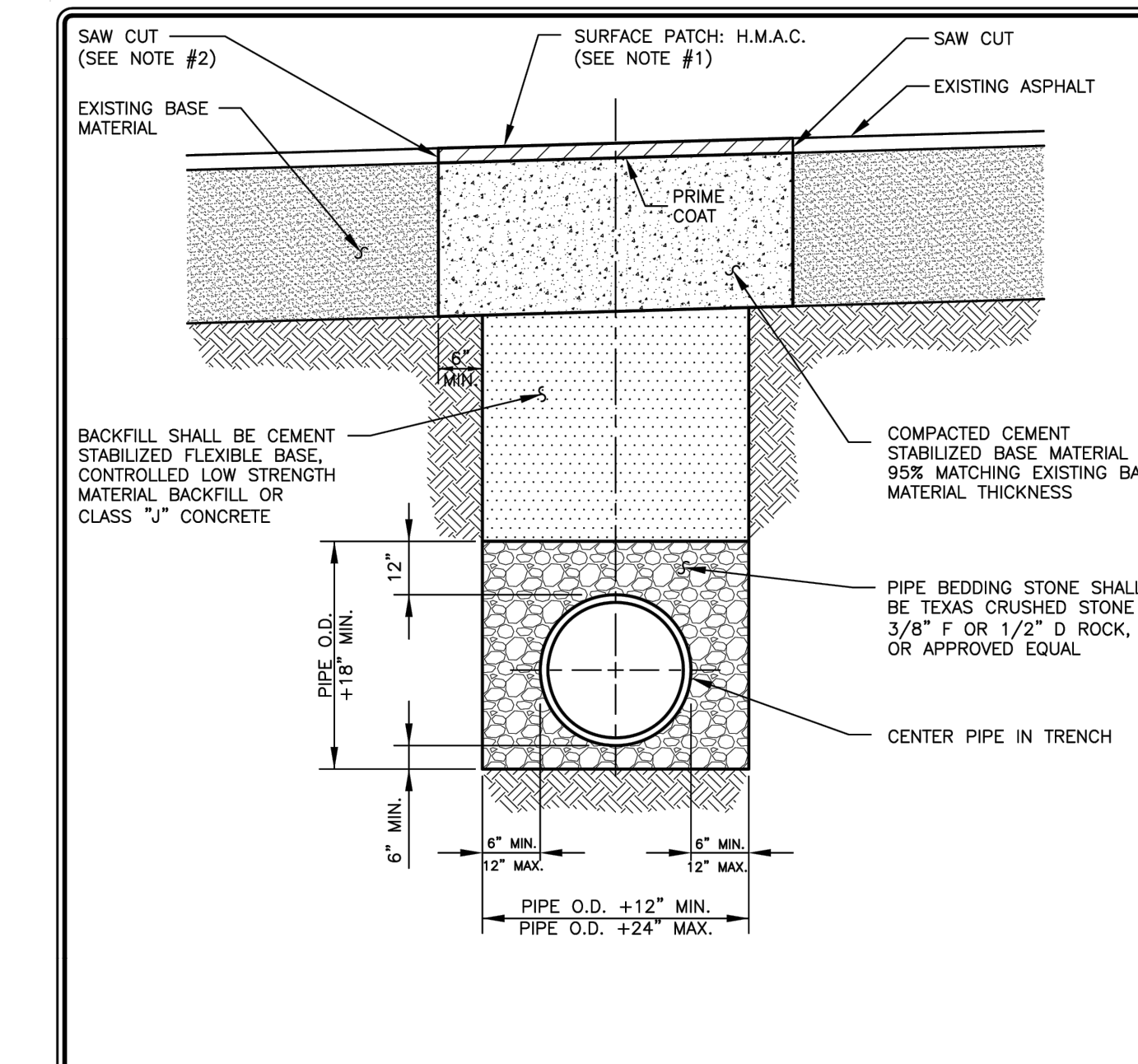
- NOTES:
- MINIMUM DROP FROM INLET TO OUTLET OF MANHOLE IS 0.1 FEET AND MAXIMUM DROP IS 2 FEET, UNLESS SPECIAL APPROVAL IS OBTAINED FROM THE CITY OF ROUND ROCK.
 - INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
 - SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
 - CHANNELS FOR FUTURE CONSTRUCTIONS, SHALL BE CONSTRUCTED WITH PIPE EXTENDING 3' BEYOND EXTERIOR OF MANHOLE WALL WITH GUELED PLUS.
 - SLOPE MANHOLE BENCH AT 2:1 SLOPE FROM MANHOLE WALL TO CHANNEL.
 - INVERT CHANNEL SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR FOUR INCHES (4") DEEP.

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WASTEWATER FLOW PATTERNS FOR INVERT CHANNELS DETAIL		



- NOTES:
- ALL PIPE TO BE SDR 26.
 - ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

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WASTEWATER SERVICE CLEAN-OUT DETAIL (NON-PAVED SURFACE)		



- NOTES:
- H.M.A.C. THICKNESS SHALL MATCH EXISTING ASPHALT THICKNESS AND NO LESS THAN 2".
 - THE CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING PAVEMENT AND FLEXIBLE BASE A MINIMUM OF 6" BEYOND EITHER THE EDGE OF THE WASTEWATER LINE TRENCH OR THE POINT WHERE EXISTING PAVEMENT IS DAMAGED DUE TO TRENCHING OPERATIONS, WHICHEVER IS GREATER. FINISHED PATCH SHALL BE NEAT AND UNIFORM.
 - INSTALLATION OF BACKFILL, SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND SURFACE PATCH SHALL NOT BE PAID FOR SEPARATELY. COSTS FOR THESE ITEMS SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
 - THE CONTRACTOR SHALL PROVIDE STEEL PLATES TO SPAN THE TRENCH AS NECESSARY OR TO ALLOW BACKFILL TO CURE. SUCH PLATES SHALL BE SUITABLE FOR VEHICLE PASSAGE OVER THE TRENCH AND SHALL BE SATISFACTORILY ANCHORED IN PLACE. COSTS FOR THIS ITEM SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
 - ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (EXISTING PAVED SURFACE)		

MarmonMok
ARCHITECTURE
San Antonio TX • 1020 NE Loop 410, Suite 201, 78209
Austin TX • 900 E 4th St, Suite 105, 78702

11/15/2023

ENGINEERING
CONSULTING

ROUND ROCK SPORTS CENTER EXPANSION
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GO ROUND ROCK SPORTS CAPITAL OF TEXAS

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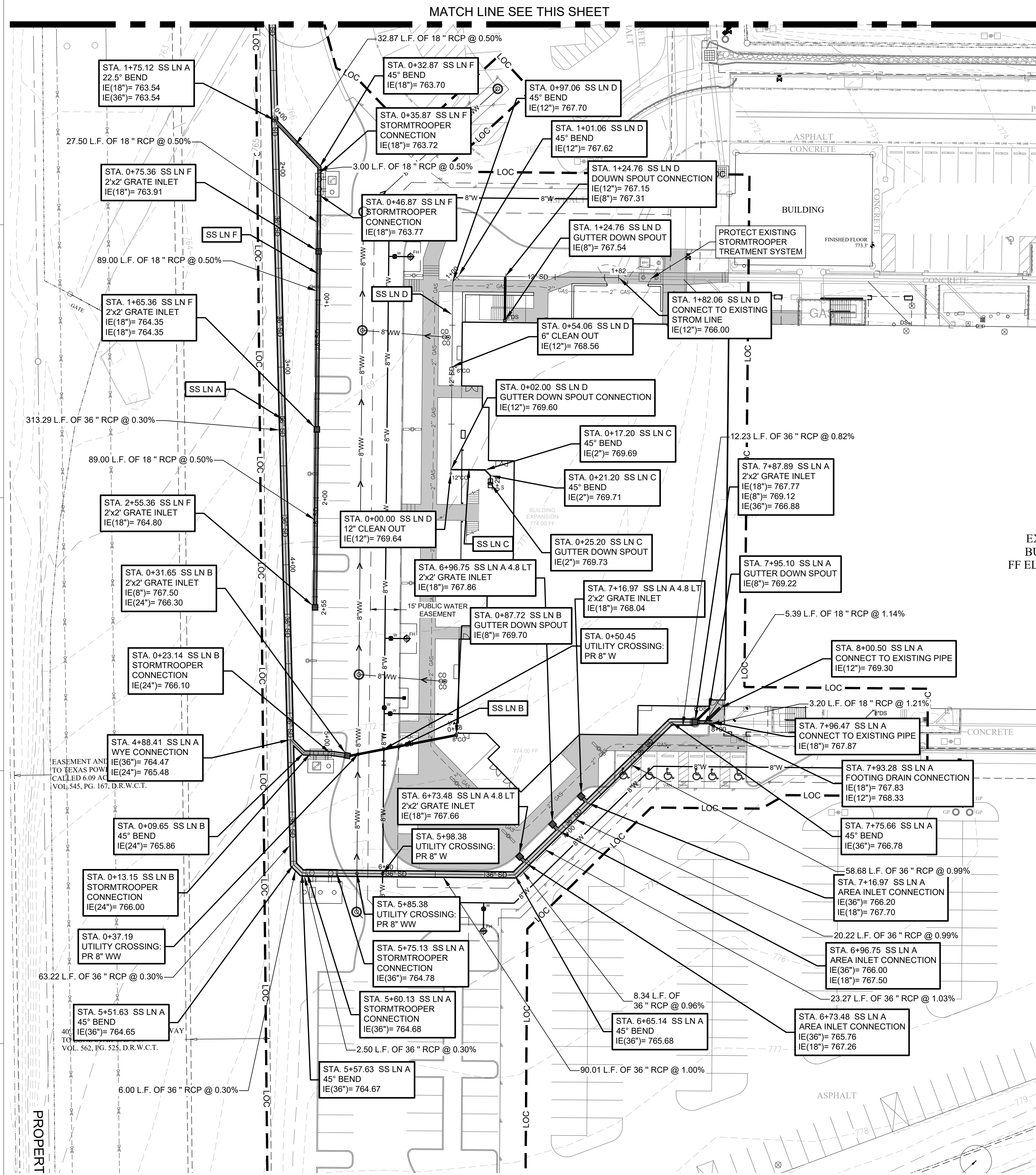
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Project No. 22027
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SHEET TITLE
WASTEWATER DETAILS

SHEET NO.
C603

SDP-23-00041

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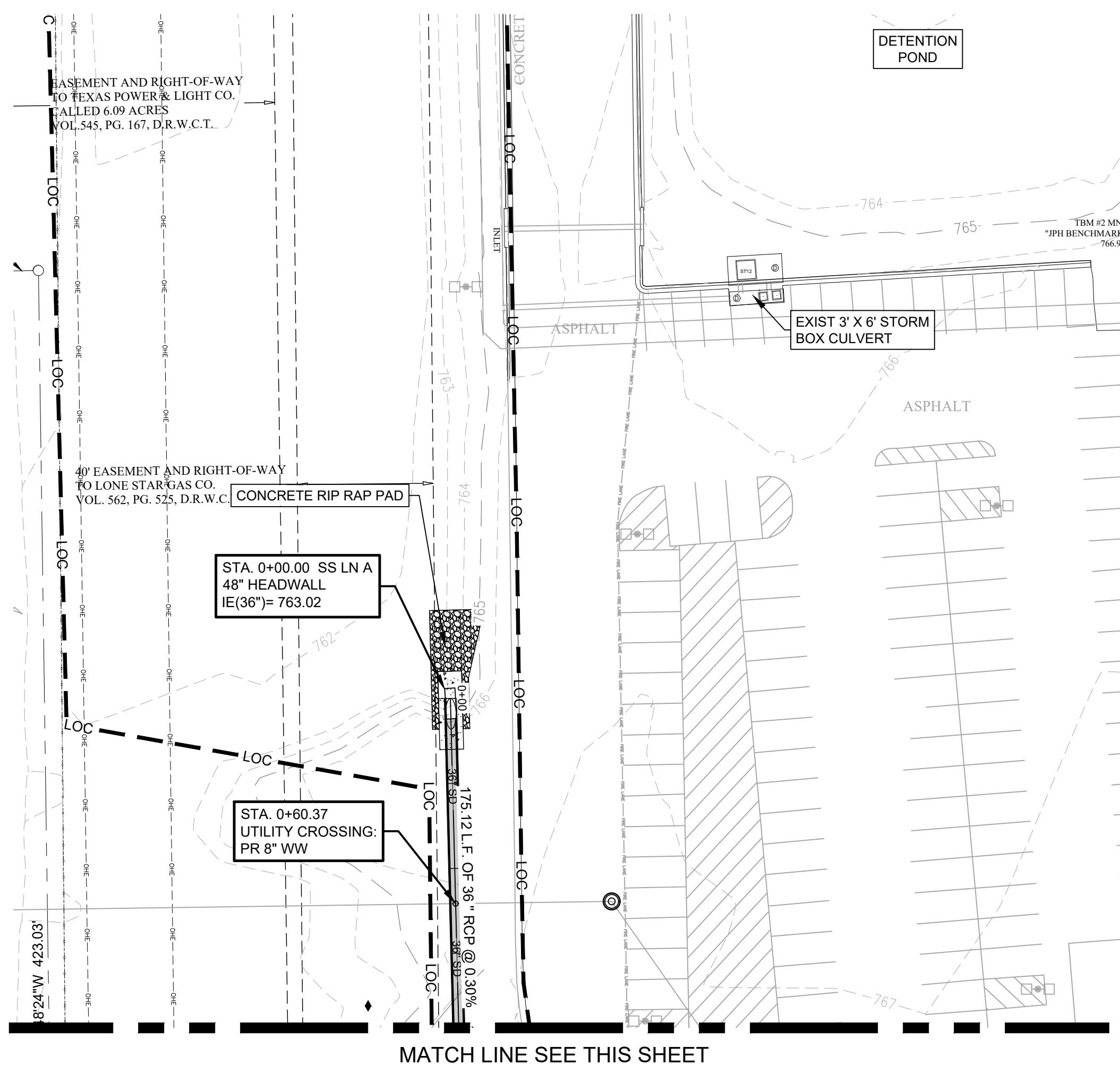
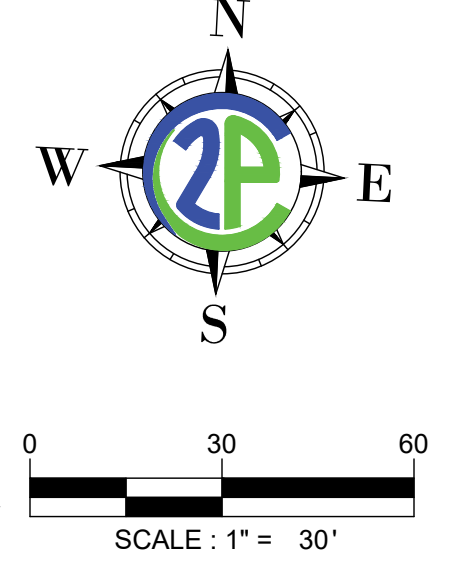
GENERAL LEGEND

SYMBOLS

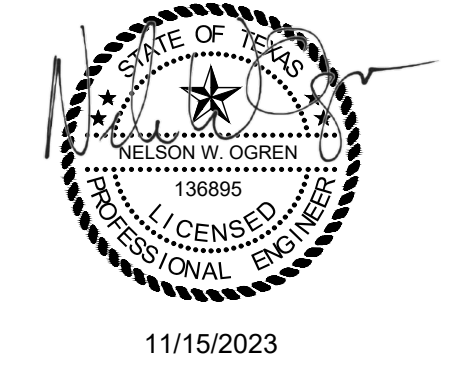
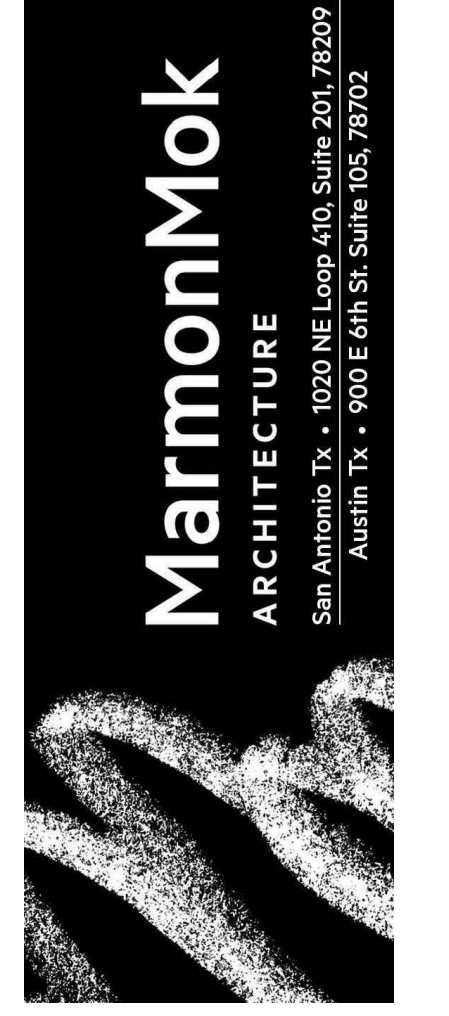
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⊕	WATER VALVE	—	WATER SERVICE
⊙	FIRE HYDRANT	⊗	STORMSEWER MANHOLE
⊖	BACKFLOW PREVENTER	⊙	SKIN
⊕	UTILITY POLE	⊖	CURB INLET
⊙	LIGHT POLE	⊕	GRATE INLET
⊖	WASTEWATER MANHOLE	⊖	TABLE TOP AREA INLET
⊕	CLEAN OUT	⊕	TREE TO BE SAVED
⊙	KEYNOTES	⊕	TREE TO BE REMOVED
⊕	PARKING COUNT		

LINETYPES

---	PROPERTY BOUNDARY
---	LIMITS OF CONSTRUCTION
---	FENCES (CHAINLINK)
---	(IRON)
---	(WOOD)
---	(BARB WIRE)
---	DITCH (CREEK) LINE
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	CURB & GUTTER
---	UG-UG
---	UG-UG UNDERGROUND ELEC.
---	OH-UG OVERHEAD UTILITY
---	TEL-TEL UNDERGROUND TELE.
---	GAS-GAS UNDERGROUND GAS LINE
---	W-W WATER LINE
---	WW-WW WASTEWATER LINE
---	ACCESSIBLE ROUTE



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SHEET TITLE
STORM PLAN

SHEET NO.

C701

SDP-23-00041

A

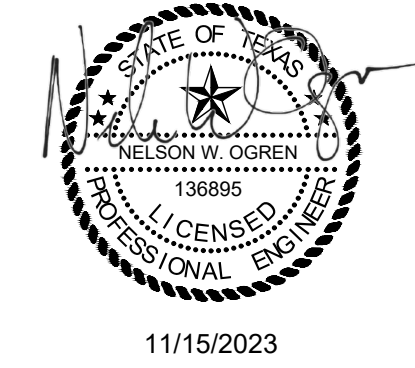
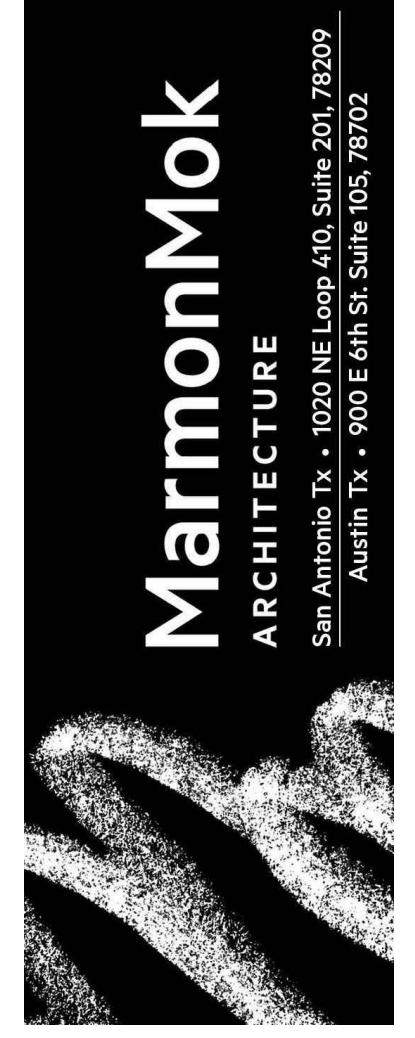
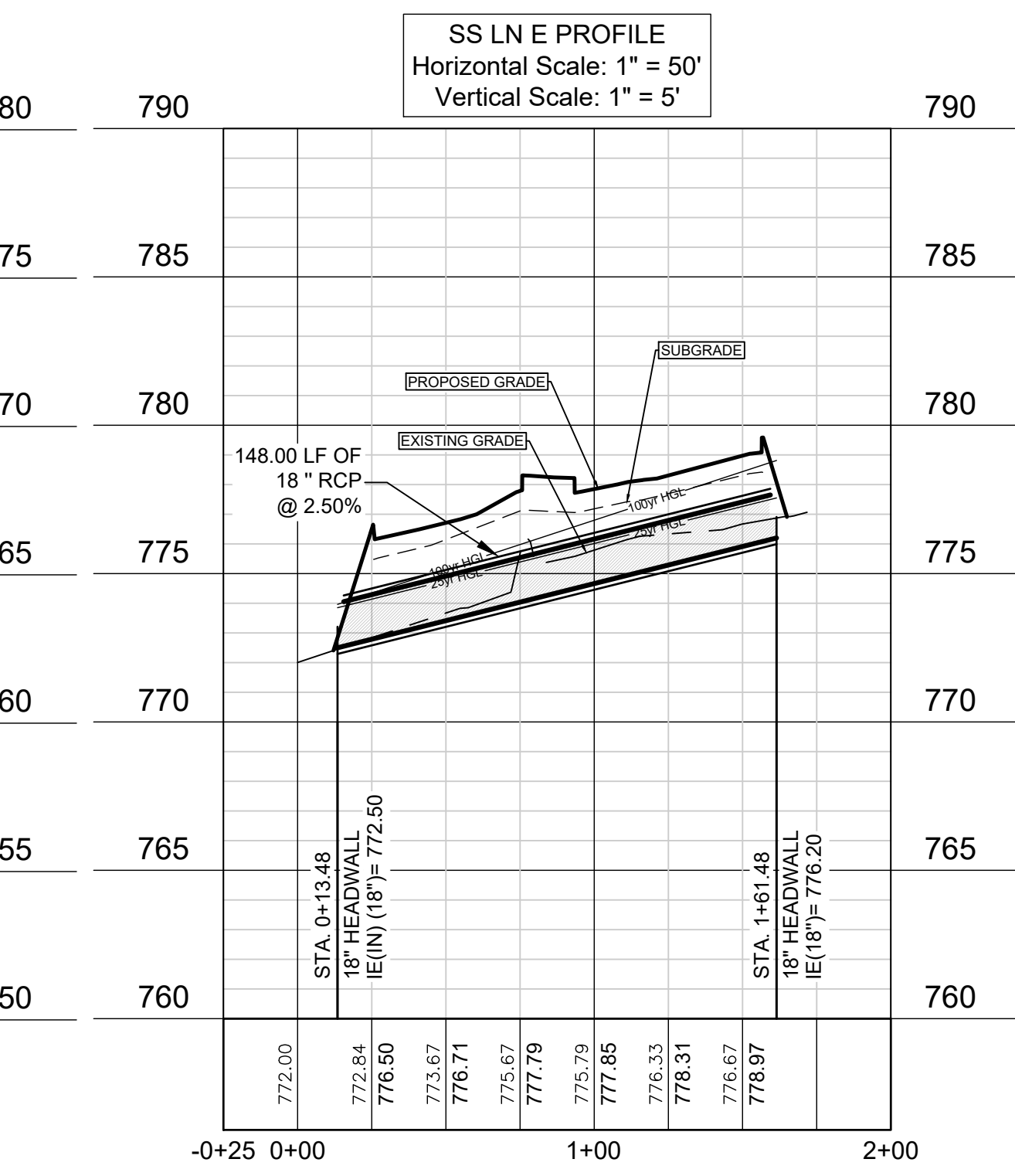
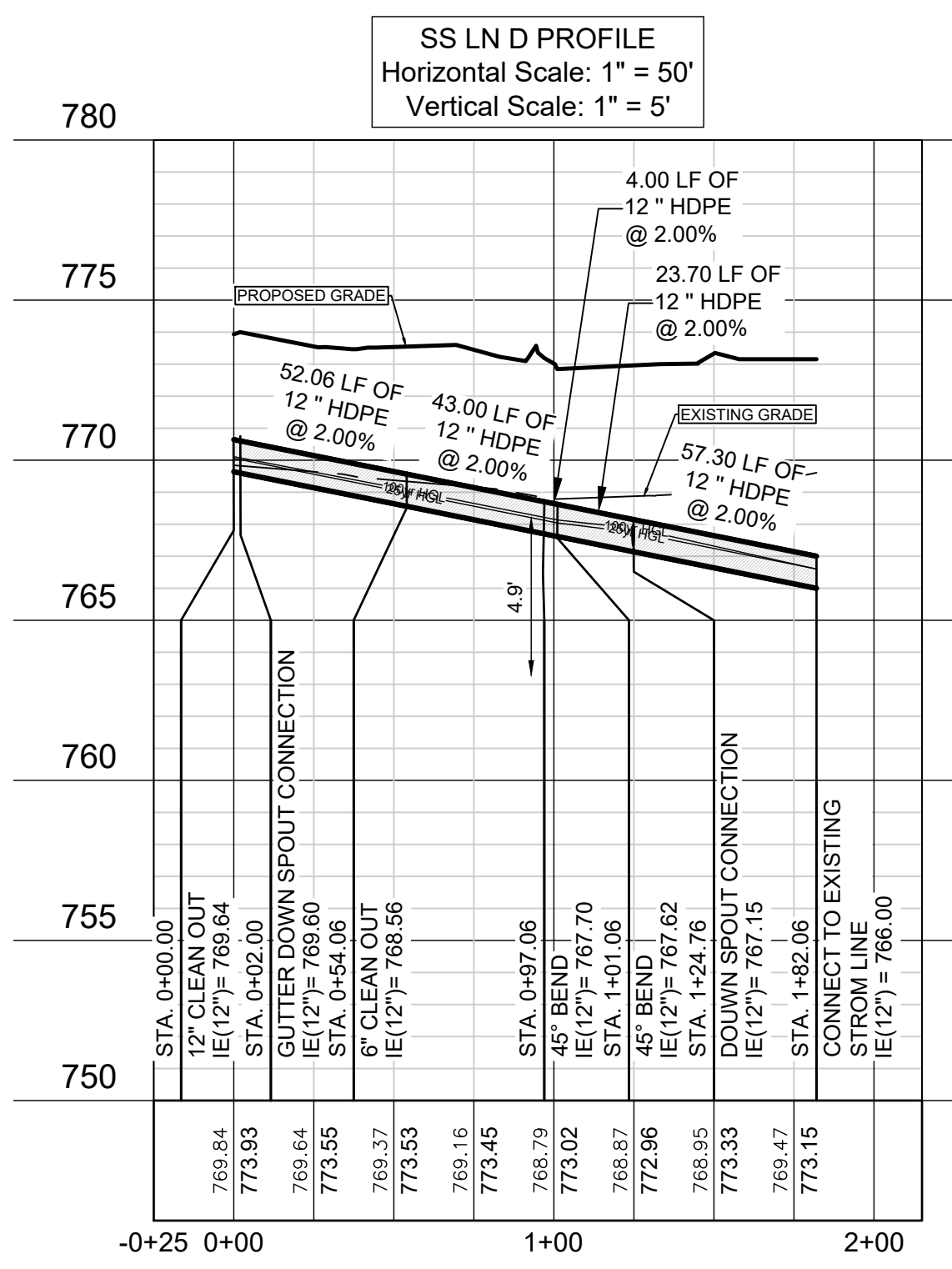
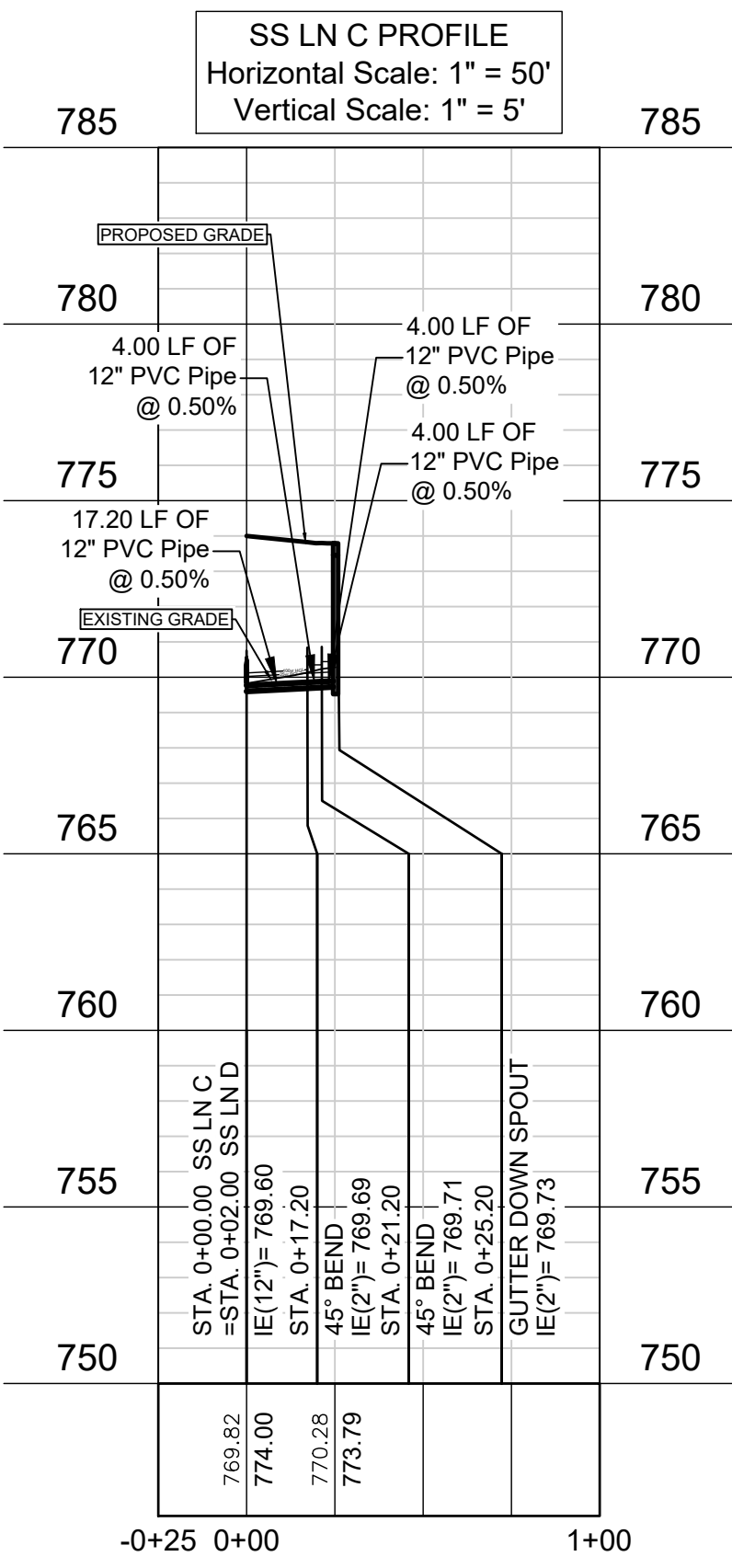
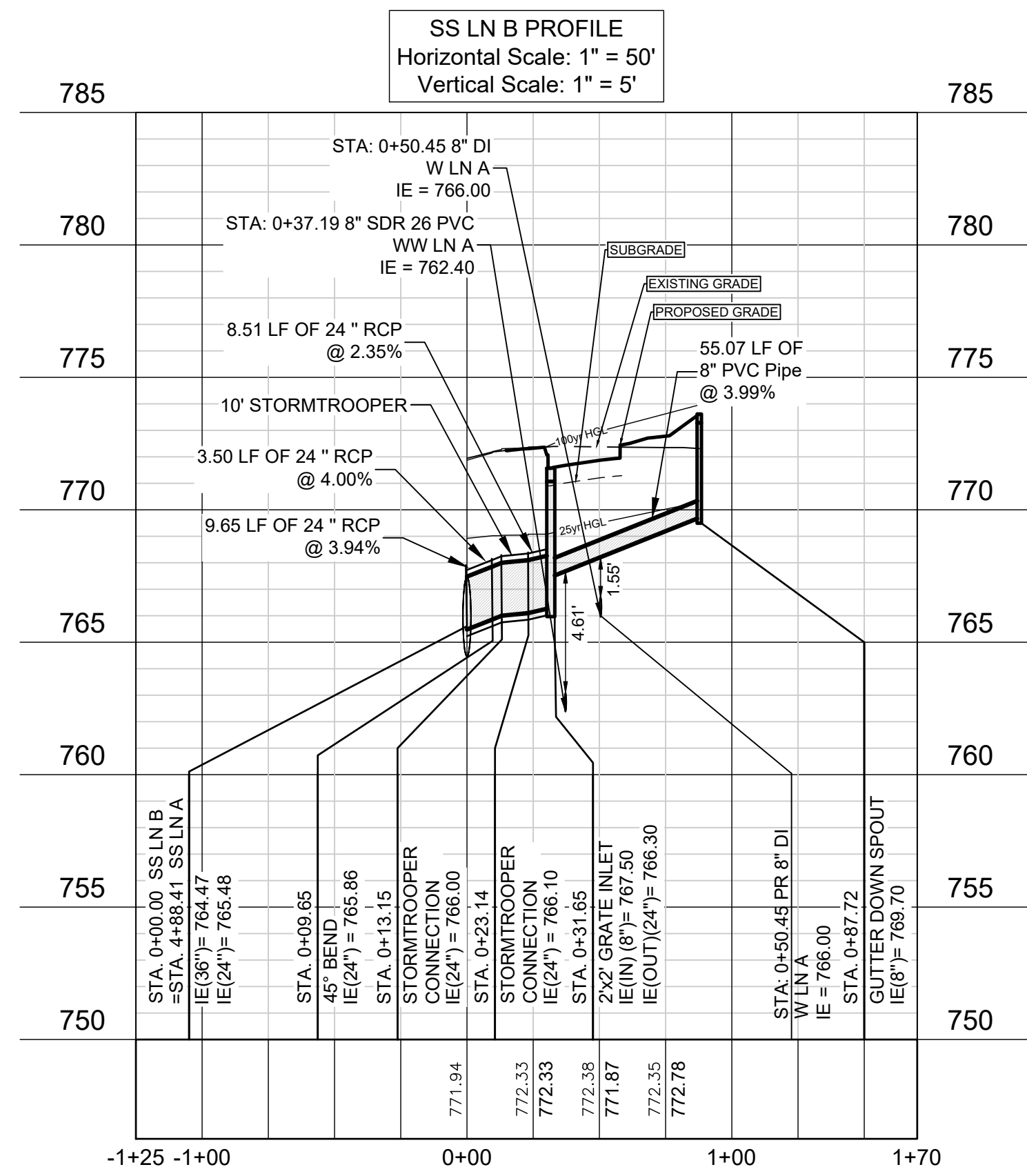
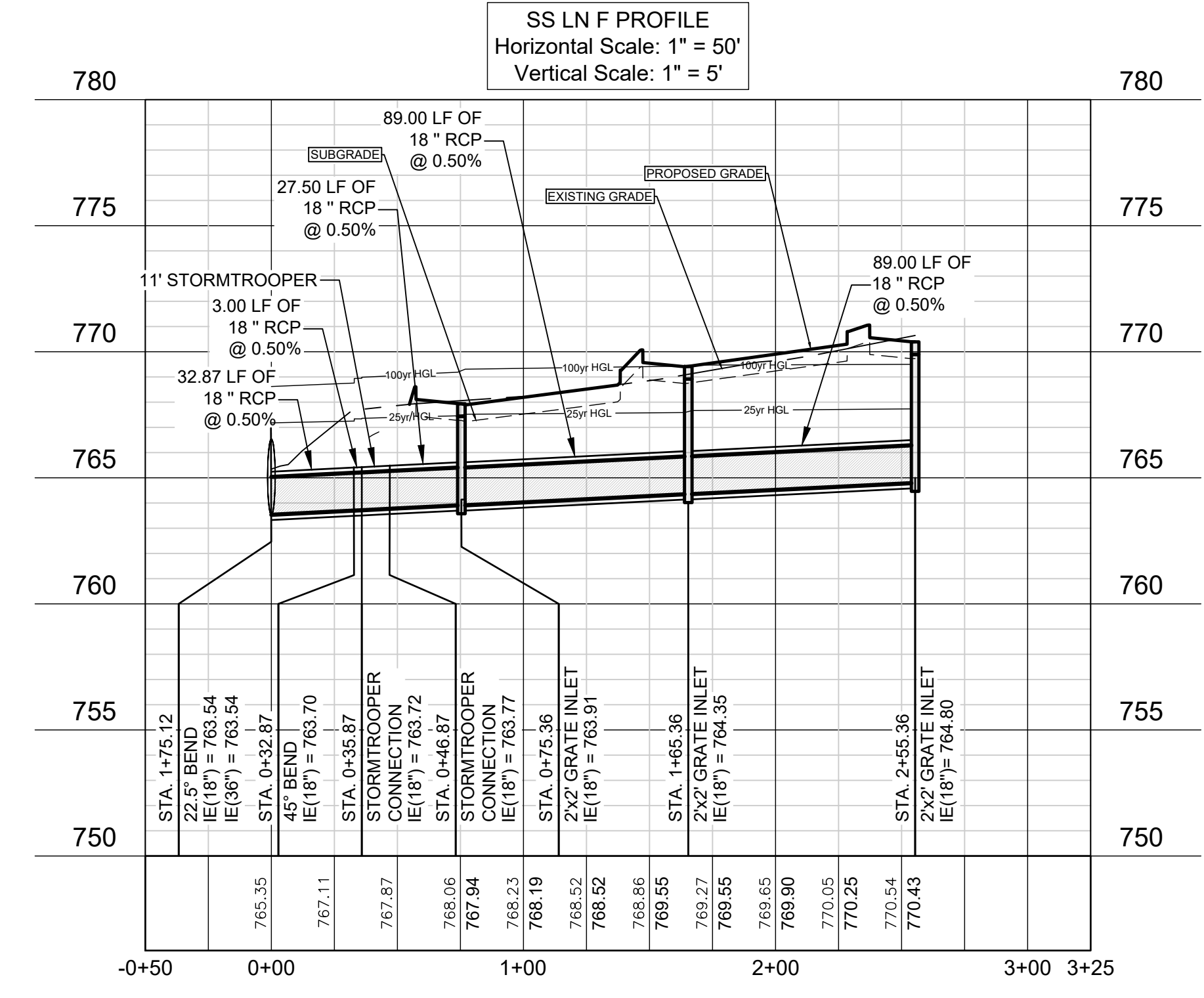
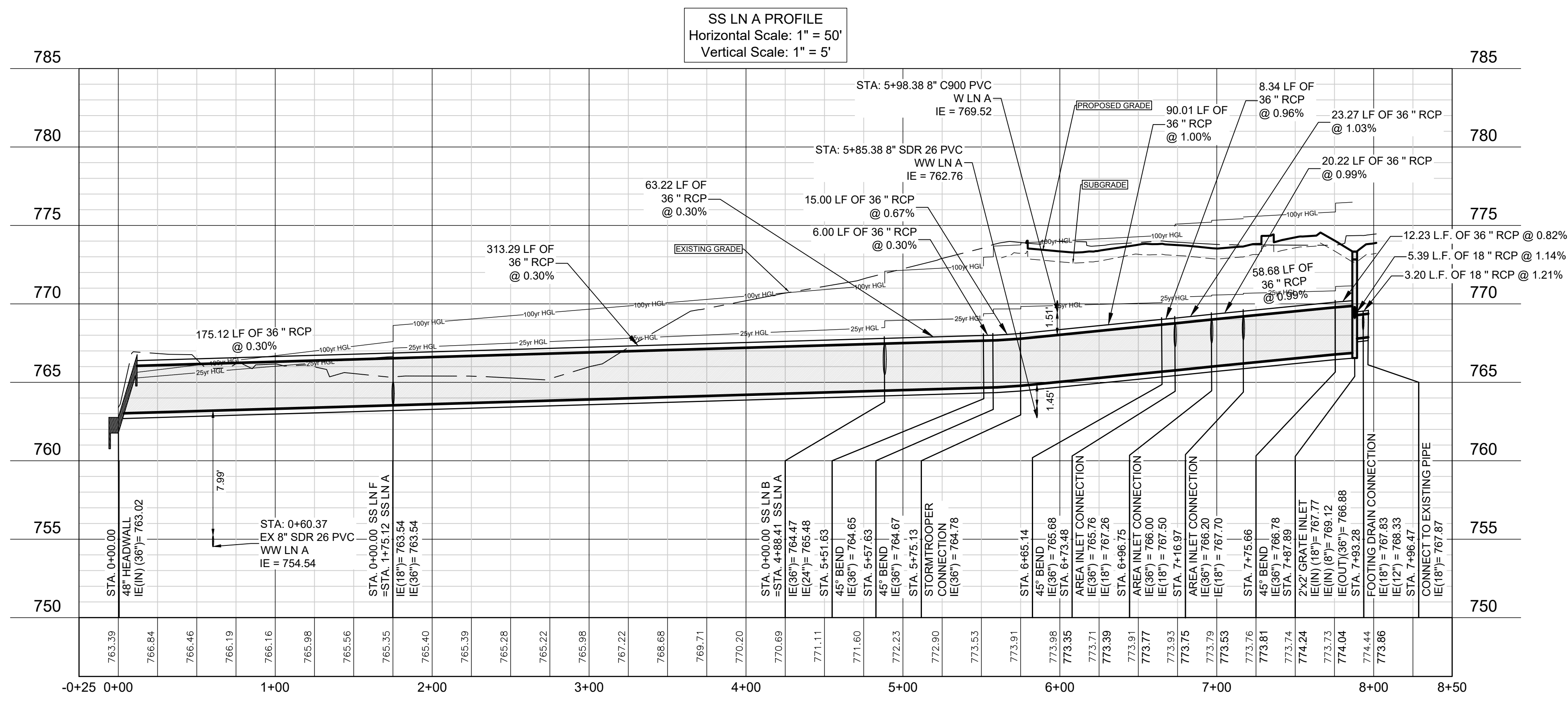
B

C

D

E

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EXPANSION**
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TX 78681

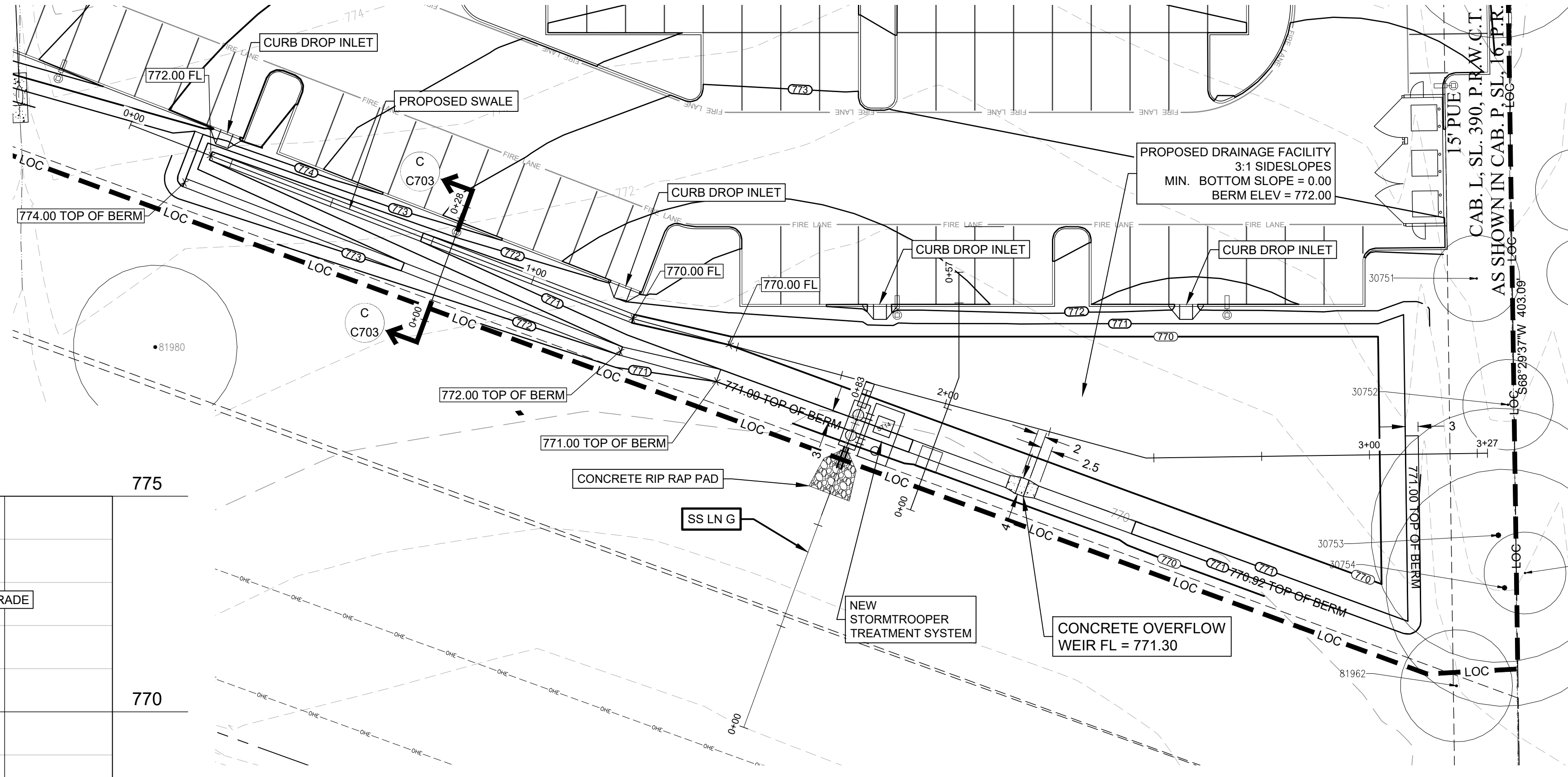
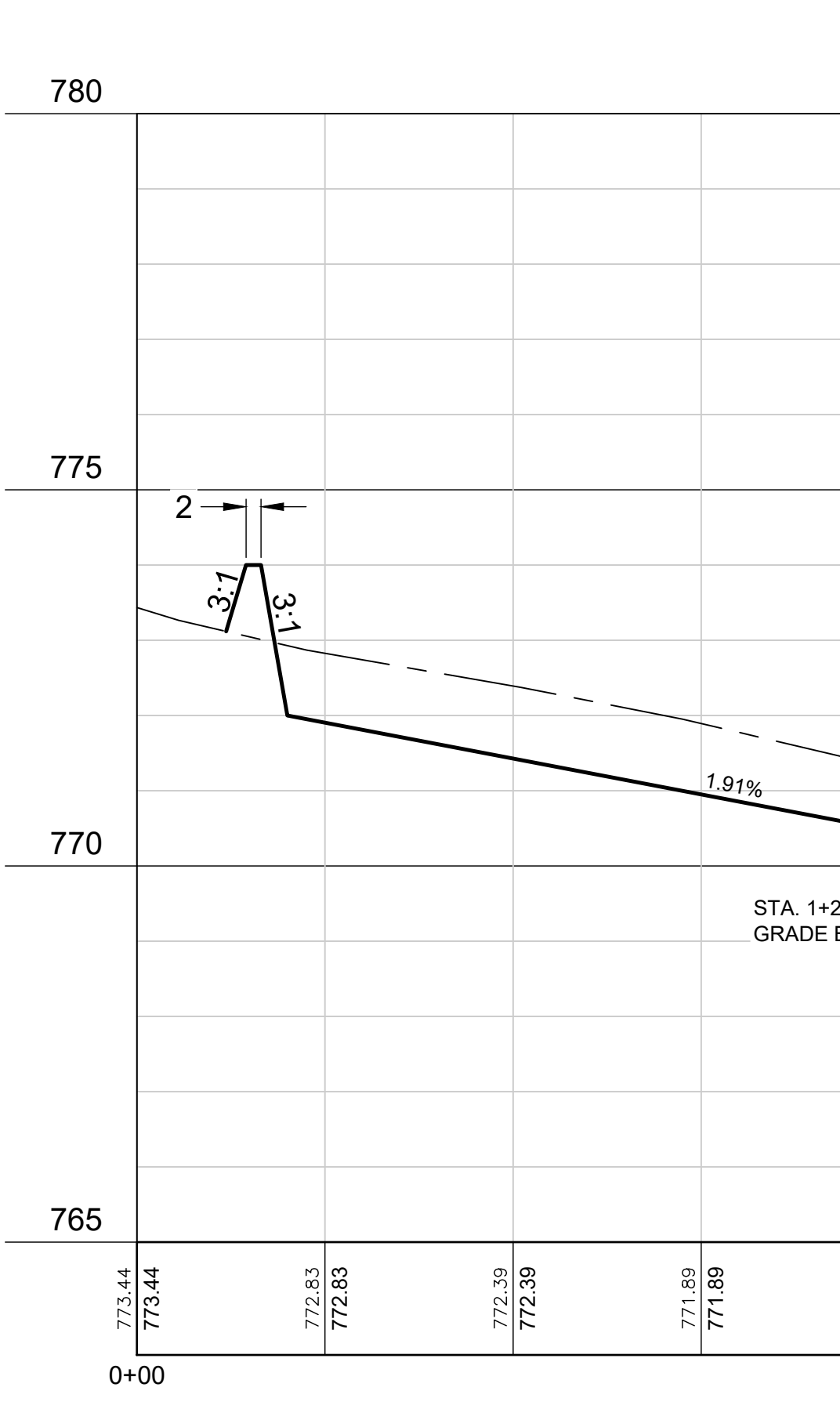
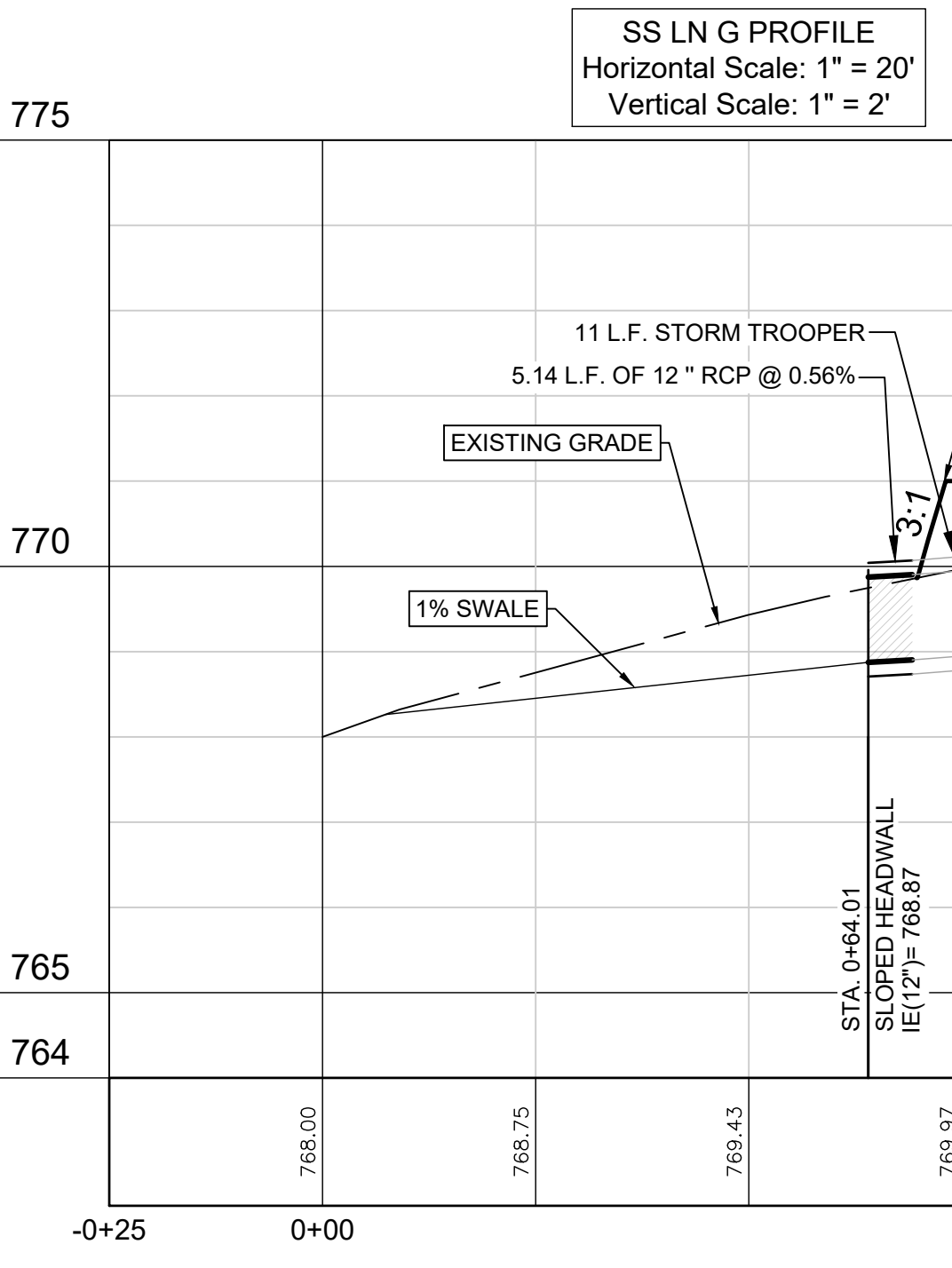
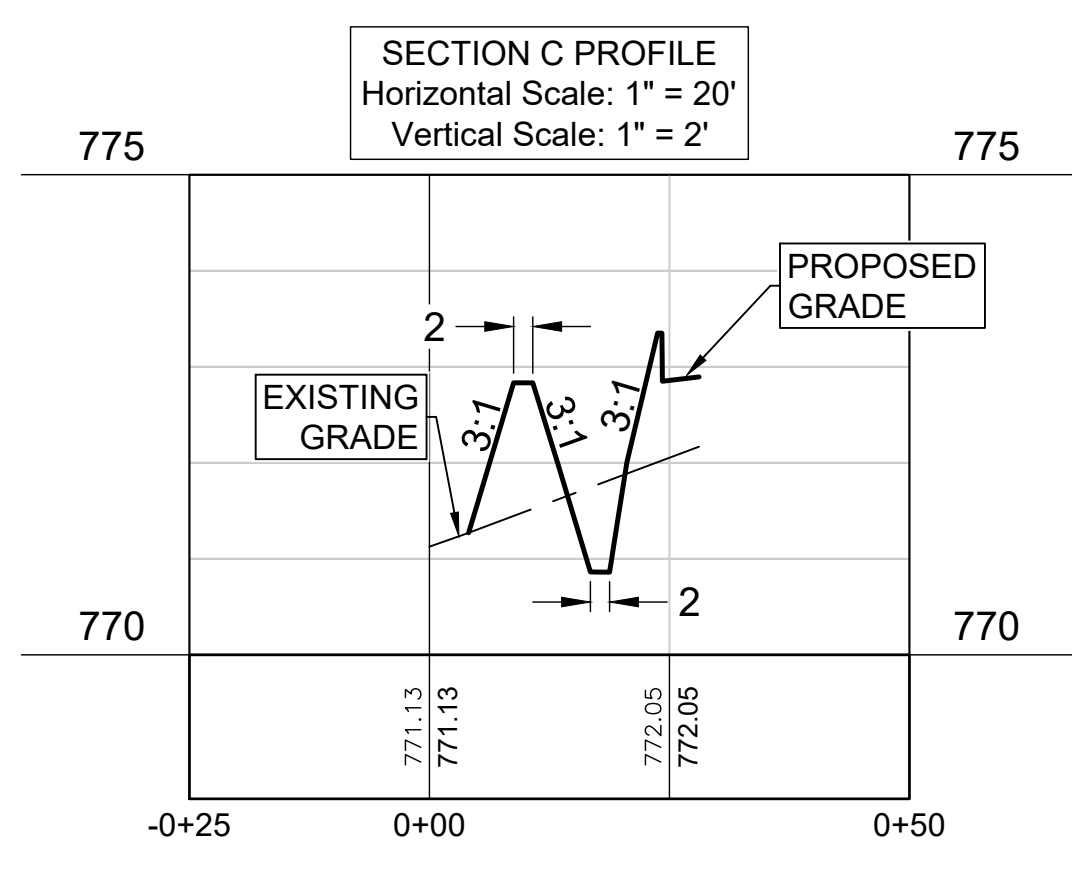


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SHEET TITLE
STORM PROFILES

SHEET NO.
C702

SDP-23-00041

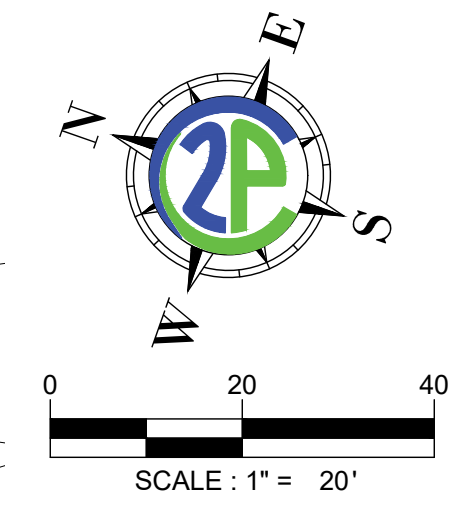


Elevation (FT)	Area (AC)	Area (SF)	Cumulative Volume (Cu. Ft)
770	0.10357736	4511.83	0
771	0.15688705	6834.00	5672.915
772	0.20066575	8741	13460.415

Event	2-YR	10-YR	25-YR	50-YR	100-YR
DISCHARGE	2.5	4.4	5.8	7.0	8.4
ELEV	771.2	771.5	771.7	771.8	771.9

Event	2-YR	10-YR	25-YR	50-YR	100-YR
Q - Weir Flow Rate (cfs)	0.0	0.7	1.7	2.7	4.1
H - Head above weir (ft)	0.000	0.239	0.436	0.592	0.776
V - Flow Velocity (ft/s)	0.000	1.466	1.982	2.307	2.642

Outlet Assumptions:
 Outlet 1 - 12" PIPE In Elev= 770.00 Slope= 0.0050 Ent. Coef.= 0.7 Exit Coef.= 1.0 Mannings N= 0.012 Elev= 771.3 Length= 2 Coef.= 3.00
 Spillway 1 - Weir



GENERAL LEGEND

SYMBOLS

- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- WASTEWATER MANHOLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNT
- WW SERVICE
- WATER SERVICE
- STORMSEWER MANHOLE
- SKIN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINE TYPES

- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

GRADING LEGEND

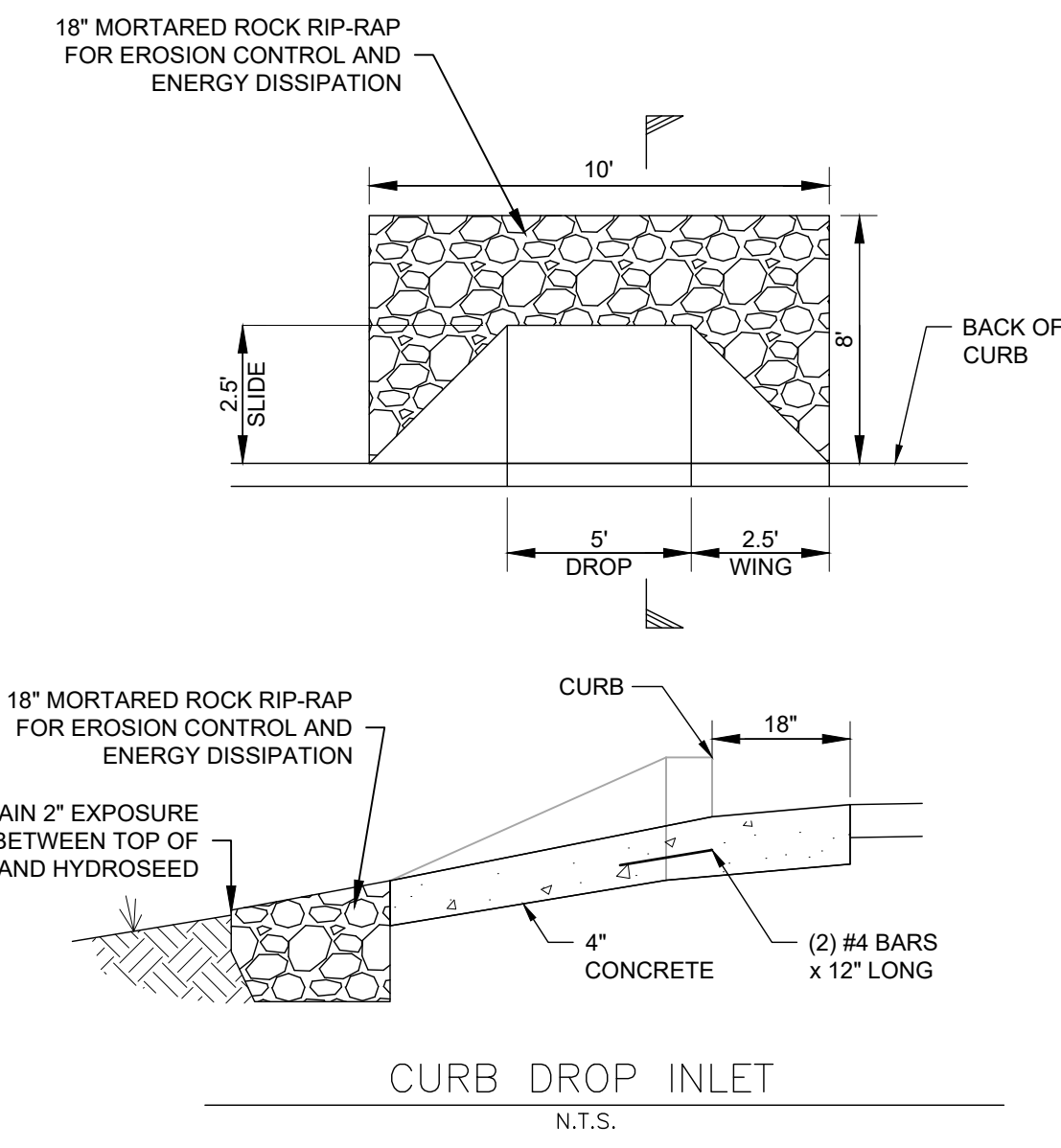
EXISTING

- (-493.00 NG) NATURAL GROUND
- (-493.00 EX PAV) PAVEMENT
- (-493.00 EX SW) SIDEWALK

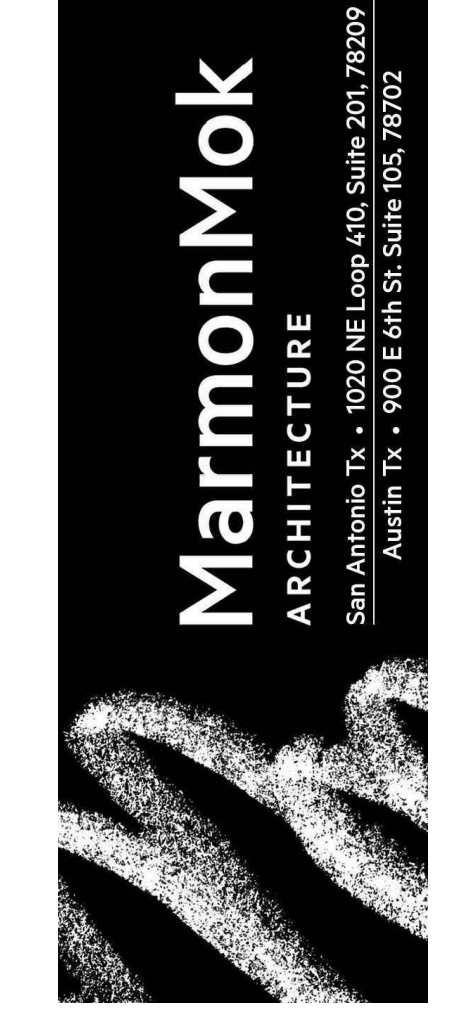
PROPOSED

- (-493.00 PAV) PAVEMENT
- (-493.00 TC) TOP OF CURB
- (-493.00 SW) SIDEWALK
- (-493.00 TG) TOP OF GRADE
- (-493.00 FL) FLOWLINE
- (-493.00 FG) FINISHED GROUND
- (-493.00 EX CL) GUTTER
- (-493.00 EX SW) SIDEWALK
- (-493.00 TOE) TOE OF WALL
- (-493.00 TOE) TOE OF SLOPE
- (-493.00 CONC) CONCRETE INLET
- (-493.00 FF) FINISHED FLOOR

LP LOW POINT HP HIGH POINT



CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
 CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



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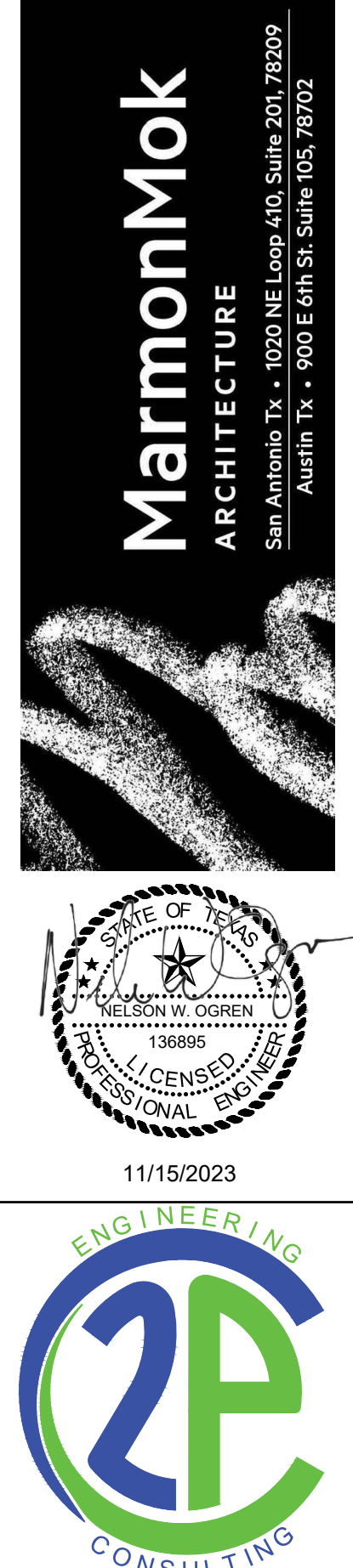
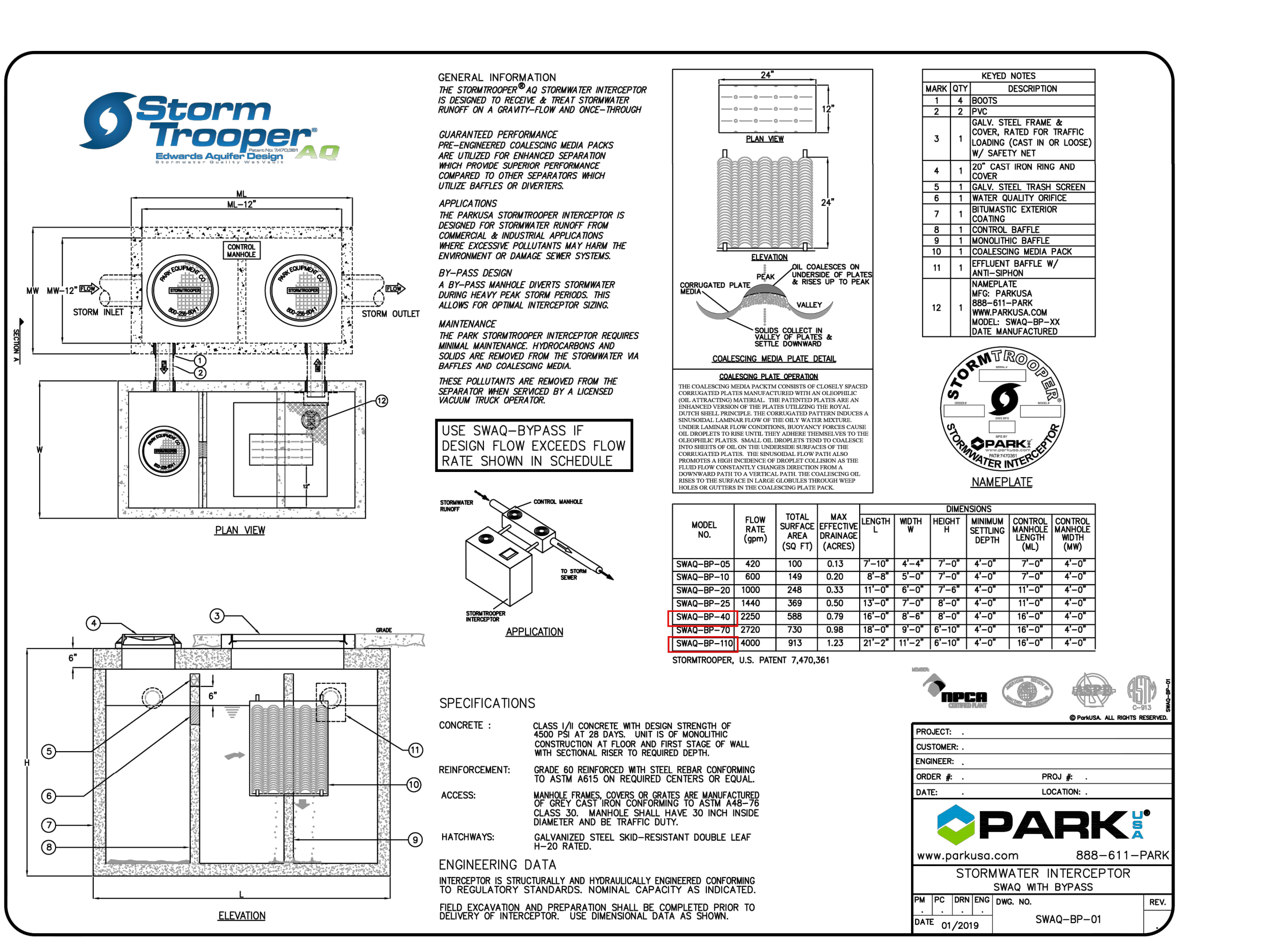
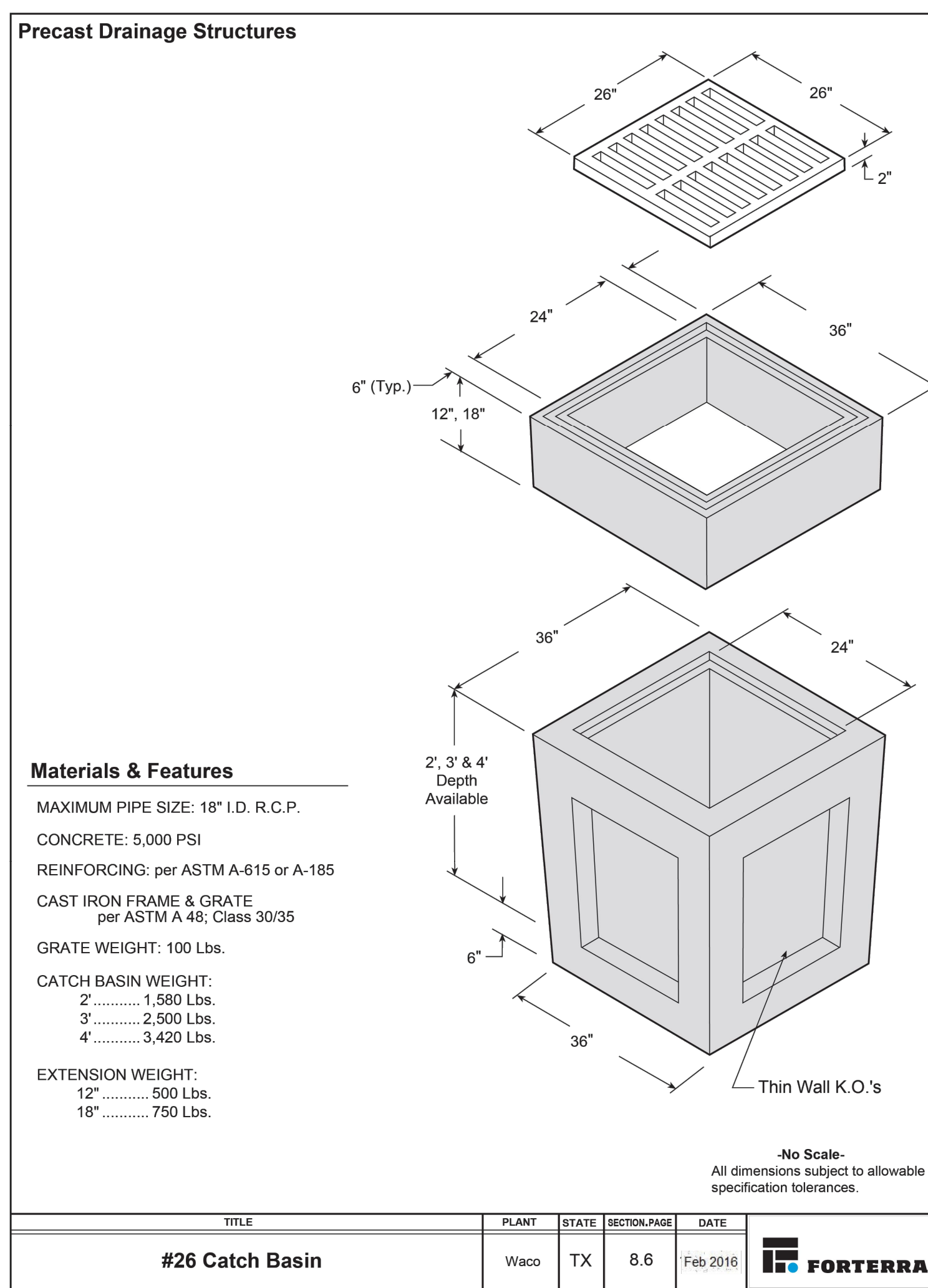
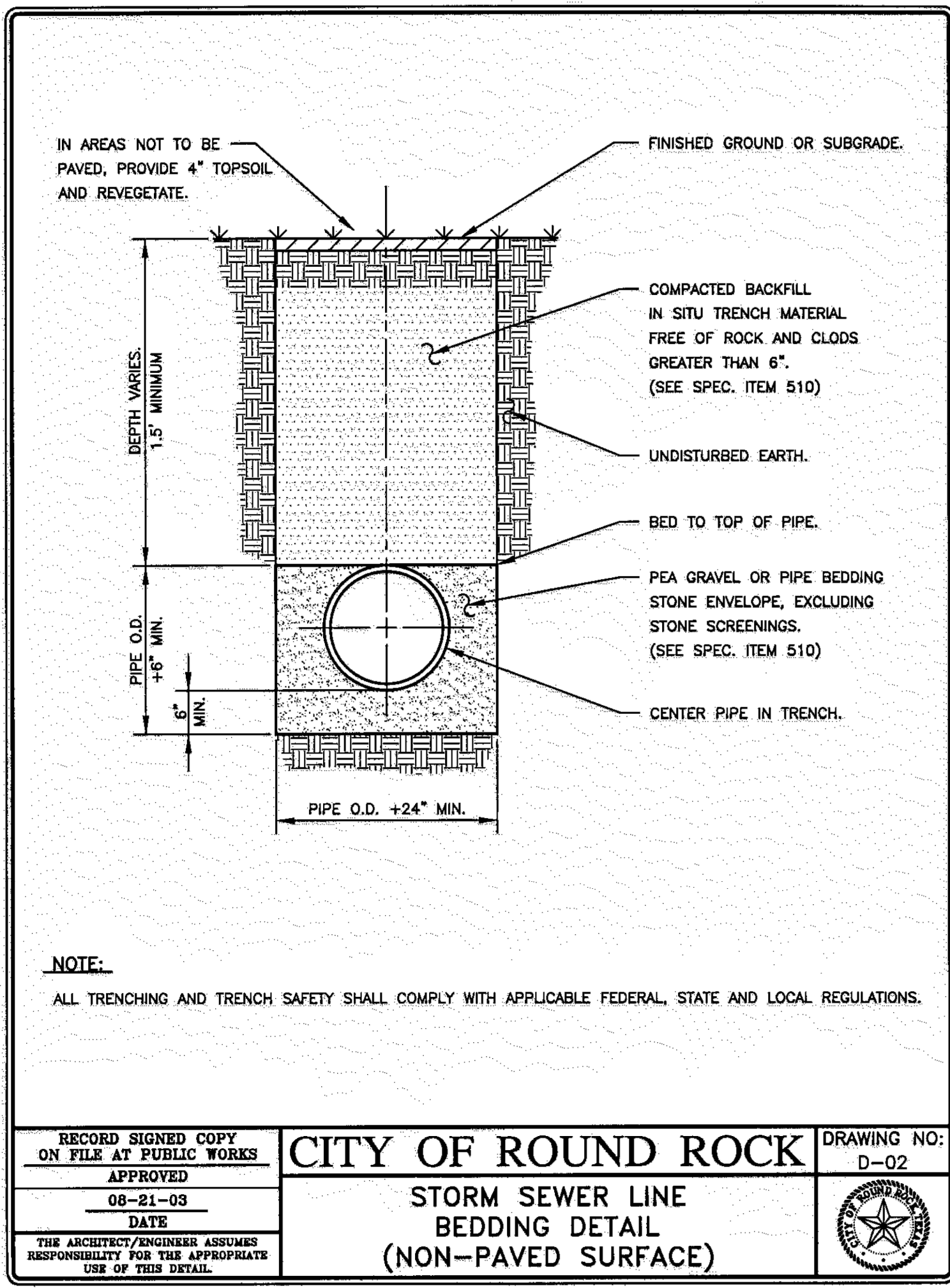
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DETENTION POND PLAN AND PROFILE

SHEET NO.

C703

SDP-23-00041

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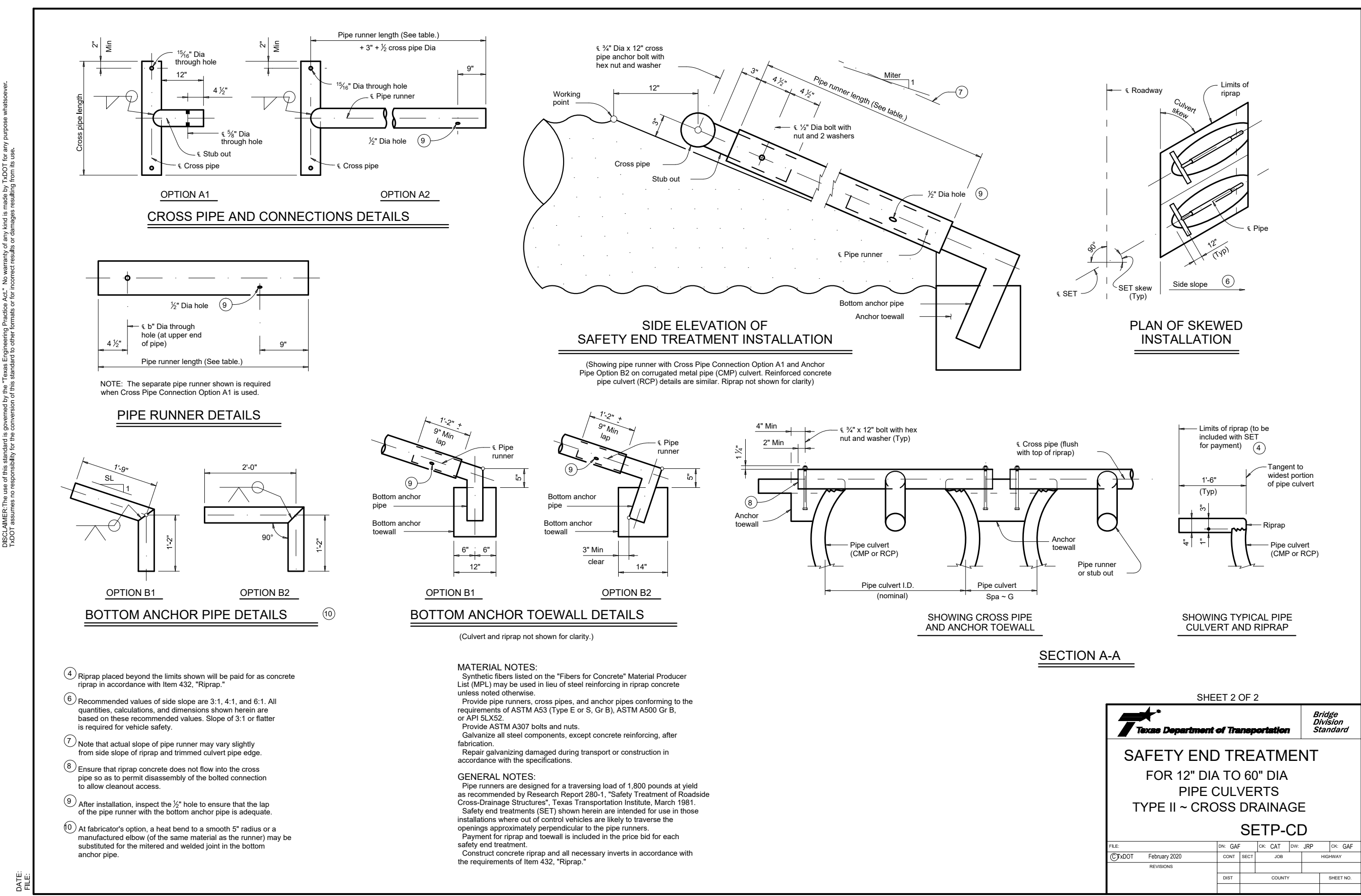
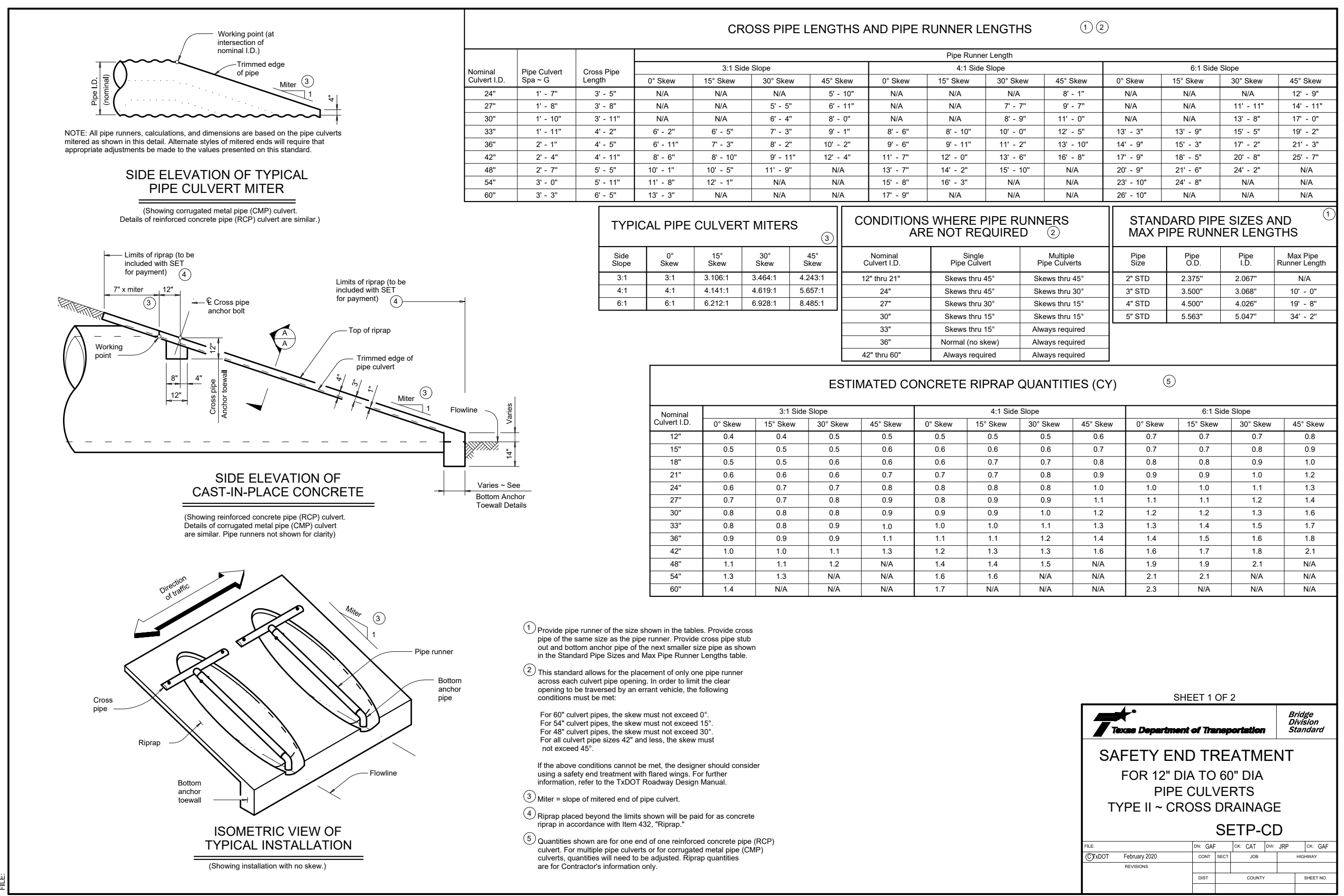
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SHEET TITLE: STORM DETAILS
SHEET NO.: SDP-23-00041
C704



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Attachment 7G – Inspection, Maintenance, Repair, and Retrofit Plan

The following are recommended maintenance procedures as outlined in TCEQ's Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices.

Storm Trooper Storm Water Interceptors:

StormTrooper® is a patented stormwater treatment system used as a best management practice to intercept free oils, grease, TSS, debris, and other pollutants commonly found in storm water runoff. StormTrooper is manufactured in Texas by ParkUSA and is third party tested by Southwest Research Institute (SwRI) in San Antonio. The generic aspects that must be considered in the maintenance plan for a StormTrooper are as follows, **Inspection schedule:**

A preventative maintenance cleanout schedule is the most valuable tool for maintaining the proper operation of a Storm Trooper. Separator maintenance costs will be greatly reduced if a good housekeeping plan for the property is developed i.e., trash pickup, lawn maintenance, dumpster control, etc. Storm Trooper separators have no moving parts and no filter cartridges. The manufacturer recommends quarterly ongoing inspections for accumulated pollutants. Pollutant deposition may vary from year to year. Quarterly inspections ensure that the system is serviced at the appropriate times. Table 1 lists recommended maximum capacities of oil and sediment. Professional vacuum services should be considered when capacities exceed these recommended levels. It is very useful to keep a record of each inspection.

Model Number	Oil Depth	Sediment Depth
SWAQ-05	12"	12"
SWAQ-10	12"	12"
SWAQ-20	12"	12"
SWAQ-25	12"	12"
SWAQ-40	12"	12"
SWAQ-70	12"	12"
SWAQ-110	12"	12"

Inspection procedures:

1. Easiest observation and maintenance is best accomplished during non-flow (dry weather) conditions 3-4 days after the most recent rain.
2. Remove interceptor covers or open hatchway to observe conditions. Remove hatchway safety net ("EnterNet"). Observe for trash and debris and remove if necessary. This is the most important maintenance requirement. If absorbent pillows are utilized, observe their condition. The uniform browning or gray color of the pillow means they should be replaced. Observe baffle debris screen and clean if necessary.
3. Coalescing plates are self-cleaning and seldom require maintenance unless damaged. Do not walk on or stand on plate packs. Call ParkUSA (888-611- PARK) for replacement parts.
4. Check the depth (level) of oil and sediment with a tank sampler device designed for this purpose.

Maintenance procedures:

Park Environmental Equipment, manufacturers of Stormtroopers, recommends that a professional pumping contractor licensed to remove and dispose of waste from underground utilities be used to pump out the interceptor. Pull all manhole covers. Be sure all sections of the interceptor are clean.

If a control/bypass manhole is part of the system, it should be inspected and serviced with the interceptor.

If the coalescing media option is utilized, visually inspect the plates for any heavy build-up of oil, grease or sludge. Typically, the plates are self-cleaning and require little maintenance. If buildup of material is evident, either remove the media from the frame or clean the plate pack in place. Removing media is accomplished by attaching a lifting device in the lifting lug provided (top center of the frame), and then pull straight up. Media plates may be cleaned in place with a special steam cleaning nozzle attachment that provides a flat spray. **Facet's MPak® plates are designed to be cleaned in place using a special cleaning wand and city water pressure.** The wand has a connection just like an ordinary garden hose and is equipped with a small conical strainer in the connection so that solids in the inlet water will not clog the cleaning holes. For cleaning in place, connect a pressure water hose (at least 60 psi) to the special cleaning wand. Provide a vacuum truck (or other means of disposing of the sludge and dirt) in the vessel. Turn on the water to produce a spray from the wand and insert the tip of the wand slowly into each hole of the plate pack, starting at the upstream end. As the water flushes the dirt out of the plate packs, it should be removed by the vacuum hose or directed to a water sewer if one is available. For cleaning outside of the vessel, remove the plate packs and other internals (except bolted-in internals). Flush with hose and cleaning wand to oil water drain. Typically, the vacuum truck will skim off the oil and other floatable solids. In most geographic areas the sediment can be disposed of in a sanitary landfill once dewatered. Pollutants are not allowed to be discharged back into the sanitary or storm sewer systems. After cleaning via vacuum truck, pumping contractor can refill the Stormtrooper with water previously drawn out of unit, or haul water to disposal facility and let natural rainfall recharge the unit during future rain events. Replace manhole covers. After cleanout is accomplished, obtain a copy of the service truck manifest. Update the Stormtrooper Monitoring/Maintenance Report and attach a copy of the manifest to the report.

Repair and retrofit plan:

Coalescing plates are self-cleaning and seldom require maintenance unless damaged. Do not walk or stand on plate packs. Call ParkUSA (210-227-7275) for replacement parts. If a retrofit plan is required, please contact ParkUSA (210-227-7275) for assistance.

Record Keeping:

Records of all inspections and maintenance for the facility shall be recorded and maintained for the water quality facility beginning at startup of the facility. Record keeping shall be detailed to provide type of maintenance or repair made, date of the service, and detail of the extent of the maintenance or repair. The owner or responsible party of the facility is responsible for maintaining the facility as outlined in this plan until such time as another entity assumes responsibility in writing or ownership of the property is transferred. A copy of the transfer of ownership or responsibility must be filed with the Executive Director of TCEQ within 30 days of the transfer.

Extended Detention Basin:

Extended detention basins have moderate to high maintenance requirements, depending on the extent to which future maintenance needs are anticipated during the design stage. Responsibilities for both routine and non-routine maintenance tasks need to be clearly understood and enforced. If regular maintenance and inspections are not undertaken, the basin will not achieve its intended purposes. There are many factors that may affect the basin's operation and that should be periodically checked. These factors can include mowing, control of pond vegetation, removal of accumulated bottom sediments, removal of debris from all inflow and outflow structures, unclogging of orifice perforations, and the upkeep of all physical structures that are within the detention pond area. One should conduct periodic inspections and after each significant storm. Remove floatable solids and correct

erosion problems in the pond slopes and bottom. Pay particular attention to the outlet control perforations for signs of clogging. If the orifices are clogged, remove sediment and other debris. The generic aspects that must be considered in the maintenance plan for a detention facility are as follows,

Inspections:

Basins should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the pond is meeting the target detention times. In particular, the extended detention control device should be regularly inspected for evidence of clogging, or conversely, for too rapid a release. If the design drawdown times are exceeded by more than 24 hours, then repairs should be scheduled immediately. The upper stage pilot channel, if any, and its flow path to the lower stage should be checked for erosion problems. During each inspection, erosion areas inside and downstream of the BMP should be identified and repaired or revegetated immediately.

Mowing:

The upper stage, side slopes, embankment, and emergency spillway of an extended detention basin must be mowed regularly to discourage woody growth and control weeds. Grass areas in and around basins should be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. When mowing grass is performed, a mulching mower should be used, or grass clippings should be caught and removed.

Litter and Debris Removal:

Debris and litter will accumulate near the extended detention control device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the control device or riser.

Erosion Control:

The pond side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion, although this should not occur often if the soil is properly compacted during construction. Regarding and revegetation may be required to correct the problems. Similarly, the channel connecting an upper stage with a lower stage may periodically need to be replaced or repaired.

Nuisance Control:

Standing water (not desired in an extended detention basin) or soggy conditions within the lower stage of the basin can create nuisance conditions for nearby residents. Odors, mosquitoes, weeds, and litter are all occasionally perceived to be problems. Most of these problems are generally a sign that regular inspections and maintenance are not being performed (e.g., mowing, debris removal, clearing the outlet control device).




Structural Repairs and Replacement.

With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. These repairs should include patching of cracked concrete, sealing of voids, and removal of vegetation from cracks and joints. The various inlet/outlet and riser works in a basin will eventually deteriorate and must be replaced. Public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 yr., whereas reinforced concrete barrels and risers may last from 50 to 75 yr.

Sediment Removal.

When properly designed, dry extended detention basins will accumulate quantities of sediment over time. Sediment accumulation is a serious maintenance concern in extended detention dry ponds for several reasons.

First, the sediment gradually reduces available stormwater management storage capacity within the basin. Second, unlike wet extended detention basins (which have a permanent pool to conceal deposited sediments), sediment accumulation can make dry extended detention basins very unsightly. Third, and perhaps most importantly, sediment tends to accumulate around the control device. Sediment deposition increases the risk that the orifice will become clogged, and gradually reduces storage capacity reserved for pollutant removal. Sediment can also be resuspended if allowed to accumulate over time and escape through the hydraulic control to downstream channels and streams. For these reasons, accumulated sediment needs to be removed from the lower stage when sediment buildup fills 20% of the volume of the basin or at least every 10 years.

	
Owner's Signature	Date
	11/15/2023
Engineer's Signature	Date



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 7H – Pilot-Scale Field Testing Plan

TCEQ's Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices was used to design permanent BMPs and measures for this site.

This section is not applicable to this project.



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Attachment 7I – Measures for Minimizing Surface Stream Contamination

The BMPs proposed to reduce pollutants in surface streams are presented with detailed explanations in Attachment 5B: “Volume and Character of Stormwater” and Attachment 7C: “BMPs for Onsite Stormwater.”



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512-344-9664
TBPE FIRM #F-19351

Attachment 7J – TCEQ TSS Removal Calculations

See attached TCEQ TSS Removal Calculations.

Texas Commission on Environmental Quality

TSS Required Load Reduction Calculations

Site Data

County = Williamson

Project Name: Round Rock Sports Center Expansion
 Project Location: Round Rock, TX
 Date Prepared: 11/22/2023
 Prepared By: Nelson W. Ogren

Stormwater Quality Structure = StormTrooper AQ
 Total Site Area = 22.62 AC
 Predevelopment impervious area = 9.71 AC
 Post-development impervious area = 12.51 AC
 Post-development impervious fraction = 55%
 P = 32 Inches

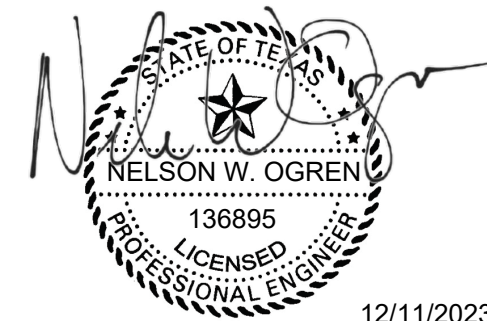
Lm = 10601.10 lbs **Total Project Required Removal**

Where: Lm = 27.2(AN x P)
 Lm = Required TSS Removal
 An = Net increase in impervious are for site
 P = Average annual precipitation, inches

STORMTROOPER			
Model	S.A.	By-Pass	E.A. @ 80%
5	100	420	< 0.13
10	149	600	0.14 - 0.20
20	248	1000	0.21 - 0.33
25	369	1440	0.34 - 0.50
40	588	2250	0.51 - 0.79
70	730	2720	0.80 - 0.98
110	913	4000	0.99 - 1.23

Drainage Basin	Area	Total Area	Impervious Area	Impervious Area	Runoff Coeff (C)	Pervious Area	Runoff Coeff (C)	Composite Runoff Coeff	Effective Area	Intensity (I)	Calculated Flow (Q)	Required Pollutant Removal	Storm Trooper Name	Storm Trooper Model	Unit Surface Area	By-Pass Flowrate	Intensity Treated	Fraction of Flow Treated	F/0.9	Overflow Rate (ft/s)	Removal Efficiency	Actual Efficiency	Load Reduction
	[ID]	[AC]	[%]	[AC]		[AC]			[AC]	[IN/HR]	[CFS]	Lm in LBS		#	[SF]	[CFS]	[IN/HR]						[LBS]
PR - 1		1.18	88%	1.04	0.9	0.14	0.03	0.79	0.94	1.1	1.03	903											
PR - 2		0.86	60%	0.52	0.9	0.34	0.03	0.55	0.47	1.1	0.52	448											
PR - 3		0.99	83%	0.82	0.9	0.17	0.03	0.75	0.74	1.1	0.82	712											
PR - 4		1	37%	0.37	0.9	0.63	0.03	0.35	0.35	1.1	0.39	321											
	1	4.03	68%	2.75	0.9	1.28	0.03	0.62	2.51	1.1	2.76	2384	ST-09	110	913	8.91	1.1	0.9	1	0.0030282	69%	69%	2047
PR - 5		3.18	73%	2.31	0.9	0.87	0.03	0.66	2.11	1.1	2.32	2011											
PR - 7		0.95	100%	0.95	0.9	0	0.03	0.90	0.86	1.1	0.94	827											
	2	4.13	79%	3.26	0.9	0.87	0.03	0.72	2.96	1.1	3.26	2838	ST-10A	110	913	8.91	1.1	0.9	1	0.0035664	66%	66%	2356
PR - 6		0.71	92%	0.65	0.9	0.06	0.03	0.83	0.59	1.1	0.65	566											
PR - 10		0.15	100%	0.15	0.9	0	0.03	0.90	0.14	1.1	0.15	131											
	3	0.86	93%	0.8	0.9	0.06	0.03	0.84	0.72	1.1	0.79	696	ST-10B	25	369	3.21	1.1	0.9	1	0.0021517	74%	74%	647
PR - 8	4	1.43	100%	1.43	0.9	0	0.03	0.90	1.29	1.1	1.42	1245	ST-11	25	369	3.21	1.1	0.9	1	0.0038366	72%	72%	1124
PR - 9		0.2	100%	0.2	0.9	0	0.03	0.90	0.18	1.1	0.20	174											
PR - 12		0.24	75%	0.18	0.9	0.06	0.03	0.68	0.16	1.1	0.18	157											
PR - 13		0.15	73%	0.11	0.9	0.04	0.03	0.67	0.10	1.1	0.11	96											
PR - 14		0.17	71%	0.12	0.9	0.05	0.03	0.64	0.11	1.1	0.12	104											
	5	0.76	80%	0.61	0.9	0.15	0.03	0.73	0.55	1.1	0.61	531	ST-13	40	588	2.23	1.1	0.9	1	0.0010355	85%	85%	563
PR - 11	6	2.01	100%	2	0.9	0.01	0.03	0.90	1.80	1.1	1.98	1741	ST-12	40	588	5.01	1.1	0.9	1	0.0033679	67%	67%	1462
PR - 15	7	2.04	66%	1.34	0.9	0.7	0.03	0.60	1.23	1.1	1.35	1166	ST-14	110	913	5.01	1.1	0.9	1	0.0014783	80%	80%	1167

Total TSS Removed by BMP's Annually = 9365.70
 Lm (Required TSS Removal in lbs) = 10601.10



12/11/2023

Texas Commission on Environmental Quality
TSS Removal Calculations

AREA 2 **ST 10A**

STEP ONE: Required TSS Removal

Equation 3.3 TCEQ RG-348

$$Lm = 27.2(A_n \times P)$$

Lm = Required TSS Removal (pounds)

A_n = Net increase in Impervious Area (acres)

P = Average Annual Precipitation (inches)

Basin = 4.13 Acres
A_n = 3.26 Acres
A_p = 0.87 Acres
P = 32 inches
Lm = **2837.50** Lbs

STEP TWO: Select an Appropriate BMP

Effective Area = 2.96 Acres
StormTrooper SWAQ 110
Unit Surface Area = 913 Square Feet

Equation 3.4 TCEQ RG-348

$$Q = i(EA)$$

I = 1.1 Stormwater Quality Intensity
EA = 2.96 Effective Area
Q = 3.25611 Required Treatment Flow

Equation 3.5 TCEQ RG-348

$$Vor = Q/SA$$

Q = 3.25611 Required Treatment Flow
SA = 913 Unit Surface Area
Vor = 0.0035664 Overflow Rate

STEP THREE: Select StormTrooper BMP Efficiency from table 3 TCEQ RG-348 Section 3.4.20

Treated Intensity = 1.1 in/hr
Treatment Reduction = 1 BMP Efficiency Reduction Factor
BMP Efficiency = 65%

STEP FOUR: Calculate TSS Load Removed by BMP

Equation 3.8 TCEQ RG-348

$$Lr = (\text{BMP Efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$$

Lr = Load Removed by BMP

BMP Efficiency = TSS Removal Efficiency

A_i = Impervious Tributary Area to the BMP

A_p = Pervious Tributary Area to the BMP

A_i = 3.26 Acres
A_p = 0.87 Acres
Lr = **2355.93** Pounds

Texas Commission on Environmental Quality
TSS Removal Calculations

AREA 3 **ST 10B**

STEP ONE: Required TSS Removal

Equation 3.3 TCEQ RG-348

$$L_m = 27.2(A_n \times P)$$

L_m = Required TSS Removal (pounds)

A_n = Net increase in Impervious Area (acres)

P = Average Annual Precipitation (inches)

Basin = 0.86 Acres
A_n = 0.8 Acres
A_p = 0.06 Acres
P = 32 inches
L_m = **696.32** Lbs

STEP TWO: Select an Appropriate BMP

Effective Area = 0.72 Acres
StormTrooper SWAQ 25
Unit Surface Area = 369 Square Feet

Equation 3.4 TCEQ RG-348

$$Q = i(EA)$$

I = 1.1 Stormwater Quality Intensity
EA = 0.72 Effective Area
Q = 0.79398 Required Treatment Flow

Equation 3.5 TCEQ RG-348

$$V_{or} = Q/SA$$

Q = 0.79398 Required Treatment Flow
SA = 369 Unit Surface Area
V_{or} = 0.0021517 Overflow Rate

STEP THREE: Select StormTrooper BMP Efficiency from table 3 TCEQ RG-348 Section 3.4.20

Treated Intensity = 1.1 in/hr
Treatment Reduction = 1 BMP Efficiency Reduction Factor
BMP Efficiency = 73%

STEP FOUR: Calculate TSS Load Removed by BMP

Equation 3.8 TCEQ RG-348

$$L_r = (\text{BMP Efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$$

L_r = Load Removed by BMP

BMP Efficiency = TSS Removal Efficiency

A_i = Impervious Tributary Area to the BMP

A_p = Pervious Tributary Area to the BMP

A_i = 0.8 Acres
A_p = 0.06 Acres
L_r = **647.36** Pounds

Texas Commission on Environmental Quality
TSS Removal Calculations

AREA 5 **ST 13**

STEP ONE: Required TSS Removal

Equation 3.3 TCEQ RG-348

$$L_m = 27.2(A_n \times P)$$

L_m = Required TSS Removal (pounds)

A_n = Net increase in Impervious Area (acres)

P = Average Annual Precipitation (inches)

Basin = 0.76 Acres
A_n = 0.61 Acres
A_p = 0.15 Acres
P = 32 inches
L_m = **530.94** Lbs

STEP TWO: Select an Appropriate BMP

Effective Area = 0.55 Acres
StormTrooper SWAQ 40
Unit Surface Area = 588 Square Feet

Equation 3.4 TCEQ RG-348

$$Q = i(EA)$$

I = 1.1 Stormwater Quality Intensity
EA = 0.55 Effective Area
Q = 0.60885 Required Treatment Flow

Equation 3.5 TCEQ RG-348

$$V_{or} = Q/SA$$

Q = 0.60885 Required Treatment Flow
SA = 588 Unit Surface Area
V_{or} = 0.0010355 Overflow Rate

STEP THREE: Select StormTrooper BMP Efficiency from table 3 TCEQ RG-348 Section 3.4.20

Treated Intensity = 1.1 in/hr
Treatment Reduction = 1 BMP Efficiency Reduction Factor
BMP Efficiency = 83%

STEP FOUR: Calculate TSS Load Removed by BMP

Equation 3.8 TCEQ RG-348

$$L_r = (\text{BMP Efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$$

L_r = Load Removed by BMP

BMP Efficiency = TSS Removal Efficiency

A_i = Impervious Tributary Area to the BMP

A_p = Pervious Tributary Area to the BMP

A_i = 0.61 Acres
A_p = 0.15 Acres
L_r = **562.73** Pounds

Texas Commission on Environmental Quality
TSS Removal Calculations

AREA 7 **ST 14**

STEP ONE: Required TSS Removal

Equation 3.3 TCEQ RG-348

$$L_m = 27.2(A_n \times P)$$

L_m = Required TSS Removal (pounds)

A_n = Net increase in Impervious Area (acres)

P = Average Annual Precipitation (inches)

Basin = 2.04 Acres
A_n = 1.34 Acres
A_p = 0.7 Acres
P = 32 inches
L_m = 1166.34 Lbs

STEP TWO: Select an Appropriate BMP

Effective Area = 1.23 Acres
StormTrooper SWAQ 110
Unit Surface Area = 913 Square Feet

Equation 3.4 TCEQ RG-348

$$Q = i(EA)$$

I = 1.1 Stormwater Quality Intensity
EA = 1.23 Effective Area
Q = 1.3497 Required Treatment Flow

Equation 3.5 TCEQ RG-348

$$V_{or} = Q/SA$$

Q = 1.3497 Required Treatment Flow
SA = 913 Unit Surface Area
V_{or} = 0.0014783 Overflow Rate

STEP THREE: Select StormTrooper BMP Efficiency from table 3 TCEQ RG-348 Section 3.4.20

Treated Intensity = 1.1 in/hr
Treatment Reduction = 1 BMP Efficiency Reduction Factor
BMP Efficiency = 78%

STEP FOUR: Calculate TSS Load Removed by BMP

Equation 3.8 TCEQ RG-348

$$L_r = (\text{BMP Efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$$

L_r = Load Removed by BMP

BMP Efficiency = TSS Removal Efficiency

A_i = Impervious Tributary Area to the BMP

A_p = Pervious Tributary Area to the BMP

A_i = 1.34 Acres
A_p = 0.7 Acres
L_r = 1166.68 Pounds

Agent Authorization Form
(TCEQ-0599)

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

I Richard Will
Print Name

Business Construction Manager
Title - Owner/President/Other

of CITY OF ROUND ROCK
Corporation/Partnership/Entity Name

have authorized Nelson Ogren, P.E.
Print Name of Agent/Engineer

of 2P Consultants, LLC
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:

Richard Will
Applicant's Signature

OCT 31, 2023
Date

THE STATE OF TEXAS §

County of WILLIAMSON §

BEFORE ME, the undersigned authority, on this day personally appeared Richard Will 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 31 day of October, 2023

Leticia Hernandez
NOTARY PUBLIC

Leticia Hernandez
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: April 7, 2026



Application Fee Form
(TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Round Rock Sports Center

Regulated Entity Location: 2400 Chisholm Trail Rd, Round Rock, TX 78681

Name of Customer: City of Round Rock

Contact Person: Richard Will

Phone: 512-341-3311

Customer Reference Number (if issued): CN 600413181

Regulated Entity Reference Number (if issued): RN 102731577

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

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

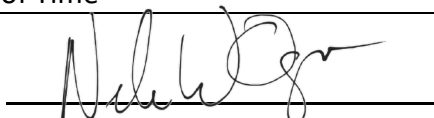
Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
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	450 L.F.	\$ 650
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: _____



Date: 11/15/2023

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

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

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150

Core Data Form
(TCEQ-10400)



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.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
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 600413181		RN 102731577

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		11/15/2023	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
City of Round Rock					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input checked="" type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:		212 Commerce Blvd			
City		Round Rock		State	TX
ZIP		78664		ZIP + 4	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				richardwill@roundrocktexas.gov	
18. Telephone Number			19. Extension or Code		20. Fax Number (if applicable)

SECTION III: Regulated Entity Information

21. General Regulated Entity Information <i>(If "New Regulated Entity" is selected, a new permit application is also required.)</i>								
<input type="checkbox"/> New Regulated Entity <input checked="" type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information								
<i>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).</i>								
22. Regulated Entity Name <i>(Enter name of the site where the regulated action is taking place.)</i>								
Round Rock Sports Center								
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>		2400 Chisholm Trail Rd						
City	Round Rock	State	TX	ZIP	78681	ZIP + 4		
24. County	Williamson							

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

25. Description to Physical Location:								
26. Nearest City			State			Nearest ZIP Code		
<i>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).</i>								
27. Latitude (N) In Decimal:			28. Longitude (W) In Decimal:					
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
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)		
7999		7999		713940		713940		
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>								
Recreational Sports Center								
34. Mailing Address:		2400 Chisholm Trail Rd						
City	Round Rock	State	TX	ZIP	78681	ZIP + 4		
35. E-Mail Address:	sportscenter@roundrocktexas.gov							
36. Telephone Number			37. Extension or Code			38. Fax Number <i>(if applicable)</i>		
(512) 341-3125						() -		

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.

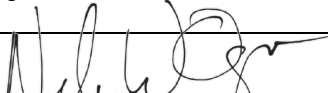
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Nelson Ogren		41. Title:	Senior Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(512) 344-9664		() -	nogren@2pconsultants.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:	2P Consultants, LLC		Job Title:	Senior Project Manager	
Name (In Print):	Nelson Ogren			Phone:	(512) 344- 9664
Signature:				Date:	11/15/2023